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Response to Comments Document

Hazardous Waste Combustors
Revised Standards
Final Rule Part I

U.S. Environmental protection Agency
Office of Solid Waste and Emergency Response (5305)
401 M Street, SW
Washington, D.C. 20460

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COMPARABLE FUELS

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COMPARABLE FUELS: BENCHMARK APPROACH

Selection of Benchmark Fuels

1. Include solid fuels in the benchmark.

CFBF1.01(commenter 086)

F. EPA Should Develop a Comparable Fuel Standard for Solid Materials.

USWAG urges EPA to develop a comparable fuel standard for solid materials. There are a number of wastes that are solid in form that could be burned effectively in electric-utility boilers and other combustion devices. The Agency's failure to include these materials in the comparable fuels exclusion unnecessarily limits the value of the exclusion. USWAG believes that the Agency could readily develop such a standard as a composite of the constituents found in both coal and liquid fossil fuels.

CFBF1.04(commenter 092)

EPA is proposing that certain wastes may be excluded from the definition of solid waste and, therefore, can not be classified as a hazardous waste. The exclusion would be based on a demonstration by the generator that the material exhibits chemical and physical characteristics similar to one of several benchmark fuels. Additionally, there are two other composite fuels that could be used as benchmarks. However, EPA has excluded coal and petroleum coke as potential benchmark fuels. EPA bases this proposal on the concept that the combustion of these comparable fuels does not pose any additional risk than the combustion of the benchmark fossil fuels. The substitution of coal or petroleum coke with a comparable fuel should be similarly treated.

CFBF1.05.a(commenter 099)

A. EPA's Proposal Does Not Accurately Reflect the Full Range of Comparable Fuels That Would Otherwise Be Utilized in Boilers and Industrial Furnaces:

The preamble to the proposed MACT rule states that the comparable fuel specification should not be based on fossil fuels that have high levels of toxic constituents that may not be destroyed or detoxified when burned.[9] As a result, solid fuels such as wood and coal were not considered in the development of the comparable fuel specification.[10] Rather, the Agency used various liquid fossil fuels (i.e., gasoline and No.2, No.4 and No.6 fuel oil) in formulating the comparable fuel specification based on the fact that such liquid fuels are widely used by industry.

However, EPA must recognize that solid fuels such as wood and coal are widely used by the industrial community in boilers or other such devices. For example, EPA's Report to Congress entitled, "Wastes from the Combustion of Coal by Electric Utility Power Plants," [11] estimates that approximately 200 million tons of coal are used by the industrial community as a fuel.[12] In addition, bark and wood waste is burned in large wood waste boilers and provide a significant portion of the energy needed to operate pulp and paper mills. Thus, by excluding such fuels in formulating the comparable fuel specification, the Agency is ignoring a host of fossil fuels that are commonly used by industry.

[Footnote 9: EPA has not defined or indicated what it considers a high level of toxic constituents.] [Footnote 10: The Agency also determined that basing the comparable fuel specification on a gas fuel (i.e., natural gas) would be overly conservative and serve very little, if any, utility to the regulated industry.] [Footnote 11: See Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants, EPA/530-SW-88-002, February 1988.] [Footnote 12: This estimate does not include the approximately 800 million tons of coal that is used by the electric utility industry as a fuel.]

CFBF1.13(commenter 112)

B. EPA should add coal to its benchmark fuels.

EPA has proposed to base its comparable fuel specification on liquid fuels, rather than solid fuels such as coal because:

> EPA does not believe, from an environmental standpoint, that the comparable fuel specification ... should be based on fossil fuels that have high levels of toxic constituents that may (or will) not be destroyed or detoxified by burning .... One would expect that solid fuels, such as coal, would have relatively high metal and possibly halogen levels .... 61 Fed. Reg. 17,462.

There is, however, no data in the record to support EPA's statement that coal, for example, has high levels of toxic constituents that may not be destroyed by burning when compared to any of the benchmark fuels. Moreover, EPA's rational for excluding coal as a benchmark contradicts the product comparison approach EPA decided to take in this rulemaking. EPA's expressed concerns about coal are based on risk-assessment factors (of which EPA makes no assessment for its benchmark fuels) and thus ignores the underlying precept of the proposed rules. Finally, coal is widely used throughout the United States and both the benefits and risks of using this material are broadly accepted. For these reasons, EPA should add coal to the fist of fuel benchmarks.

CFBF1.18.a(commenter 151)

One problem with the current approach is that it does not take into account the diversity of the comparable fuels in the market place. Comparable fuel specifications should be developed separately for liquid and solid fuels.

CFBF1.23(commenter 201)

2. The elimination of solid fuels and specifically coal from consideration as a comparable fuel benchmark does not seem justified. Coal is the fossil fuel used in the greatest quantity in this country. The combustion of coal is not treated as a hazardous waste incineration, accordingly, this fuel should be a comparable fuel against which BIF emissions such as Mayo's should be compared. Concerns about higher level of toxic constituents could be factored into a currently required pollution control technology.

<u>Response:</u>

For the final rulemaking, EPA will not include solid fossil fuels in its benchmark specification.

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EPA looked at the various solid fuels (including wood and solid fossil fuels) and chose not to include them in a specification. EPA concluded that using a liquid benchmark for comparable fuels was the quickest option to pursue from a sampling and data gathering view point. Analysis of a solid fuels to determine the benchmark levels of hazardous constituents raised a host of technical issues which could not be resolved in the time frame for this rule. For example, in the case of coal, does one analyze the levels of constituents by extraction from the coal or by pyrolizing the coal to determine what constituents are present when burned. EPA looked at wood fuels and chose not to include them in its benchmark fuels. As stated above, wood presented sampling problems that could not be addressed on a short time frame. Furthermore, based on analysis of the data available on HAP content of wood, EPA concluded that it would significantly alter the availability of the specification to the regulated community. EPA did not find much data on the direct analysis of wood (one work by Eklund on trees in Sweden near a battery plant indicates Cd level of 0.05-0.25 ppmw and Pb of 0.1-1.5 ppmw). However, a recent compilation of data by Someshwar on the composition of ash from wood-fired boilers provided estimates of the HAP concentrations of wood by assuming conservatively that during combustion, 80% by weight of dry wood volatilizes as CO_2, H_2O, etc., and 20% remains in the ash. Resulting wood HAP concentrations are compared with those of residual fuel oil and coal in Table 2. Metal HAP concentrations fell within the range of fuel oil. The level of halogens in clean wood were found between 500 and 800 ppm (see Rigo, et al). Furthermore, EPA had particular concerns about choosing solid fossil fuels as a benchmark. From an environmental standpoint, the comparable fuel specification, which would exclude a hazardous waste fuel from RCRA subtitle C regulation, should not be based on fossil fuels that have high levels of toxic constituents that will not be destroyed or detoxified by burning (e.g., metals and halogens). Solid fossil fuels (in particular, coal) can have much higher metals and halogen levels compared with liquid fossil fuels, as discussed further below. It is generally desired to minimize the feed rate of metals and halogens into waste incineration systems because these constituents are not destroyed in the incineration process (unlike organics which are destroyed, inorganics are found in the bottom ash, air pollution control system residues, or stack gas emissions).

It is not the intent of the comparable fuels exclusion to set specifications based on the “dirtiest” fossil fuels. Comparison with a solid fossil fuel could easily result in a least common denominator approach whereby a hazardous waste-derived fuel would be "comparable" if it was no more dangerous to burn than the most contaminated fossil fuels. Such "comparability" is not congruent with the overall objective of RCRA to protect human health and the environment, and also inconsistent with the specific directive to regulate combustion of hazardous waste-derived fuels where necessary to protect human health and the environment. RCRA section 3004(q). Therefore, EPA does not accept the commenter’s premise that the Agency is obliged to ignore issues of levels of contamination in determining which fossil fuels to use as a benchmark. Simply stated, EPA sees nothing in the statutory text which bounds the Agency’s discretion to consider levels of contamination in determining whether particular materials should not be classified as solid wastes. Thus, while EPA has chosen to use a benchmark rather than a risk-based approach, the Agency has chosen benchmark fuels that, in general, have lower contaminant levels for constituents that are not destroyed. (See also the comments from Dow Chemical, correctly making the point that there is an inherent distinction between hazardous constituents which are destroyed in the combustion process, and those which are not and are either emitted or deposited in residue ultimately being disposed in the environment. EPA may properly consider this distinction, and the need to maintain control over these undestroyed constituents, in establishing a specification.)

Metals and halogen concentrations in coal are compared with that of gasoline and fuel oils (Nos. 2, 4, and 6) in Table 1. For coal, median, maximum, and minimum levels are shown, based on data from a recent IEA Coal Research report (Clarke and Sloss, 1992) and Electric Power Research Institute (EPRI) PISCES database (Wetherold et al., 1995). Data for the liquid fossil fuels are given from three sources: (1) 90th percentile levels based on the recent EPA-sponsored testing specifically for developing the comparable fuels specifications are shown: (2) for No. 6 fuel oil, average levels are shown based on that from the EPRI PISCES database (Wetherold et al., 1995): and (3) for No.6 fuel oil , levels from the EPA/OSW database on hazardous waste burning combustors (including boilers and incinerators). None of the Clean Air Act metals were detected in the gasoline samples. Pb, Ni, Sb, and Se were the only metals detected in the fuel oil samples (with the metals levels generally increasing with the fuel oil number). Metals levels in coal can vary tremendously, depending on origin of the fossil fuels. The No. 6 fuel oil high-end 90th percentile levels for Pb and Ni are comparable to the average coal levels. The average coal levels for As, Ba, Co, Cr, Mn, and Pb are typically 10 to 100 times higher than that of the liquid fossil fuels. Levels of Hg and Be in fuel oils are also typically much less than that of coal. The chlorine content of coal can range widely from less than 50 to greater than 2,000 ppmw. Typically, coal has a chlorine level that can be 2 to 10 times higher than that of fuel oils. EPA also does not believe that the failure to include solid fossil fuels limits the value of the exclusion (although this not a necessary ground for decision in any case). EPA is finalizing a composite approach based on liquid fossil fuels. EPA believes that generators will be able to take advantage of the exclusion. At the same time, the exclusion will meet the overall objective of RCRA to protect human health and the environment.

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Table 1: Comparison of Concentrations of Metals in Coal and Benchmark Fuels

Constituent	Concentration (ppmw)										
	Coal[a]			Gasoline 90th %[b]	Fuel Oil No. 2 90th %[b]	Fuel Oil No. 4 90th %[b]	Fuel Oil No. 6 90th %[b]	Fuel Oil No. 6 Average[c]	Fuel Oils[e]		
	Avg.	Min.	Max.						Avg.	Min.	Max.
Antimony	1	0.05	10	< 7	< 6	< 11	6.5	0.2			
Arsenic	10	0.5	80	< 0.14	< 0.12	< 0.2	< 0.2	0.3	0.1		
Barium	200	20	1000	< 14	< 12	< 23	< 20	NA	0.3		
Beryllium	2	0.1	15	< 0.7	< 0.6	< 1.2	< 1	0.2	0.1		
Cadmium	0.5	0.1	3	< 0.7	< 0.6	< 1.2	< 1	0.3	0.5		
Chromium	20	0.5	60	< 1.4	< 1.2	< 2.3	< 2	0.7	0.5		
Cobalt	5	0.5	30	< 2.8	< 2.4	< 4.6	< 4.1	2			
Lead	40	2	80	< 7	6.6	9.9	30	2.6			
Manganese	70	5	300	< 0.7	< 0.6	< 1.2	< 1	0.2			
Mercury	0.1	0.02	1	< 0.1	< 0.1	< 0.2	< 0.2	0.03	< 0.1		
Nickel	20	0.5	50	< 2.8	< 2.4	16	36	31			
Selenium	1	0.2	10	< 0.14	0.07	0.13	0.12	0.2			
Silver	0.1	0.02	2	< 1.4	< 1.2	< 2.3	< 2	NA			
Thallium	< 1			< 14	< 12	< 23	< 20	NA			
Chlorine	1000	50	2000	< 25d	< 25d	< 10d	< 10d	36	500	50	3000
Fluorine	150	20	500	NM	NM	NM	NM	NA			

a Source: Clarke and Sloss (1992)
b Source: EPA (1996)
c Source: Wetherold et al. (1995)
d Organic chlorine only
e From hazardous waste burning combustors
NM: Not measured
NA: Not reported

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Table 2. Comparison of HAP Constituents in Wood, Residual Fuel Oil, and Coal

HAP	Concentration (ppmw)						
	Wood			Fuel Oil No. 6 90th%	Coal		
	Avg.	Min.	Max.		Avg.	Min.	Max.
Arsenic	2	0.6	12.8	<0.2	10	0.5	80
Cadmium	0.72	0	4.2	<1	0.5	0.1	3
Chromium	6	0.6	26	<2	20	0.5	60
Cobalt	1.8	0.1	4	<4.1	5	0.5	30
Lead	12.4	4.4	44	30	40	2	80
Nickel	3.2	0	19.4	36	20	0.5	50
Selenium	0	0	0.008	0.12	1	0.2	10

2. Clarify that benchmark levels apply to hazardous waste only.

CFBF1.02(commenter 086)

G. USWAG Requests that the Agency Clarify that the Proposed Benchmark Levels Apply Only to Hazardous Wastes.

USWAG requests that the Agency state specifically in promulgating the final rule that the benchmark levels apply only to hazardous wastes claiming exclusion as comparable fuels and are not intended to establish standards for the combustion of other solid wastes. While USWAG believes that this is clearly the Agency's intent, we are concerned that without a clear statement by the Agency, States and other regulators could perceive these standards as applicable to the combustion of solid wastes or even to the combustion of fossil fuels. To avoid any such confusion, USWAG requests that the Agency clearly state that these benchmarks are applicable only to the combustion of hazardous waste.

CFBF1.18.b(commenter 151)

It should also be made clear that any sampling and analysis requirements are for the comparable fuels only, and are not required of any commercial fuels.

Response:

In today's rule, EPA is excluding from the definition of solid waste (§261.4), hazardous waste-derived fuels that meet specification levels comparable to fossil fuels for concentrations of toxic constituents and physical properties that affect burning. The exclusion applies only to the combustion of hazardous-waste derived fuels and not to the combustion of solid wastes or fossil fuels, which are not RCRA-regulated.

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3. Sample size of the fuels analyzed is inappropriate.

CFBF1.03(commenter 088)
VII. API Questions Using the "Benchmark" Approach to Define Hazardous Air Pollutants in Comparable Fossil Fuel
EPA proposes to establish a benchmark fossil fuel and use it as the basis for the comparable fuel specification.[29] API questions this approach due to the limited sample size of the fuels EPA analyzed. EPA obtained a total of 27 fossil fuel samples: 8 gasoline, 11 No. 2 fuel oil, 1 No. 4 fuel oil, and 7 No. 6 fuel oil. This universe is simply too limited to serve as the basis for establishing a benchmark. Commercially available fossil fuels are extremely diverse and include gases (e.g., propane), liquids (e.g. gasoline), and solids (e.g., coke). API believes that if EPA pursues this approach, it must ensure that its universe of samples more accurately reflects this wide variation. A total of 27 samples does not do so and is insufficient.
[Footnote 29: 61 Fed. Reg. 17462.]

CFBF1.15(commenter 128)
2. EPA's "benchmark" fuel is inadequately defined. The sample database used to characterize it is too small.
CMA strongly supports the range of benchmarks that EPA has proposed, and urges EPA to finalize all of them (gasoline, No. 2, No. 4, No. 6 and composite), since each offers unique combinations of exemption levels Any one of them is the same as one or more liquid fossil fuels that could be burned without Subtitle C regulation, and so all of them are equally justified. First, however, EPA must substantially revise these benchmarks to make them statistically defensible. The criteria used to determine the proposed specifications, as explained in the draft of US EPA ' document Technical Support Document for Development of a Comparable Fuel Exemption" are ad hoc, arbitrary and not based on sound statistical analysis. In section 1.2 paragraph 1 the document states that "Therefore, it was decided that the comparable fuel exclusion should be based on liquid fuels." However, beyond this statement no operational definition of a 'benchmark" fuel is explicitly stated. Instead, the document 'backs into" an implicit definition based on the availability of certain liquid fuels for analysis. A valid operational definition might be the 90th percentile of the level of a given constituent X found 'm fuels A, B, C, and D as they are currently used in the United States. If such an operational definition were given, then two things would obtain. First, interested parties could honestly debate the merits of the definition. Second, appropriate sampling and statistical methods could be applied to arrive at scientifically sound limits. In this hypothetical case stratified random sampling of the fuels, with at least 20 samples per fuel, along with estimates of the relative proportions of fuel use or production would be used to estimate the 90th percentile of X in the population comprising fuels A, B, C, and D. Confidence limits on the 90th percentile would reveal the precision or validity of the estimates. The sample sizes in the draft document are too small to allow calculation of non-parametric 95% confidence limits on the 90th percentile, even when there are no non-detects. For instance, lead has no non-detects for Fuel No. 2, n=ll and Fuel No. 6, n=7. Using methods in Nelson (1982) and

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Hahn and Meeker (1991) the interval on the 90th percentile with the largest confidence for both these fuels is one with the limits equal to the smallest and largest values. For Fuel No. 2 the interval is (0.05,9.98 mg/kg at 10,000 BTU/lb.) and for Fuel No. 6 the interval is (17.11,31.11 mg/kg at 10,000 BTU/lb.). The confidence level for the intervals are respectively 69% and 52% To achieve a 95% confidence level on an interval about the 90th percentile at least 35 samples are needed (Hahn and Meeker, 1991). If it is assumed that the data are normally distributed, the 95% confidence intervals on the 90th percentile for Fuel No. 2 and Fuel No. 6 are respectively (6.25, 10.54 mg/kg at 10,000 BTU/lb.) and (25-67,40-48 mg/kg at 10,000 BTU/lb.) (Nelson, 1982 and Hahn and Meeker, 1991). However, as the authors of the draft point out, there is not enough data to assess normality. When non-detects are present the precision and validity of confidence limits on distribution percentiles is extremely sensitive to sample size. Due to the nature of censoring in this study, the intervals must be estimated using maximum likelihood (Nelson, 1982). With small sample sizes maximum likelihood estimates are unreliable. The composite fuel weighting method would be legitimate if an fuels had approximately the same number of samples. In this case, because there is only one sample of No. 4 fuel oil, it receives too much weight given the small sample size and consequent low precision.

CFFS6.13(commenter 178)

As indicated above, we believe the benchmark fuels approach is technically flawed and of limited utility for the following reasons:

1. The limited sampling conducted by the EPA to justify the benchmark approach is not representative of fuels in commerce.
2. Under the 50th and 90th percentile approach, virtually all fuels are arbitrarily eliminated.

CFSA2(commenter 191)

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The Agency could have easily acquired sufficient samples of each fuel type to provide a statistically stable data set. The fact that the Agency obtained only 27 fossil fuel samples does not warrant the statistical manipulations employed. A larger sample population would provide a more realistic data set. The Agency should resample the fossil fuel universe and generate a more complete data set.

Response:

EPA believes that its sample size of the fuels analyzed is appropriate. To calculate benchmark specifications, EPA obtained 27 fossil fuel samples, comprised of eight gasoline, eleven No. 2, one No. 4, and seven No. 6 fuel oil samples. EPA collected representative samples from the end users of conventional liquid fuels from various geographic locations around the country (see Technical Support Document for sample locations). To account for the smaller sample size, EPA initially used a nonparametric rank order statistical approach to analyze the fuel data. Rank order involved ordering the data for each constituent from lowest to highest concentration, assigning each data point a percentile value from lowest to highest percentile, respectively. Results were then calculated from the data percentiles. Because there were different numbers of samples for each fuel type, EPA was concerned that the fuel with the largest number of samples would dominate the composite database. To address this issue, EPA's statistical analysis "normalized" the number of samples, i.e., treats each fuel type in the composite equally without regard to the number of samples taken. See Kennecott v. EPA, 780 F.2d 445, 457 (4th Cir. 1985) (upholding this statistical methodology). The fuel samples were weighted equally because this weighting reflects the fact that benchmark fuels can be used interchangeably in stationary combustion units. However, when the individual fuel samples were compared to the benchmark specifications, EPA found that at the 50th percentile none of the virgin fuel samples met the specification and at the 90th percentile composite only 40 percent met the specification. It was EPA’s goal to base the comparable fuel specifications on the 99th percentile, a level near which 90 percent of EPA’s individual fuel samples would meet the specification. However, the size of the data base precluded the calculating of the 99th percentile constituent specification. Therefore, in this case, the Agency used the largest measured value to calculate the upper percentile. [In the future, EPA may choose alternative methods of evaluating any new data that may be submitted suggesting that these specifications need to be modified.] EPA believes that the composite analysis represents a reasonable upper bound of what is found in all fuels capturing varability both with each fuel category and in the case of the composite approach, between categories. Thus, the use of the composite at the largest value is an appropriate approach that provides a reasonable upper bound that is useable in practice. EPA does not agree that its sample data is unrepresentative of liquid fossil fuels. At the time of the proposal, EPA asked for additional benchmark fuel data. EPA received some fossil fuel data from commenters. However, EPA was unable to include this data because it did not meet EPA data quality objectives. (See later comment responses that specifically address concerns with commenters’ data.) Based on data received, EPA has no data to contradict the representativeness of EPA’s benchmark fuel data. Furthermore, EPA's choice of benchmark fuels do not limit the value of the exclusion. The fuels chosen for the benchmark are widely-used commercial fuels. EPA did not include solid fossil fuels in its benchmark specification because of concerns about metals and halogens (see comment response above for further discussion). In addition, EPA is not including a gas fossil fuel in its benchmark specification. Basing the comparable fuel specification on a gas fossil fuel would be overly conservative and have no utility to the regulated industry. Liquid fossil fuels, on the other hand, are widely used by industry, readily combusted, and do not present the inconsistencies of solid or gaseous fossil fuels.

4. Use of solid fuels to identify some of the specifications

CFBF1.05.b(commenter 099)

The effect of this decision, in fact, could increase the amount of pollutants that are emitted into the atmosphere, including criteria pollutants and products of incomplete combustion (PIC) and thus, create a perverse effect. For example, a generator that produces a material that would not meet the proposed comparable fuel specification because of its halogen

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content, but contains halogens at much lower levels than found in coal or wood, would likely burn coal or wood rather than the hazardous waste.[13] Does the Agency believe it is better for the environment to burn coal or wood that contains higher concentrations of halogens than hazardous waste that contains lower levels of halogens? Dow thinks not. In fact, this result is contrary to the Agency's goal of reducing the level of pollutants into the environment. We understand that the Agency may have concerns with considering solid fossil fuels in establishing the comparable fuel specification because of their higher toxic metals levels. However, Dow does not believe that such fuels need be considered in developing the comparable fuel specification for toxic metals. In fact, Dow believes that there is a distinction between organic constituents, including halogens and toxic metals: the organic constituents are sufficiently destroyed in boilers and other such devices so as not to present a risk to human health and the environment,[14] whereas the toxic metals are not destroyed, but must be physically removed from the combustion device and disposed of in the environment. Thus, in order to minimize the amount of toxic metals that are disposed of into the environment, Dow would support a specification for toxic metals that would not be based on solid fossil fuels. Consequently, Dow would urge the Agency to consider solid fuels, such as wood or coal in the development of the comparable fuel specification, particularly with respect to halogens. In recommending this, Dow is not asking EPA to consider the absolute content of these contaminants in coal or wood, but rather to consider these other fuel sources and factor them in making a balanced policy decision about what level of these other contaminants (i.e., halogens) in comparable fuels is acceptable. This in fact is consistent with EPA's goal in the development of a comparable fuel specification -- to develop a specification of use to the regulated community, while assuring that an excluded waste is similar in composition to commercially available fuel that poses no greater risk than burning fossil fuel. (See 61 FR 17459, April 19, 1996.)
[Footnote 13: The level of halogen in bituminous coal is typically as high as 5,000 ppm (see Revised CMA Proposal for Clean Waste Fuels Exemption to RCRA, dated March 15, 1996 and contained in the RCRA docket for the proposed hazardous waste combustion MACT rule), while the level of halogen in wood is between 500 and 800 ppm, assuming the wood has not been treated with preservatives (see "The Relationship Between Chlorine in Waste Streams and Dioxin Emissions From Waste Combustion Stacks," (CRDR, Vol. 36, date December 1995).)] [Footnote 14: The preamble to the comparable fuel exclusion states that, "Metals and halogens are not destroyed in the combustion process and as a result can lead to increases in HAP emissions,..." (See 61 FR 17462, April 19, 1996.) Dow disagrees with EPA's conclusion that increases in HAP emissions occur when halogens are burned, especially when the levels of halogen are relatively low.]

<u>Response:</u>
EPA has not included solid fossil fuels such as coal in its benchmark specification because they have relatively higher metal and possibly halogen levels than liquid fossil fuels. In fact, EPA has chosen not to pursue the use of any solid fuels in its benchmark (see comment above for further discussion). EPA agrees with the commenter's conclusion of not including solid fossil fuels in the benchmark because of there higher metals content. EPA disagrees with the

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commenter that we should not be concerned about the halogen content of the comparable fuel. With the increased halogen content in a comparable fuel, there is a greater likelihood of the formation of chlorinated products of incomplete combustion (PICs). Further, using solid fossil fuels to establish the total halogen specification only would depart from the comparable fuels approach. EPA has established a total halogen specification based on what was detected in EPA's benchmark fuel analysis.

EPA has established that it is using liquid fossil fuels as its benchmark and using a different fuel for the total halogen specification would be inconsistent with the comparable fuel approach. Today's rule is consistent with EPA's goal to develop a comparable fuel specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to representative commercially available fuel and therefore poses no greater risk than burning fossil fuel. Accordingly, EPA is using a "benchmark approach" to identify a specification that would ensure that consistent concentrations and physical properties of excluded waste are comparable to those of fossil fuels.

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5. <u>Support not including solid fuels in benchmark.</u>

CFBF1.06(commenter 106)

ENSCO supports and applauds EPA's decision on page 17462/1 not to use solid fossil fuels like coal as a benchmark for the comparable fuel exclusion. We concur that coal has much higher levels of metals, and other constituents that are not destroyed by burning. We agree with EPA's additional basis for not using coal, as described in response to OMB's question 9 in Docket Document # RCSP-SO179. We concur with limiting the basis of the comparable fuel specification to No. 2, 4 and 6 Fuel Oil.

CFBF1.16(commenter 130)

The ETC supports and applauds EPA's decision (page 17462/1) not to use solid fossil fuels like coal as a benchmark for the comparable fuel exclusion. We concur that coal has much higher levels of metals and other constituents that are not destroyed by burning. We agree with EPA's additional basis for not using coal as described in response to OMB's question 9 in Docket No. RCSP-S0179. We concur with limiting the basis of the comparable fuel specification to No. 2, 4 and 6 Fuel Oil.

<u>Response:</u>

EPA agrees with the commenters.

6. <u>Do not support the inclusion of gasoline in the benchmark.</u>

CFBF1.07(commenter 106)

We do not support the use of gasoline for setting comparable fuel specifications, as this fuel

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is not typically utilized in industrial boilers and furnaces. Gasoline is typically limited in use to internal combustion engines, and ENSCO does not anticipate that industry or individuals will utilize hazardous waste in automobiles, trucks and buses. It is not a good environmental policy to encourage such widespread use of hazardous waste, even if it does meet a comparable fuel specification. Therefore, gasoline characteristics should not be used in the specification for a comparable waste fuel. This should be limited only to fossil fuel oils. In addition if gasoline is eliminated from the comparable fuel specification, then many of the analytical issues encountered unique to gasoline would be eliminated (see page 17462). Also, from a fire protection view point, EPA would not be encouraging the use of low flash point materials in storage and burning units not meeting NFPA and Fire Protection Code requirements.

CFBF1.17(commenter 130)
We do not support the use of gasoline for setting comparable fuel specifications, as this fuel is not typically utilized in industrial boilers and furnaces. Gasoline is typically limited in use to internal combustion engines, and ETC does not anticipate that industry or individuals will utilize hazardous waste in automobiles, trucks and buses. It is not a good environmental policy to encourage such widespread use of hazardous waste, even if it does meet a comparable fuel specification. In addition, if gasoline is eliminated from the comparable fuel specification, then many of the analytical issues encountered unique to gasoline would be eliminated (see page 17462). Also, from a fire protection view point, EPA should not be encouraging the use of low flash point materials in storage and burning units not meeting NFPA and Fire Protection Code requirements.

Response:
EPA disagrees that gasoline should be excluded as one of the benchmark fuels. The Agency notes that gasoline is a highly used, commercially available, liquid fuel and EPA does not believe that our selection is necessarily limited to fuel burned in boilers or industrial furnaces. EPA has chosen its benchmark fuels so that the resulting comparable fuel when substituted would have hazardous constituents lower than the fuel it replaces. However, because the comparable fuel will not be substituted for use in gasoline applications (the exclusion is restricted to air regulated stationary combustion units), the rationale for the inclusion of gasoline differs. The Agency believes that gasoline provides a reasonable upper boundary for volatile organics, which are fuel-worthy constituents. The Agency notes that unlike some solid fuels, gasoline has low concentrations of metals. When compared to lighter fuel oils (e.g., No.2 fuel oil), the gasoline specifications for only the detected volatile organics, which are readily burnable compounds.
With regard analytical problems associated with gasoline, EPA has addressed this in its statistical analysis. For the gasoline sample analysis, the resulting detection limits for volatile organic compounds were an order of magnitude higher than other fuel specifications. EPA believes analysis of comparable fuels will more likely result in detection limits much lower than gasoline and similar to those associated with analysis of fuel oils. To address this issue, EPA has performed an analysis of a fuel oil-only composite (one which does not include

gasoline in the composite) to use as a surrogate for the volatile organic gasoline non-detect values. Therefore, the volatile organic gasoline non-detect values used in the development of the composite and individual gasoline specification were based on this fuel-only composite. Furthermore, EPA disagrees that including gasoline as a benchmark fuel encourages the use of low flash point materials in storage and burning units not meeting NFPA and Fire Protection Code requirements. DOT (49 CFR Parts 171 through 180) and OSHA (29 CFR Part 1910) regulations are protective for the transportation and handling of low flashpoint material. In addition, by limiting the exclusion to units subject to Federal/Sate/local air emissions requirements, comparable fuels will be burned in units subject to OSHA requirements.

7. Tall oil should be included as a benchmark fuel.

CFBF1.08(commenter 110)

K. EPA's Elimination of Tall Oil as A Benchmark Fuel Would be Arbitrary, Capricious and an Abuse of Discretion

EPA notes that it could choose a vegetable oil-based- fuel such as "tall oil" as a benchmark fuel. However, the agency says that it has no data on concentrations of hazardous constituents in such fuels. In fact, "tall oil" is not only used in commerce as a traditional fuel, but EPA itself has recognized its comparability to fossil fuel in the RCRA/BIF context. The current BIF regulations, 40 CFR S 266.109(a) and §266.110(a), provide that a facility may qualify for the low risk waiver exemption ("LRWE") and avoid a DRE trial burn demonstration if (among other things), "a minimum of 50 percent of fuel fired to the device shall be fossil fuel, fuels derived from fossil fuel, tall oil, or, if approved by the Director on a case-by-case basis, other nonhazardous fuel with combustion characteristics comparable to fossil fuel." (emphasis added). Thus, for the past five years EPA's BIF regulations have operated on the appropriate assumption that tall oil is as clean and risk-free as fossil fuels. Nonetheless, EPA has declined to include tall oil as a benchmark fuel because, in part, it says it has "no data on concentrations of hazardous constituents . . . . 11 61 Fed. Reg. 17462. Attached to these comments as part of Exhibit A is an analytical report prepared by EFEH Laboratories concerning a sample of tall oil that is generated by one of the CCF members. (EFEH analysis of stream 6B). Also attached as part of Exhibit A and incorporated herein by reference is a description of the origin of the material in question, which establishes that it is in fact tall oil. It should be noted that (based on the enclosed analytical results) this material would meet all of the proposed EPA benchmark specifications for all parameters but for viscosity and flash point. See page 5, supra.

These analytical data corroborate the CCF's position that specifications for viscosity at 40°C and flash point would be arbitrary and capricious. For five years EPA has been on record that tall oil is essentially comparable to, and burns as cleanly as, fossil fuels. The CCF agrees. And the enclosed tall oil data -- particularly the very low levels of Appendix VIII constituents -- demonstrate that tall oil can be as clean burning as fossil fuel despite the fact that it may be more viscous (and, more flammable) than EPA's proposed specifications would allow. In

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short the important issue is not the viscosity of the material as generated, but the viscosity of the material "as fired."

EPA also has declined to propose a set of tall oil benchmark specifications in part because it is "not as widely used as commercial fuels." Yet, for five years EPA has seen fit to allow tall oil to be used as a fuel along with fossil fuels for purposes of the LRWE and DRE trial burn exemption. EPA has not adduced and cannot adduce any evidence that tall oil was more widely in use when it promulgated the original BIF regulations in 1991 than it is now. Yet EPA now proposes to eliminate the LRWE and DRE trial burn exemptions entirely and replace them with the less expansive comparable fuels exemption.[18] To eliminate tall oil from consideration as a benchmark fuel under these circumstances would be arbitrary and capricious. EPA must provide a clearly reasoned and record-supported rationale for any decision to reverse course and eliminate tall oil as a valid basis for this regulatory exemption. See,, e.g., National Coalition Against the Misuse of Pesticides v. Thomas, 809 F.2d 875, 883-84 (D.C. Cir. 1988).

[Footnote 18: EPA also proposes as part of this rulemaking to eliminate the BIF low risk waiver exemption and the similar exemption contained in the "Subpart O" regulation for hazardous waste incinerators. EPA says that the proposed comparable fuels exemption will compensate for the elimination of those exemptions. Not only has EPA failed to provide any justification for eliminating the existing exemptions, but the data submitted by the CCF indicate that the comparable fuel exemption will not provide an adequate substitute.]

GEN3.08(commenter L01)

On August 19, 1996, the Coalition for Clean Fuels submitted comments concerning the above proposed rule. Exhibit A to those comments contained results of laboratory analyses performed by an independent laboratory, EFEH & Associates. It has since come to our attention that Exhibit A as submitted to EPA does not include certain QA/QC data prepared by the laboratory in connection with those analytical reports. Accordingly, we ask that the Coalition be permitted to supplement its earlier comments with the enclosed QA/QC information, which should be considered part of Exhibit A to those earlier comments. (The QA/QC documents have been redacted in a few places, solely to preserve the anonymity of the analytical results). We believe the agency should accept the enclosed data as part of the administrative record for several reasons. The enclosed data do not introduce new arguments or issues into the proceeding, but simply provide ancillary information that corroborate the accuracy of the data already submitted. Moreover, the agency has barely begun its post-proposal deliberations on the rule; in fact, the comment period was re-opened until four days ago to take comments on other analytical issues recently raised by the agency. Accordingly, no prejudice would be caused by accepting the enclosed data as part of the record; on the contrary, including the data in the record would provide more complete information as EPA proceeds with its review of comments.

Response:

With regard to the inclusion of tall oil as a benchmark fuel, EPA agrees with the commenter. At the time of the proposal, EPA had no data on tall oil. The commenter did submit one set of data that EPA did review. EPA concluded that it was unable to use the data because it did not meet EPA data quality standards. Therefore, at this time, EPA will not include tall oil in its benchmark fuels.

The tall oil data submitted by the commenter was reviewed and determined to be not of a comparable quality to the fuel analysis that EPA performed. EPA found problems with the volatile and semi-volatile data analysis. The methods used for these analyses are standard EPA protocols for the analysis of pollutants in water, meaning the samples are very low concentration type samples. In order to analyze these samples the laboratories had to perform serial dilutions on the order of a million to one. This is usually performed using Class A pipets which are accurate to 0.05%. However, in the commenter's data, all volatile samples were analyzed using purge and trap with serial dilutions on the order which we have discussed. This error propagated out over a series of dilutions will lead to erroneous results. The data for the semi-volatiles were "extracted" according to the data. How this was accomplished is not clear since most petroleum based products are soluble in most solvents. To fully evaluate what the commenter did, EPA would need to see a write up of their actual "extraction" procedure. However, we suspect that in essence they did a dilution with a typical solvent and it left a residue behind so they stated it was an extraction. EPA own analysis was done with a laboratory that was willing to perform these analyses using direct injection to minimize the potential errors associated with large dilutions.

EPA acknowledges that tall oil is a legitimate non-waste fuel under the BIF rule low risk waiver exemption (LRWE) and DRE trial burn exemptions (56 FR 7193, February 21, 1991). EPA also agrees with the commenter that tall oil is used in commerce as a traditional fuel. EPA would have used tall oil one of its benchmark fuels it had appropriate data in time for the final rulemaking.

The commenter also pointed out that the comparable fuel exclusion did not provide any justification for the elimination of existing exemptions. In the April 19, 1996 proposal, EPA proposed to eliminate the BIF low risk waiver exemption and the similar exemption contained in the "Subpart O" regulation for hazardous waste incinerators. EPA is currently evaluating the proposal to eliminate these exemptions. This matter will be addressed at a later date and not in this final rule.

8. Limit to liquids and gasses, but use coal specification for metals and halogens.

CFBF1.09(commenter 111)

Alternatively, since coal is a common fossil fuel of cement kilns, we could endorse benchmarking to a coal specification[11] for metals and halogens, though we concur with EPA's judgment that benchmarking to a solid fossil fuel for all parameters is inappropriate. We endorse EPA's position that a comparable fuel for purposes of MACT relief should be limited to liquids and gasses. We do not see the risks of burning a comparable fuel that has been benchmarked to a coal specification for metals and halogens as any greater than burning the coal itself, and do not believe the EPA's concerns about benchmarking to a solid fossil fuel if done in this limited respect would be warranted, assuming our approach is retained to

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provide relief from the MACT combustion standards but not exclude the comparable fuel from the definition of a solid and hazardous waste. It is self evident under the above analysis that of the alternative comparable fuel specifications the EPA sets out in Tables 1-6, we would recommend Table 6 if more flexible specifications based on coal were not acceptable. [Footnote 11: Enclosed with these comments is a copy of RES's "PROPOSED TEXAS CLEAN FUEL SPECIFICATION" which is based on a statistical analysis of coal for metals and halogens (Appendix 8).]

Response:
EPA agrees with the commenter that the exclusion should be limited to liquids and gases. Using coal to establish the total halogens and metals specifications would depart from the comparable fuels approach. EPA has established a total halogen and metals specifications based on what was detected in EPA's benchmark fuel analysis. EPA has established that it is using liquid fossil fuels as its benchmark and using a different fuel for the total halogen specification would be inconsistent with the comparable fuel approach. Today's rule is consistent with EPA's goal to develop a comparable fuel specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available fuel and therefore poses no greater risk than burning representative fossil fuels. Accordingly, EPA is using a "benchmark approach" to identify a specification that would ensure that consistent concentrations and physical properties of excluded waste are comparable to those of fossil fuels.

9. Benchmark approach limits exclusion to petroleum-like fuels.

CFBF1.10(commenter 112)
III. The Comparable Fuels Exclusion is Both Necessary and Reasonable, But is Too Narrowly Focused.
AF&PA supports in principle the comparable fuel exclusion from the definition of solid waste proposed by the Agency. We agree with EPA and other members of the regulated community that the comparable fuel exclusion will "promot[e] beneficial energy recovery and resource conservation; reduc[e] ... unnecessary regulatory burden and allo[w] all parties to focus resources on higher permitting and regulatory priorities; and ... demonstrat(e] ... a common-sense approach to regulation." 61 Fed. Reg. 17,459. But the proposed exclusion is too narrowly focused and does not afford practical regulatory relief to many segments of the regulated community, including the forest products industry.
AF&PA also supports, in general, the product comparison approach EPA proposed as the basis for the comparable fuel rule. Under this approach, "if a secondary material-based fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel..." EPA has proposed to exclude that material from the definition of solid waste. 61 Fed. Reg. 17,459. This makes sense. But under the proposed rule, the "hazardous and other key constituents" of the secondary material must be identical to, not merely "comparable" to, those in benchmark petroleum based fossil fuels. This

proposed constituent-by-constituent comparison to petroleum based benchmarks does not afford constructive relief to many operators of combustion devices because it limits the exclusion to petroleum-like fuels.

Importantly, the order statistics procedure EPA used on benchmark fuel analytical data to set constituent specifications all but insures that few if any candidate fuel will be "comparable." As we show above, a candidate comparable fuel taken from the same reservoir as a benchmark fuel would, because of random variability in constituent concentration, have a 99.994% chance of "failing" a comparison to a benchmark that has - at the 50th percentile level - 14 constituents above detection limits. Similar results would occur if EPA used a 90th percentile cutoff for establishing benchmark specifications. Thus, the proposed constituent-by-constituent comparison would have little practical utility.

The proposed benchmark comparison should not, therefore, be the only means of obtaining an exclusion. EPA should also adopt alternative exclusion tests including use of total-mass approach, which we explain below, designation of non-fossil fuel benchmarks (such as vegetable-based fuels like turpentine), and performance-based exclusions like those suggested by CMA. We explain each of these alternatives in more detail below.

CFBF1.11(commenter 112)

IV. Alternative Bases for Exclusion are Necessary.

In the preamble to the proposed rule EPA explained that its "goal is to develop a comparable fuel specification which is of use to the regulated community but assures that an excluded waste is similar in composition to commercially available fuel and posses no greater risk than burning fossil fuel." 61 Fed. Reg. 17,459 (emphasis added). But the rule requires that comparable fuels be identical in composition to fossil fuels, rather -than "similar to" such fuels, because "the Agency propose [d] to limit the Appendix VIII constituents in comparable fuels to those found in the benchmark fossil fuel." 61 Fed. Reg. 17,46 1. Thus, if a candidate fuel has underlying constituents ("UCs") not found in the benchmark, regardless of concentration, the candidate would not qualify for an exclusion. Because the proposed benchmarks are petroleum-based, this approach precludes from exclusion non-petroleum candidate fuels, which necessarily contain different components from petroleum products.

The flaw in this approach is illustrated by comparing one proposed benchmark fuel to another, say gasoline to No. 2 fuel oil. Under the proposed approach commercial grade No. 2 fuel oil would not qualify for an exclusion if gasoline were selected as the benchmark, because No. 2 fuel oil contains lead and selenium, but the gasoline EPA analyzed does not. Compare Table 2 ("Detection and Detection Limit Values for a Possible No. 2 Fuel Oil Specification") to Table 1 ("Detection and Detection Limit Values for a Possible Gasoline Specification"), 61 Fed. Reg. 17,48 3, 17,48 1.

EPA proposed a composite fuel benchmark to address this anomalous result. 61 Fed. Reg. 17,463-64. But the composite fuel approach solves only part of the problem created by the constituent-by-constituent comparison approach (i.e. that related to the different mix of constituents in various liquid petroleum-based fuels). It does not address the broader issue of whether a petroleum-centric benchmark achieves EPA's objective "to provide constructive relief to the regulated community by having a comparable fuel specification that can be used

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in practice." 61 Fed. Reg. 17,463. AF&PA believes the proposed approach does not achieve this objective, because it bars all but petroleum type fuels from qualifying for an exclusion. For this reason, we urge EPA to adopt alternative bases for the comparable fuels exclusion, such as those we suggest below.

CFBF1.19(commenter 159)
IV. Comparable Byproduct Fuel Specifications Based Solely on Petroleum Fuels Limits the Environmental Benefits Achievable With This Rule Revision
To realize the potential benefits of this proposed rule, EPA must insure that all byproducts with fuel value that can be burned in an environmentally sound manner are included under the rule provisions for on-site beneficial use. The current proposal only addresses petroleum-based byproduct fuels and consequently will not achieve the full benefit potentially possible with this rulemaking.
In the preamble to the proposed rule EPA acknowledges that the current BIF requirements, in some instances, over-regulate materials that can be burned cleanly. The proposed rule addresses this issue by exempting from the definition of solid waste, certain petroleum-like materials that are burned for energy recovery and that meet specifications for toxic constituents and physical properties. In an attempt to address the risk of burning byproduct fuels, the agency compares the risk of burning byproducts to that of burning hydrocarbon fuels. This approach is sound as long as the byproduct fuels in question are similar to hydrocarbon fuels.
However, byproduct fuels with different constituents than hydrocarbon fuels are excluded from consideration under the proposed rule even though they may burn "cleaner" than hydrocarbon fuels. An excellent example of this situation is methanol. The petroleum-based reference fuel approach would exclude methanol and many other byproduct fuels which should be exempted and for which risk information exists. The preamble states that practical limitations prevent EPA under this approach from identifying multiple "reference fuels" as a means of including all appropriate byproduct materials. This limitation can be removed by adopting an alternate approach which is based on the existing criteria for hazardous waste determinations in combination with combustion operating parameters and air permitting reviews as discussed in these comments.
Many byproduct fuel constituents do not match that of petroleum-based fuels, and EPA has recognized this in the proposed rule preamble with the reference to the possible use of other reference fuels: "tall oil" and oxygenates such as methanol. This is a critical issue for the forest products industry where turpentine and condensed methanol are generated in significant quantities from processing wood. These and many other industrial byproducts can be used for energy production in on-site combustion units with an overall environmental benefit. The petroleum-based reference fuel approach unnecessarily limits byproduct use and will not relieve the inequities of the BIF regulations for many industries.

CFMISS.36(commenter 181)
A primary problem with the Agency's proposal is that many wastes produced by industry, although low hazard, contain constituents not normally found in fossil fuels. EPA's proposal

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precludes these wastes from being defined as "clean fuels."

CFG.61(commenter 192)

AF&PA's Comments

1. AF&PA's proposal does not give adequate relief for Appendix VIII substances or constituents that should be allowed to be burned as clean fuels. CMA's proposal does. As mentioned above UCC has chemical facilities that would benefit from such relief, therefore we favor CMA's.

2. AF&PA's proposed exclusion for vegetable-based substances, including turpentine, should extend to fractional components and their processing derivatives. This should be to the extent that Appendix VIII constituents are neither added nor exceed the applicable comparable fuels specification, based on generator knowledge.

CFG.73(commenter 224)

1. The Comparable Fuels Proposal, Notice, and Addendum should be peer reviewed.

The preamble to the Notice states that EPA "initiated a peer review of the proposed rule, preamble and relevant supporting background documents in three AF&PA Comparable Fuels Comments September 23, 1996 Page 2 subject areas ... [including] the technical basis of the approaches adopted by the Agency......61 Fed. Reg. 43502. But none of the peer review work covered the comparable fuels Proposal. Had EPA engaged peer reviewers to examine the comparable fuels element of the Proposal, the Agency would have discovered that it contains numerous technical flaws.

For example, the Agency reiterates in the Notice its "proposal to limit the Appendix VIII, Part 261, constituents in comparable fuels to those found in the benchmark fossil fuel." Id. As AF&PA noted in its August 19 comments, this "constituent-by-constituent" approach all but precludes non-petroleum based fuels from "comparable" status, because such fuels are necessarily composed of different constituents. See AF&PA August 19 Comments at 5-7, 11.

Response:

EPA disagrees with commenter that the comparable fuel exclusion is too narrowly focused and will not afford constructive relief. Although EPA has chosen liquid fossil fuels as its benchmark fuels, this does not limit the exclusion to petroleum-like fuels. EPA has chosen liquid fossil fuels (gasoline, No. 2, No. 4, No. 6 fuel oil) based on the fact that they are readily burnable and widely used. The exclusion applies to any candidate fuel that meets the specifications. Vegetable-based fuels like turpentine are eligible for the exclusion as long as they meet the specifications.

In addition, a comparable fuel qualifying for the exclusion does not need to be identical, but merely comparable to the benchmark fuels. EPA is promulgating a composite benchmark specification which allows a comparable fuel that is not identical to one particular fossil fuel. The composite approach allows the highs of the individual fuel specification approach. Thus, under the composite approach, a candidate comparable fuel can have relatively high levels of volatile organic compounds, like gasoline, and can have higher levels of semi-volatile organic compounds and metals, like No. 6 fuel oil. Since the composite approach, using the highest value, may represent about 90 percent of the benchmark fuel oils, the benchmark approach provides regulatory relief.

EPA disagrees with the premise that all byproducts must be excluded. It must be remembered that all materials which are subject of this rule are hazardous wastes, and that the Agency has considerable discretion as to whether to reclassify them. The benchmark approach adopted here is a prudent reclassification scheme that uses a reasonable group of fossil fuels to create the benchmark for comparison. EPA is not precluded from developing different means of exclusion for individual wastes (as done for a particular fuel generated by the paper industry), or possibly to modify the benchmark approach in the future after observing how the present rule functions in practice. The current proposal only addresses petroleum-based byproduct fuels and consequently will not achieve the full benefit potentially possible with this rulemaking. The practical limitations prevent EPA under this approach from identifying multiple “reference fuels” as a means of including all appropriate byproduct materials. However, it should be noted that off-spec methanol is not a waste when burned as a fuel, pursuant to 261.33.

10. Turpentine should be included in the benchmark.

CFG.01(commenter 080)

Regarding the use of certain kraft mill co-products and/or byproducts as "clean" fuel, this approach certainly makes far more sense than sending the material to a sewer or effluent treatment system.

I know of one kraft mill that was burning stripper overheads in a lime kiln but was directed by that state's Dept. of Environmental Quality to cease this due to their interpretation of BIF. As a result, some extremely foul material is basically being dumped into the Pacific Ocean. Burning the material produced no detectable impact on emissions. The overall negative environmental impact of the imposed alternative is certainly far worse.

An even stronger argument applies to crude sulfate turpentine which is used by some kraft mills to directly displace fossil fuel. It is clean-burning and produces no detectable impact on emissions. Sent to a water treatment system, however, would be like spilling diesel oil on the water, except with a monstrously foul odor.

In summary, EPA needs to look at the total picture regarding its impending decision on in-mill treatment of these and other streams. It makes absolutely no sense to dump these materials into the environment when highly effective incineration alternatives exist.

Finally, I urge EPA to make certain it fully understands the nature of these materials. One whiff of stripper overheads will be enough to convince anyone that we do NOT want this stuff in any landfill or water treatment system!

CFBF1.12(commenter 112)

VI. Benchmark Fuels.

A. Turpentine should be designated as a vegetable oil-based comparable fuel benchmark.

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EPA considered using vegetable oil-based fuel as a benchmark, but declined to do so because it said it had no data on concentrations of hazardous constituents in these fuels and that they are not widely used. 61 Fed. Reg. 17,462. EPA is wrong on both counts. AF&PA submitted to EPA in January, February and August, 1995 detailed analyses of hazardous constituents in kraft mill condensates a wood-derived candidate comparable fuel. Moreover, such fuels are, in fact, widely used in the forest products industry and have been used for decades.[4]

In addition, AF&PA submits with these comments analytical data developed by NCASI for Appendix VIII constituents of turpentine. These data, for five turpentine samples, are reported in spreadsheet form in Appendix A of these comments. Details about QA/QC also appear in Appendix A.[5]

Several aspects of the turpentine data are noteworthy. First, NCASI analyzed turpentine samples for 203 Appendix VIII constituents, whereas EPA analyzed its gas and fuel oil benchmark fuels for only 153 constituents. Second, NCASI was able to perform these analyses at detection limits substantially below those achieved by EPA's contract laboratory. Third, turpentine is "non-detect" for almost all of the Appendix VIII constituents. Of the 203 turpentine analytes, only four Appendix VIII constituents were detected in three of the samples and only six were detected in the remaining two samples. More Appendix VIII constituents were found by EPA in commercial fuel benchmarks, even though much higher detection limits were used in those analyses and fewer analytes were assessed.[6]

Significantly, as shown in Table I above, the total mass of Appendix VIII organics and metals plus non-detects (reported at the detection limit) are orders of magnitude below commercial gasoline, No. 2 fuel oil, and EPA's 90th percentile composite fuel benchmarks. Consequently, turpentine "outperforms" each of these EPA's benchmarks when measured against the Agency's announced regulatory goal of "ensur[ing] that the release of toxic compounds is not increased significantly by burning comparable fuels in lieu of fossil fuels." 61 Fed. Reg. 17,463: In fact, because turpentine has fewer Appendix VIII constituents than EPA's benchmark fuels, toxic constituents in the fuel feed and resultant emissions into the environment will be reduced by using turpentine. For all of these reasons, AF&PA urges EPA to designate turpentine as a vegetable-based benchmark fuel.

[Footnote 4: See, e.g., I Pulp and Paper Manufacture, Preparation & Treatment of Wood Pulp at 84 (J. Newell Stephenson ed. 1950).] [Footnote 5: AF&PA continues to believe that turpentine is a product or co-product of the pulping process, rather than a secondary material. Consequently, it may be burned as a commercial fuel without triggering RCRA Subtitle C requirements. Turpentine is one of three products manufactured by the pulping process (pulp and soap/tall oil are the other two). It is intentionally and separately produced and is used as is by both the forest products industry and other industries as a raw material for production of flavoring, fragrances, adhesives, and solvents. Turpentine, is therefore, a product. Moreover, turpentine has a high BTU value (ranging from 12,000 to 23,000, that equals or betters fuel oil, and has a lower sulfur content than fuel oil. Turpentine has, therefore, been used historically as a fuel or a fuel additive by the paper industry and other industries in the United States and abroad. Although several states and at least one U.S. EPA regions have recognized that turpentine is a product or co-product -- and have acknowledged that it may be burned in boilers or in industrial furnaces just like any other fuel -- its regulatory status is, for some regulators, unclear. AF&PA seeks designation of turpentine as a benchmark fuel to put this issue to rest.] [Footnote 6: EPA found eight Appendix VIII constituents in gasoline, ten in No. 2 fuel, and fourteen in the 90th percentile composite fuel. See Table I above.]

Response:
Although turpentine may be widely used in the forest products industry, EPA disagrees that turpentine should be included in the benchmark specification. Turpentine is not a widely used commercial fuel. There are no ASTM standards for turpentine fuel which specify the minimum properties which must be met for the product to be considered as a commercial fuel. By contrast, there are ASTM specifications for each petroleum fossil fuel used as a benchmark.

In this rulemaking, EPA is not addressing whether turpentine is co-product. EPA notes, however, that if turpentine meets the comparable fuel specifications that it will qualify as a comparable fuel. Based on the limited data submitted by the commenter (the commenter did not analyze for all the constituents EPA is establishing limits), EPA cannot determine whether turpentine meets the comparable fuels specification. Thus, EPA declines to address the question of co-product here.

11. Methanol condensate should be included in the benchmark.

CFBF1.14(commenter 112)

VII NCASI Data on Methanol Condensate Constituents.

AF&PA and NCASI representatives met with EPA officials on December 19, 1994 to discuss methanol-based "clean fuels" generated from wood by the pulp and paper industry. At that meeting, EPA senior officials and staff requested that the paper industry analyze these "clean fuels" for as many of the universal treatment standard ("UTS") constituents as possible. AF&PA and the NCASI agreed to perform the necessary sampling and analysis on an expedited schedule to meet the agency's rulemaking timetable. We confirmed our commitment in a January 6, 1995 letter to the Agency, which we enclose in Appendix B.

As we noted earlier, NCASI submitted the promised data in three installments. First, on January 24, 1995, NCASI submitted kraft-mill condensate data on metals, inorganic chloride and certain physical characteristics. Next, on February 22, 1995, NCASI submitted to the Agency the second data installment, including measured Btu content and sulfate, nitrogen, ethanol, cyanide, and volatile concentrations. Finally, on August 10, 1995, NCASI submitted to the Agency the last installment of data consisting of chemical analyses for base-neutral extractables, PCDD/F, pesticides, and PCBs. For comparison purposes, NCASI also submitted PCDD/F analyses for eight commercial gasoline samples. All of these data and related correspondence are enclosed in Appendix B.

AF&PA and NCASI anticipated that these and other data would form the basis of EPA's clean fuels or comparable fuels specifications. We were surprised, therefore, to find that the April 19, 1996 proposed rule, its preamble, and the underlying TSD did not acknowledge that these data had been submitted to the Agency, let alone assess them for use in creating a

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comparable fuel specification. We understand that EPA omitted from the record similar data submitted by other members of the regulated community. It was for this reason, among others, that EPA extended the comment period for this rule from June 18, 1996 to August 19, 1996. 61 Fed. Reg. 27,038-39 ("as justification for a time extension ... [EPA recited that] some of the background materials needed for review have been placed in the docket only recently.")

AF&PA examined the docket on Monday, August 12, 1996, just one week before the close of the extended comment period, and was surprised to find that the condensate analytical data discussed above still had not been placed in the record. We find this especially puzzling, not to mention frustrating, because EPA not only asked for this data in December 1994, it solicits additional data in the April 19th proposed rule about both alternative benchmark fuels and conventional fossil fuels. See, e.g., 61 Fed. Reg. 17,460; 61 Fed. Reg. 17,462.

An examination of the condensate data shows that the steam stripper condensates are uniformly low in metals, inorganic chloride, cyanide, and chlorinated volatile UTS compounds. The only Appendix VIII volatiles found in concentrations above the lower calibration limit of the analytical method employed were toluene and methyl ethyl ketone. Neither of these is halogenated. Given the efficient combustion devices that would be used to derive energy from these materials, the UTS volatile chemicals present at or above detection levels should not be problematic from a products-of-combustion standpoint. Moreover, these organic materials contribute to the fuel value of the condensates.

Importantly, although the condensate constituents are different from those of EPA's proposed fuel benchmarks -- as is expected, given the different origins of the two classes of materials -- they occur (if at all) at extraordinary low levels. Examination of the condensate data in Appendix B shows that most of the analytical rest detect." Moreover, as shown in Table 2 above, the total mass of all Appendix VIII constituents in condensates is substantially below the total mass of constituents the gasoline, and No. 2 fuel oil sampled by EPA, as well as the composite benchmark (90th percentile).

Thus, unit for unit, steam stripper condensates would introduce to combustion devices less "total mass of hazardous constituents than ... fossil fuels," thus satisfying the purpose of EPA's comparable fuels proposed rule. 61 Fed. Reg. 17,461.

Response:

Although EPA agreed to review the commenter's data, EPA did not include the data in the proposed rule docket because the data was not used in the rulemaking process. However, the EPA agrees that the data should be included in the docket. The data has since been included in the docket as part of the commenter’s comments. As discussed in the comment response above, EPA does not believe turpentine is appropriate benchmark fuel. In addition, the same reasoning would apply to the condensate.

Furthermore, based on the data submitted, the condensate would not meet the comparable fuel specification for heating value. The heating values ranged from 80 to 7,900 Btu/lb, with only one condensate sample having a heating value greater than 5000 Btu/lb. Based on this information alone, the condensate does not possess the properties of a fuel.

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12. No. 4 fuel oil does not effect composite results.

CFBF1.20(commenter 174)
I.D.1.C Number 4 Fuel Oil Specifications:
In addition to #4 fuel oils, #5 fuel oils are sold in the Midwest. However, it is our understanding that #4 and #5 fuel oils are just mixtures of distillate fuel oils such as #2 fuel oil and pure residual fuel oils, such as #6 fuel oil. Therefore, they would not have any unique values and if a composite specification were used, would not effect the results.

Response:
Very little No. 4 fuel oil is sold in the United States. (No. 4 fuel oil is defined as fuel that meets the physical specifications established by the American Society of Testing and Materials.) Rather, what is used as No. 4 is essentially a blend of No. 2 and No. 6 fuel oils. These blends are contract specific, and are not No. 4 fuel oil, per se. EPA has included genuine No. 4 fuel oil data in its benchmark.

13. Used oil specifications should be considered for comparable fuels.

CFBF1.21(commenter 174)
We also feel EPA should consider setting the Comparable Fuel Specification at the same levels as the on-specification used oil fuel specification for the constituents that are included in the used oil fuel specification. A lot of research went into setting those numbers, and they should be utilized. On-specification used oil fuel has already been deemed comparable to virgin fuel in the used oil fuel specification regulations. This is precisely how the used oil specifications were arrived at. However we understand why the specification would need to be expanded further than the used oil specification concerning the range of constituents tested for Used oil is from a few single type of sources and uses, a comparable waste fuel may come from a very wide range and type of sources.

CFBF3.12(commenter 174)
Arsenic: Arsenic was set at 5 ppm in the used oil specification. EPA stated concerning this: "Specification levels were based on levels of these metals found in dirty fuel oil (i.e., 95th percentile metal levels)..." EPA needs to explain why they are now saying the 90th percentile is much lower than that (.22 mg/kg) in the 40th percentile composite specification. Also the Hazardous Characteristic for toxicity of Arsenic is 5 ppm (TCLP Procedure). It makes no sense to exclude a waste stream that is over .22 mg/kg from the Comparable Fuels Exclusion of a hazardous waste, if by characteristic that waste would not be a hazardous waste for that constituent. We feel if 5 ppm is a safe level for an on specification used oil, and is the toxicity characteristic level of non-hazardous waste, this same level should also be a safe level for a comparable waste fuel.
Cadmium: Cadmium was set at pm in the used oil specification again based on the 95th percentile of dirty virgin fuel oil. Again why the large percentage difference in the 90th

percentile composite specification (1.1 mg/kg). We feel based on EPA's extensive used oil research, 2 ppm Cadmium should be the comparable fuel specification.

Chromium: Chromium was set at 10 ppm in the used oil specification again based on the 95th percentile of dirty virgin fuel oil. Again, why the large difference in the 90th percentile composite specification (2.2 mg/kg)? Also the toxicity characteristic level for Chromium is 5 ppm. Again we feel the Comparable Fuel Specification should be set the same as the used oil specification at 10 ppm and should definitely not be lower than the characteristic level (5 ppm).

It should be noted that it seems EPA has universally come up with lower constituent numbers in this proposal for the naturally occurring constituent levels of Virgin Fuels than they did in the used oil research, or our own limited research. In the discussion of the used oil specifications(85 FR) EPA discussed barium. Nickel and Mercury levels in dirty fuels, and as discussed above. stated higher constituent levels in Virgin Fuel oils than in this proposal. Although Lead (and other comparable fuel specification metals) levels found in fuel were not mentioned in the used oil specification we can only assume that again the numbers were higher than in the proposed comparable Fuels Exemption. A lot of research went into the used oil fuel Lead specification levels. We feel EPA should consider this level for the comparable Fuel Specification. The Entropy Used Oil Study shows that with the proper pollution control equipment the lead (and other metals) do not go out the stack when a waste fuel is burned with a relatively high metal content. Also, in 1991 we tested a sample of Virgin #2 fuel oil for Benzene. The total was 39 ppm (analysis enclosed). Again, this is higher than what EPA said was found in the Comparable Fuels proposal in #2 Fuel oil (21 ppm, 90th percentile). EPA need to explain why the constituent levels in the comparable fuels proposal seem to be universally lower than what was found in the used oil research and by our own testing on Virgin fuel oils.

Also we feel where the used oil specification research is lacking information the Hazardous Waste Characteristic levels should be used as the comparable fuel specification for that constituent. As mentioned above it makes no sense to exclude a waste as a comparable fuel if it would not be considered hazardous waste for that particular constituent under the characteristic tests. For example: a waste stream has 2000 ppm Benzene and 4 ppm Arsenic, passing all the other maximum level or detection limits of the proposed specification. Under the proposed specification. Under the proposed specification waste would not be considered a comparable fuel Yet the Arsenic level is below the used oil specification and the TCLP level for Arsenic. It does not make sense to keep a waste out of this program for these types of reasons. Either the specification needs to use the Maximum Hazardous Waste Characteristic and used oil fuel specification levels (whichever is higher) or if the specification is left as is , the regulation must state the waste must only pass the least stringent constituent level of all three tests or "specifications" .

We also feel that where available, statistical information already obtained from the used oil burning research should be utilized and that the used oil fuel specification be used for the constituents it monitors allowing the same levels as the used oil specification for these constituents. EPA put a lot of expense and work into the used oil research in the '80's and reaffirmed they stand by that research in the promulgation for the 1992 used oil regulations.

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EPA stated in the 1992 preamble to the used oil regulations that the 1985 used oil fuel specification was established to control the risks from burning used oil, that it represents the best current judgement as to the level of control necessary to protect human health and the environment. Our Industry association (The National Oil Recyclers Association) also spent thousands of dollars on a study of burning used oil (The Entropy Study). We feel this information should be fully utilized in this proposal, along with some of the management programs from the used oil regulations. The RCRA used oil experiment is working, shouldn't we use that and build on that where feasible?

CFBF3.19(commenter 214)
Specification for Metals
EPA's specification for certain metals including arsenic, cadmium and chromium should be identical to the used oil fuel specification set forth in 40 CFR Part 279. As part of its extensive used oil rulemaking in November 1985, EPA has already conducted its risk analysis for these metals for the purposes of burning. This analysis remains valid; no data has been identified by the Agency which undermines the conclusions reached in 1985. Moreover, a recent study conducted by Entropy Inc. and sponsored by the Used Oil Recycling Coalition demonstrates that burning specification used oil fuel in industrial facilities (such as asphalt plants with pollution control equipment) results in slightly less metals emissions than virgin oil.

<u>Response:</u>
EPA disagrees that the comparable fuel specification should be based on the used-oil specifications or the hazardous waste characteristic levels. With regard to used oil, RCRA draws clear distinctions between hazardous waste and used oil. The statue contains a separate provision dealing with used oil as a distinct class and authorizes separate standards for its management. (See RCRA section 3014 and the Used Oil Recycling Act of 1980 (UORA).) Thus, it remains necessary to distinguish between used oil and other hazardous waste. With regard to the characteristic levels, these levels are based only a groundwater exposure pathway, not potential risks through burning.
The Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. In this benchmark approach, EPA set a comparable fuel specification such that concentrations of hazardous constituents in comparable fuel could be no greater than the concentration of hazardous constituents normally occurring in commercial fossil fuels. Thus, EPA expects that the comparable fuel would pose no greater risk when burned than a fossil fuel and would at the same time be physically comparable to fossil fuel, leading to the conclusion that the EPA has the discretion to classify these materials as products, not wastes.

<u>14. Should include additional fuels in benchmark.</u>

CFBF1.22(commenter 192)

EPA seeks comment on what fossil fuel or fuels should be used as a benchmark. UCC believes that the type of comparable fuel should not be limited to fossil fuels. Vegetable fuels, synthetic fuels, and other types with similar properties should be included as a comparable fuel. The generator or producer of the fuel should be eligible for the exclusion; and should be allowed to burn the excluded comparable fuel on site, as well as off-site. As long as permit limits and administrative matters are met, as required by other commercial fuels, the comparable fuel should be allowed to be burned.

Response:
EPA believes that it is appropriate to base its comparable fuels specification on liquid fuels. Liquid fuels are widely used by industry, readily combusted, and do not present the inconsistencies of solid or gaseous fuels (as discussed in comment responses above). EPA limited the benchmark to liquid fossil fuels because of they are traditional fuels used in commerce and because of the readily attainable data. EPA is willing to consider tall oil, a wood pulping-derived fuel, in its benchmark. At this time, EPA has no tall oil data which it can use in its benchmark specification.

15. Benchmark fuels not used by cement kilns.

CFBF1.24(commenter 219)
The comparable fuel proposal uses gasoline and No. 2 and No. 6 fuel oils as benchmark fuels.[11] Over 75% of U.S. cement kilns use coal as their primary fuel.[12] No U.S. cement kiln uses gasoline.[13] Less than 0.1% cement kilns use oil as a primary fuel, and less than 5% use oil as an alternative fuel.[14] Gasoline, No. 2 and No. 6 fuel oil are not benchmark fuels for cement kilns. Therefore, the hypothetical concern about environmental loading is absolutely unfounded because it is based upon comparison with the "benchmark" fuels that are not benchmarks of fuel used to make cement.
[Footnote 11: 61 F.R., Friday, April 19, 1996, p. 17463.] [Footnote 12: U.S. and Canadian Portland Cement Industry Plant Information Summary December 31, 1992, Portland Cement Association, 1993, p.22.] [Footnote 13: Ibid.] [Footnote 14: Ibid]

Response:
EPA has chosen to base its comparable fuels specification on liquid fuels because they are widely used, readily combusted, and do not present the inconsistencies of solid or gaseous fuels (see comment responses above). EPA has chosen to base its specification on liquid fuels traditionally used in commerce. EPA does not believe that our selection is necessarily limited to fuel burned in boilers or industrial furnaces.

Options for the Benchmark Approach - Individual Vs. Composite

1. Composite approach should be used.

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CFBF2.01(commenter 099)
C. Response to Specific Issues Raised by EPA Regarding the Comparable Fuel Specification

1. EPA requests comment on a number of options to establish a comparable fuel specification and which parameters to select and establish specification limits.
While Dow believes that both options[16] described in the preamble for establishing a comparable fuel specification have merit, Dow would urge the Agency to promulgate a single composite specification that would encompass all applicable fuels. Dow believes that this would simplify the rule and avoid regulatory complexity. Dow does not believe that the specification has to match a specific commercially available fuel, but rather should ensure -that the excluded material does not present more risk than fossil fuels currently burned.
[Footnote 16: One approach would establish a unique set of individual specifications for the benchmark fuels that EPA selects, while the other approach would establish the comparable fuel specification on a composite of the various fossil fuels.]

CFBF3.08.a(commenter 134)
1. EPA Should Promulgate A Single Comparable Fuel Specification: EPA has requested comment on two general approaches to implement the comparable fuel exclusion.[3] Although both approaches have merit, Ciba urges the Agency to promulgate a single composite specification that encompasses constituents found in all applicable fuels. This would simplify the rule and avoid unnecessary regulatory complexity. Ciba does not believe that the comparable fuel specification has to match a specific commercially available fuel, but rather should ensure that the excluded material does not present more risk than fossil fuels currently burned.
[Footnote 3: One approach would establish a unique set of individual specifications for the benchmark fuels that EPA selects (i.e., gasoline and No. 2 and 6 fuel oil). A generator would select one of these specifications to determine if the material qualifies for the exclusion. The other approach is to establish the comparable fuel specification on a composite of various liquid fuels. Under this approach, there would be one specification that all generators would use in determining if the material qualifies for the exclusion.]

<u>Response:</u>
EPA agrees with the commenter. In the final rule, EPA is establishing specifications based on the composite of its benchmark fuels.

<u>2. Support composite approach if gasoline is not included.</u>

CFBF2.02(commenter 106)
C. Options for the Benchmark Approach
Provided that EPA eliminates gasoline from the basis for the comparable fuel specification, ENSCO would support a composite basis for setting the specification. This would greatly simplify the clean fuel specification, and is justified in that there is not significant differences

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between Numbers 2, 4 and 6 fuel oils, which should be the only basis for the specification. If the specification is limited in basis to fuel oils, ENSCO could also support the 90th percentile limits.

If EPA continues to insist on using gasoline also as a basis for a clean fuel specification, then ENSCO urges EPA to set two specifications. One specification would be limited to gasoline, and would only be applicable to burning devices that normally use gasoline. The gasoline specification would be based on the average 50th percentile characteristics represented by the EPA database on gasoline. The other specification would be a composite specification for fuel oil devices, and could represent the 90th percentile of the combined characteristics of Number 2, 4 and 6 fuel oil. ENSCO would like to emphasize again, that virtually no industrial boilers or furnaces use gasoline as a fuel, and we do not see the sense in incorporating gasoline into a clean fuel specification. ENSCO remains opposed to allowing hazardous waste to be burned in internal combustion engines, the only devices for which we are aware that gasoline is used as a fuel.

CFBF2.05(commenter 130)

D. Options for the Benchmark Approach

Provided that EPA eliminates gasoline from the basis for the comparable fuel specification, the ETC would support a composite basis for setting the specification. This would greatly simplify the comparable fuels specification, and is justified because there are no significant differences between Numbers 2, 4 and 6 Fuel Oils, which should be the only basis for the specification.

If EPA continues to insist on using gasoline also as a basis for a clean fuel specification, then the ETC urges EPA to set two specifications. One specification would be limited to gasoline, and would only be applicable to burning devices that normally use gasoline. The gasoline specification would be based on the average 50th percentile characteristics represented by the EPA database on gasoline. The other specification would be a composite specification for fuel oil devices, and could represent the 90th percentile of the combined characteristics of Number 2, 4 and 6 Fuel Oil. The ETC would like to emphasize again that virtually no industrial boilers or furnaces use gasoline as a fuel and we do not see the sense in incorporating gasoline into a comparable fuel specification.

Response:

In the final rule, EPA is establishing specifications based on the composite of its benchmark fuels, which include gasoline, and No. 2, No. 4, and No. 6 fuel oil. EPA disagrees that gasoline should be excluded as one of the benchmark fuels. The Agency notes that gasoline is a highly used, commercially available, liquid fuel and EPA does not believe that our selection is necessarily limited to fuel burned in boilers or industrial furnaces. EPA has chosen its benchmark fuels so that the resulting comparable fuel when substituted would have hazardous constituents lower than the fuel it replaces. However, because the comparable fuel will not be substituted for use in gasoline applications (the exclusion is restricted to air regulated stationary combustion units, see Section H of preamble), the rationale for the inclusion of gasoline differs. The Agency believes that gasoline provides a reasonable upper boundary for volatile organics, which are fuel-worthy constituents. The Agency notes that unlike some solid fuels, gasoline has low concentrations of metals. When compared to lighter fuel oils (e.g., No. 2 fuel oil), the gasoline specification has higher specifications for only the detected volatile organics, which are readily burnable compounds.

3. Suite of benchmarks should be available.

CFBF2.03(commenter 110)
3. A Suite of Benchmarks Should be Available to a Facility Regardless of the Fossil Fuel it Burns
A facility should be entitled to choose between a suite of benchmark specifications. Moreover, a facility should not be limited to the benchmark for the type of primary fuel it burns. As ,EPA notes, this approach provides more flexibility and adequate assurance that net air emissions will not increase and may well decrease. The analytical data accompanying these comments corroborate the view that levels of the vast majority of Appendix VIII constituents in most comparable fuels are likely to be lower than the concentrations found in benchmark fuels.
Apart from providing necessary flexibility, this approach also is compelled by the logic of the benchmark approach. If an individual constituent level is allowable for one benchmark fuel, then it is allowable; the risk associated with that level has been accepted. There is no reason to force any facility to meet a lower concentration requirement simply because a different fuel may contain that constituent at the lower level.
The CCF urges EPA to adopt its preferred alternative and allow the use of any benchmark fuel as the basis for comparison.

CFBF2.04(commenter 112)
C. The benchmarks should consist of a suite of individual and composite fuels.
EPA has identified individual fuels, such as gasoline, and composite fuels, consisting of a combination of the fuels tested, for possible selection as fuel benchmarks and has requested comments on which of these alternatives should be selected. 61 Fed. Reg. 17,463-64. EPA has correctly noted that selection of a single fuel benchmark would limit the practical utility of the exclusion because liquid fossil fuels (let alone non- fossil fuels) consist of different mixes of organic and other compounds. Consequently some commercial fossil fuels could not qualify for exclusion if a dissimilar fossil fuel were selected as a benchmark. (e.g., No. 2 fuel oil would not qualify for an exclusion if gasoline were selected as a benchmark, because No. 2 oil contains both lead and selenium, whereas gasoline does not. Compare Tables I and 2, 61 Fed. Reg. 17,481, 17,483.
EPA created a composite of all fuels to resolve this "dissimilarity" problem. AF&PA believes the composite fuel approach is a good beginning, but suggests that EPA adopt a more flexible approach it discussed in which "the exclusion [would be based on a suite of specifications comprised of [sic] the individual benchmark fuel-based specifications plus a composite specification." 61 Fed. Reg. 17,464. As EPA explained it, this approach has the advantage of

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allowing generators to "select any specification in the suite as the basis for the exclusion." Id. AF&PA supports this benchmark suite approach. Of course, AF&PA urges the Agency to add additional individual fuels such as turpentine, condensates, and coal to the suite of standards. EPA must also address the joint probability issue discussed above.

CFBF2.06(commenter 198)
12. ECA recommends that EPA allow each generator the flexibility to select the benchmark fuel or composite for applying the exclusion criteria.
EPA proposed several benchmark fuels and composites for possible use as the exemption criteria. Since the physical and chemical characteristics of potentially exempt clean fuels varies widely, there is no one "right" fuel to compare. Some hazardous waste fuels may have constituents similar in type and boiling range to those of gasoline (e.g. hexane), others may have higher boiling constituents typical of what may be found in heating oil. Allowing the generator to compare a hazardous waste fuel to several options, all of which meet the intent of the regulation, will result in the needed flexibility to achieve the objectives of any clean fuels exemption.

CFBF2.08(commenter 203)
Part Six I. C. 2. A Composite Fuel as the Benchmark.
Proposal: EPA has considered compiling the data for all the fuels in the EPA comparable fuels database, and creating one specification for all comparable fuels. EPA would like comments on if this method for defining comparable fuels should be used, and if so, whether a 90 or 50 percentile approach would be more appropriate.
Comment: HWP feels that a single fuel specification would be inappropriate at this time. Although having one list of specifications would be simpler from a regulatory standpoint, it would possibly exclude generators from participating, that would otherwise be eligible under the individual fuel specification proposal. If the EPA wants to promote the comparable fuels exclusion, it should not limit the scope of the exclusion to a single fuel specification.

<u>Response:</u>
In the final rule, EPA is establishing specifications based on the composite of its benchmark fuels. The composite approach has advantages over the individual fuel specification approach. One issue associated with the single fuel specification approach is that gasoline has relatively high levels of volatile organic compounds while No. 6 fuel oil has higher levels of semi-volatile organic compounds and metals. If a potential comparable fuel were to have volatile organic constituent concentration below the gasoline specification but higher than others, and a particular metal concentration lower than No. 6 fuel oil specification but higher than gasoline, it would not be comparable fuel since it meets no single specification entirely. Therefore, EPA is concerned that establishing specifications under this option would significantly limit the utility of the exclusion without any obvious advantage in terms of the technical basis of the specifications themselves.
Compositing all the fuels has the advantage that it may reflect the range of fuel choices and potential for fuel-switching available nationally to burners. A facility would be allowed to use

the composite fuel specification regardless of which fuel(s) it burns. In addition, the composite well represents the constituent makeup of liquid fossil fuels currently burned nationally. EPA notes that because it has chosen to promulgate constituent standards for comparable fuels based on the largest measured value, the composite approach will provide industry with greater flexibility in using the exclusion.

Furthermore, allowing individual specifications would unnecessarily complicate the Agency's implementation oversight. The Agency was concerned about the amount oversight that would be required for a generator who has four possible specifications upon which to comply. In particular, the Agency was concerned that a generator could possibly switch from day to day which comparable fuel specification it was complying with. This switching would greatly increase the recordkeeping and reporting requirements on the generator and would possibly increase the potential for abuse from an enforcement standpoint. Under this exclusion, EPA is allowing hazardous wastes that meet the comparable fuels specifications to go unregulated and therefore, the Agency would be concerned about unduly complicating the enforcement of the exclusion. Thus, a composite specification provides a simpler regulatory framework, which would facilitate the implementation of the exclusion.

4. Statistical analysis ignores the effect of joint probability.

CFSA2(commenter 112)

Furthermore, EPA's order statistics analysis of the constituent-by-constituent analytical data ignores the effect of joint probability. Statistical analysis of EPA'S approach shows that even the , commercial fuels used in the pool of samples to set the benchmark fuel have as much as a 99.994% chance of failing to qualify as a comparable fuel. AF&PA offers alternative approaches to identifying benchmark and comparable fuels which should avoid this absurd outcome.

CFSA2(commenter 112)

II. EPA's Constituent-by-Constituent Comparison Approach is Seriously Flawed Because it Ignores the Effect of Joint Probability.

EPA's proposed constituent-by-constituent comparison approach is seriously flawed because it ignores the compounding effect of joint probability. Consequently, the proposed benchmarks will not achieve EPA's goal of "provid[ing] constructive relief to the regulated community by having a comparable fuel specification that can be used in practice." 61 Fed. Reg. 17463.

For each of the individual fuels EPA proposed as benchmarks, EPA used a nonparametric approach (order statistics) to determine the 90th percentile for each of the analytes measured in concentrations above their detection limits. 61 Fed. Reg. 17463, Draft Technical Support Document for HWC MACT Standards, Volume VI, Development of Comparable Fuels Specifications, November 1995, 3-1 ("Technical Support Document'" or "TSD"). The Agency had requested comment on whether the 90th percentile used in the proposal or a 50th percentile approach is more reasonable when developing composite fuel specification limits.

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The National Council of the Paper Industry for Air and Stream Improvement ("NCASI") has examined the order statistics technique EPA used and has concluded that there is a serious flaw in the use of percentiles of individual analyte concentrations as criteria for screening comparable fuels. In a scheme where any fuel must be below the specified percentile concentration for each of several analytes in order to be considered comparable to some benchmark, random variability in analyte concentrations can easily render the scheme nonsensical for even a moderate number of analytes.

Consider the following example. Suppose the scheme calls for the candidate fuel to be below the 50th percentile concentration for each of fourteen different analytes. Suppose further that the sample of the candidate fuel was drawn from the same reservoir as the samples that were used to establish the benchmark analyte percentiles. That is, the candidate is identical to the benchmark fuel. Assuming, for the sake of argument, that each 50th percentile is perfectly accurate and that concentrations of the analytes are independent of one another, what is the possibility that the candidate fuel would meet all the criteria?

In order for the fuel to pass the screen, it is necessary that all 14 analytes be below the 50th percentile concentration. The probability that any single analyte will be at or below the 50th percentile for that analyte is 0.5. The joint probability of all 14 analytes being found below the 50th percentile at the same time is dictated by the binomial theorem.[1] For this case, the theorem can be stated as:

joint prob. of all below $(\text{individ. prob - of below})^{\text{number of analytes detected}}$

Substituting the numbers:

joint prob. of all below $(0.5)^{14} = 0.00006$

Therefore, the probability that this candidate fuel, which is identical to the benchmark fuel, would pass the screen and, therefore, be considered "comparable" is only 0.006%. Conversely, the. probability that it would be rejected is 99.994%.

If the 90th percentile had been used in the example, the probability of passing the screen would still only be about 23% and the probability of an erroneous rejection would be about 77%. It should be noted that increasing the number of analytes further decreases the probability that a candidate fuel would be considered "comparable" because each analyte has its own probability of a false positive.

Although the effect of analyte interdependence and accuracy of percentile selection has not been considered in the example above, the principle of joint probability still holds. Because the effect of joint probability has not been examined by the Agency when considering the use of percentiles. as upper concentration limits for comparable fuel specifications, the proposed benchmark specifications are invalid. Consequently, EPA must select some other basis for its comparable fuel exclusion, such as the "total mass" approach AF&PA has recommended, which is not affected by statistical criteria.

[Footnote 1: Snedecor, G.W. and W.G. Cochran, "Statistical Methods," 7th Ed., The Iowa State University Press, 1980.]

CFSA2(commenter 112)

D. The composite fuel specification should not be based on percentile aggregate values. EPA has sought comment on whether a composite fuel specification should be based on 90th or 50th percentile aggregate values for the components of individual benchmark fuels. As we discussed in Section 11 of these Comments, use of percentiles of individual analyte concentrations as a screening criteria ignores the effect of joint probability. Consequently, EPA should abandon this approach and adopt the total mass approach recommended by AF&PA, which does not exhibit this flaw.

CFG.46.b(commenter 139)
In addition, Fuel Oil #4 could not be incinerated because of the metals specifications in the Comparable Fuels Proposal. We challenge EPA to demonstrate that any current RCRA fuel could meet the proposed Comparable Fuel Exemption. Our evaluation indicates that no current RCRA fuel could meet the proposed exemption. Therefore, it should be modified to be usable or replaced with standards in line with CMA's clean fuels exemption.

CFSA2(commenter 224)
Similarly, the Addendum states that EPA continues to use non-parametric statistical procedures (i.e., order statistics) to analyze benchmark fuel data. Addendum at 3-3. This statistical approach runs afoul of the principle of joint probability. See AF&PA August 19 Comments at 3-5. This means that the very same fuel EPA used to establish benchmark constituent concentrations could have up to a 99.994% chance of being rejected as a comparable fuel. Id.

Even a cursory peer review of these technical elements of the Proposal, the Notice, and the Addendum would have revealed these fatal flaws, which could have been corrected before publication in the Federal Register. Af&PA urges EPA to conduct a peer review of the comparable fuels proposal and the underlying technical support documents before it takes final action on this rulemaking.

Response:

While EPA believes there is some interdependence among individual constituents and that the principle of joint probability cannot be strictly applied, EPA is inclined to agree with the commenter. At the time of proposal, EPA believed that a 50th percentile analysis represented a midpoint of potential benchmark fuels that were studied. EPA also believed that a 90th percentile analysis represented a reasonable upper bound of what is found in all fuels capturing variability both with each fuel category and in the case of the composite approach, between categories. However, when the individual fuel samples were compared to the benchmark specifications, EPA found that at the 50th percentile composite none of the fuel samples met the specification and at the 90th percentile composite only 40 percent met the specification. This appears to confirm the commenter's concern over joint probability, and reflects on the degree to which the comparable fuels exclusion would actually be useable. It was EPA’s goal to base the comparable fuel specifications on the 99th percentile, a level near which 90 percent of EPA’s individual fuel samples would meet the specification. However, the size of the data base precluded the calculating of a 99th percentile constituent specification. Therefore, in this case, the Agency used the largest measured value to approximate an upper percentile. [In the future, EPA may choose alternative methods of

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evaluating any new data that may be submitted suggesting that these specifications need to be modified.] After re-calculating the specification taking joint probability into account, EPA believes that the composite at the largest value more closely represents what EPA intended to propose with the 90th percentile, a reasonable upper bound that is also useable in practice. The 90th percentile closely represents what EPA intended with the proposed 50th percentile, i.e., a midpoint. Because none of EPA's own fuel samples meet this specification, EPA believes that the 50th percentile is overly conservative. If EPA selected the 50th percentile, comparable fuel would have to be "cleaner" than all commercial liquids (or at least all of those in the Agency's current database), which would greatly restrict the utility of the exclusion. Also, with such a strict approach, additional quantities of virgin oils with higher contaminant levels would be burned, leading to greater emissions than if a higher percentile was chosen. Therefore, EPA believes that the composite at the largest value adequately addressing the issue of joint probability.

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5. Equivalent comparable fuel should replace a fossil fuel.

CFBF2.07(commenter 203)
Part Six 1. C. 1. Individual Benchmark Fuel Specifications.
Proposal: EPA establishes specifications for each benchmark fuel i.e. gasoline, No. 2 and No. 6 fuel oil. Each with its own hazardous constituent levels and physical specifications. This plan could be implemented in two ways. First, the comparable fuel could be used irrespective of what type of fuel the furnace currently uses. Second, the facility could only burn comparable fuels specific to the types of fossil fuels they would replace.
Comment: It is anticipated that the specific concentrations of-hazardous constituents allowed in different comparable fuels will vary. HWP feels it is only appropriate to replace a fossil fuel with an equivalent comparable fuel, or with a comparable fuel that would burn cleaner than the previously mentioned equivalent comparable fuel. This is an environmental security measure to prevent excess atmospheric loading within the comparable fuels exclusion.

Response:
The composite benchmark fuel specification represents an appropriate choice for the comparable fuel exclusion. Compositing all the fuels has the advantage that it may better reflect the range of fuel choices and the potential for fuel-switching available nationally to burners. Furnaces or boilers currently are able to accommodate different types of fuels. From an environmental standpoint, the composite well represents the constituent makeup of liquid fossil fuels currently burned nationally. A composite specification should not lead to excess environmental loadings of hazardous constituents and other pollutants within the comparable fuel exclusion. Furthermore, to address environmental loading, the final rule establishes a minimum heating value specification comparable to the Btu content of the benchmark fossil fuels. When determining whether a waste meets the comparable fuel constituent specifications, a generator must first correct the constituent levels in the candidate waste to a 10,000 Btu/lb heating value basis prior to comparing them to the comparable fuel

specification table. In this way, a facility that burns a comparable fuel would not be feeding more total mass of hazardous constituents than if it burned fossil fuels.

6. Benchmark approach should not be linked to fuels in use.

CFBF2.09(commenter 205)

Linkage to Fuels Used at a Facility (p. 17463): TCC disagrees that an application of the comparable fuels exclusion should be linked to the fuels in use or substituted by the comparable fuels. A facility which would otherwise burn an extraordinarily clean fuel such as natural gas would theoretically be unable to meet the exclusion conditions while a facility burning a less clean burning fuel oil would meet the exclusion conditions. Facilities burning such extra clean fuels would have an incentive to switch to a less clean commercial fuel to qualify for the exclusion.

Further, enforcement would be complicated since a comparable fuel could be shipped off-site and enter the fuel product marketplace.

CFBF2.10(commenter 214)

Fuel Benchmarks

Fuels eligible for the comparable fuels exclusion should be classified according to fuel performance benchmarks. There is no advantage or reason to restrict fuels to certain types of facilities or burners. As a general matter, EPA can rely on burners to purchase fuels that meet their specifications and do not damage their furnace or boilers. EPA should also be aware that most burners can adjust their furnaces or boilers to accommodate different types of fuels.

EPA's fundamental interest is to design this exclusion in a way allows the marketplace to develop fuels that meet burners' requirements without creating additional risks to public health or the environment. In NORA's view a facility-based benchmark system simply creates unnecessary restrictions and confusion; such restrictions do not enhance environmental or health protection.

Response:

EPA agrees with the commenter. In the final rule, EPA is establishing specifications based on the composite of its benchmark fuels. Compositing all the fuels has the advantage that it may reflect the range of fuel choices and potential for fuel-switching available nationally to burners. A facility would be allowed to use the composite fuel specification regardless of which fuel(s) it burns.

7. Link benchmark to fuels in use

CFAP.12(commenter 191)

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It is totally unacceptable for the Agency to build a case for the use of comparable fuels based upon the statement that use of comparable fuels should not cause emissions greater than existing fossil fuels and then offer an option which "...could allow higher emissions of certain toxic compounds at the particular site than would be the case if they burned their normal fuels..."

The Agency should be consistent. If the intent is to generate no more emissions than the "to be determined" benchmark fuel then limit emissions to that value.

Further comments are limited since the Agency has yet to define the comparable fuel.

Response:

EPA disagrees that the comparable fuel specification should be linked to the type of fuel burned at the facility and is being displaced by the comparable fuel. This would limit the flexibility of the exclusion for facilities that fuel-switch. It would also raise implementation problems for facilities currently using a gas or solid fuel. In the final rule, EPA is establishing specifications based on the composite of its benchmark fuels. Compositing all the fuels has the advantage that it may reflect the range of fuel choices and potential for fuel-switching available nationally to burners. A facility would be allowed to use the composite fuel specification regardless of which fuel(s) it burns.

8. Use the 90th percentile composite.

CFBF3.01(commenter 086)

E. EPA Should Establish the Benchmark Levels for Liquid Fuels at the 90th Percentile of the Composite Fuels.

To make the comparable fuels exclusion as broadly available as possible, USWAG urges the Agency to establish a benchmark standard for liquid comparable fuels at the level represented by the 90th percentile of the composite fuels. 61 Fed. Reg. at 17463-64. (USWAG believes that even significantly higher levels would still be protective of human health and the environment).

The amount of air emissions from a combustion unit (and therefore the risk posed to human health and the environment) is determined by the effectiveness of the air pollution control equipment on the unit. The equipment on the units in which comparable fuel could be burned is capable of handling the entire range of liquid fossil fuels, and therefore EPA's benchmark standard for comparable fuels should reflect that entire range. Although a composite standard utilizes the highest concentration of each hazardous constituent found in fossil fuels, these concentrations are well within the capabilities of the control equipment on the units likely to be used for combustion of these materials. Moreover, as the Agency notes, it is unlikely that any particular material will have the maximum concentration of all the specified constituents. Id. at 17464. However, it is likely that some materials will have a different pattern of constituents from any particular fossil fuel and therefore would not qualify as a comparable fuel under a fuel-specific benchmark, even though the material is quite capable of being burned safely in a boiler or furnace.

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For similar reasons, USWAG urges EPA to adopt the standard at the 90th percentile level. This level represents the level of hazardous constituents that the pollution control equipment is designed to accommodate and therefore comparable fuels with constituents at these levels can be accommodated with no additional risk to human health or the environment. The alternative of setting the benchmark at the 50th percentile should be rejected because it simply makes no sense for the Agency to establish a standard for comparable fuels at a level that would be failed by half of all existing commercial fuels. Accordingly, the Agency should adopt the 90th percentile level as the benchmark.

CFBF3.02(commenter 099)

With respect to the actual limit, Dow believes that EPA must base the specification on the 90th percentile.[17] In particular, the 90th percentile has the advantage of providing maximum flexibility to the regulated community and be representative of a range of fuels that are burned nationally in combustion devices. In fact, Dow is concerned that the 50th percentile would under-represent many fossil fuel-like materials and would actually exclude many fossil fuels (i.e., No. 6 fuel oils) under the comparable fuel specification. Such an outcome would make the comparable fuel exclusion of little utility. While the Agency speculates that the 90th percentile may allow for higher amounts of toxic constituents than a lower percentile, this is very unlikely, as the Agency itself recognizes, since no excluded fuel is likely to contain all hazardous constituents at or near the 90th percentile composite specification limit. Therefore, Dow would strongly recommend that the final composite specification be based on the 90th percentile.

[Footnote 17: EPA is taking comment on whether to establish the composite comparable fuel specification at the 50th percentile or 90th percentile.]

CFBF3.04.a(commenter 110)

E. EPA Should Establish a Suite of Benchmark Specifications (Including a 90th Percentile Composite) From Which a Generator May Select the Basis for Comparison, Without Regard to the Type of Primary Fuel That it Burns

1. Introduction The agency has specifically solicited comment concerning:

- whether a composite fuel specification should be available;
- if so, whether a 90th percentile or 50th percentile approach would be more appropriate;
- whether the exclusion "should be based on a suite of specifications comprised of the individual benchmark fuel- based specifications plus a composite specification. Under this approach the generator could select any specification in the suite as the basis for the exclusion."; and
- whether a facility may use any of the individual benchmark specifications or should be limited to the specification for the type of fuel it actually burns as its primary fuel.

61 Fed. Reg. at 17463-4.

Taken together, the resolution of these issues will have a substantial impact on the utility of the comparable fuels exemption. In the CCF's view, each of these issues must be resolved in the way that will accord the maximum possible flexibility (while maintaining environmental

protection) if the exemption is to be of significant use. Specifically:
2.The 90th Percentile Composite is Appropriate
The 90th percentile composite results should be permitted as benchmarks in addition to the individual benchmark fuel specifications. The 90th percentile would be more consistent with EPA's stated objectives in promulgating a benchmark approach -- to establish an exemption that is of real use to the regulated community and causes no greater risk to human health and the environment than is created by the burning of the range of unregulated benchmark fossil fuels.

The analytical data accompanying these comments -- which reflects just some of the CCF members, auxiliary fuels and a very small portion of the fuels burned by the regulated community -- demonstrates clearly that (depending on EPA's resolution of other issues raised in these comments) some fuels cannot meet any set of individual benchmark fuel specifications, but could meet one of the composite specifications. Thus, without the 90th percentile composite specifications, many facilities would be unable to avail themselves of the comparable fuels exemption even though, when compared to the "average" of benchmark fuels, they contain acceptable levels of Appendix VIII constituents.

Basic statistics defines the two major characteristics of a distribution as its mean (or other indication of average or median value) and its standard deviation (or other indication of scatter or variability such as confidence intervals). With most distributions, such as the normal distribution, the mean and standard deviation completely describe the distribution. In the present case, each Appendix VIII compound has a distribution of concentrations which are present in each fossil fuel used in commerce and EPA's specification effectively represents a one-sided upper[14] confidence limit. A 50th percentile concentration specification is in effect a confidence interval that includes the lower 50 percent of the concentrations in the distribution. Similarly, a 90th percentile specification would be expected to include the lower 90 percent of the concentrations in the distribution.

In this scenario, 50% of the fossil fuel concentrations found in commerce would pass the 50th percentile specification while 90% would pass the 90th percentile specification. Clearly the 90th percentile specification better represents the full range of Appendix VIII concentrations which are burned daily in the U.S. without RCRA Subtitle C regulation.[15]

[Footnote 14: Except for flash point in which the specification represents a lower confidence limit.] [Footnote 15: This fact is sufficiently clear that a follow-up questions is raised: Would a 95th or 99th percentile value make an even more representative specification? Again, the answer is clearly yes.

CFBF3.04.b(commenter 110)

Any doubt about the preferability of the 90th (or higher) percentile is removed when one considers that EPA has used the 90th percentile -- not the 50th percentile -- approach to establish the individual benchmark specifications. That is, in deciding what the specification for a given parameter should be for a given benchmark fuel, EPA used the 90th percentile from among the available data.[16]

The use of the 90th percentile is equally appropriate to establish the composite benchmark. Under current RCRA Subtitle C, a facility can burn any of the benchmark fuels (as well as

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other fuels such as coal, tall oil, etc.) and any combination of those fuels without regulation. Thus, the arguments made above concerning the representativeness of the 90th percentile apply equally to the composite benchmark issue.

Any facility in the United States may burn any combination of No. 2 oil, No. 4 oil, No. 6 oil and other fossil fuels in any ratio it chooses, without RCRA regulation. Thus, a strong argument can be made that the regulated community should be allowed to define site-specific specifications for each regulated parameter that are based on any given weighted average of benchmark fuel specifications. Conceptually, the benchmark fossil fuels define the envelope of Appendix VIII constituent concentrations that can be burned at a facility without RCRA Subtitle C regulation. Thus, any concentration inside that envelope should also be allowed. Weighted averages would define acceptable concentrations within the envelope. As an example, a given weighted average could be calculated as 20% of the gasoline specification, 50% of the No. 2 fuel oil specification, and 30% of the No. 6 fuel oil specification. The facility then would be able to avail itself of the exemption if its candidate fuel does not exceed the calculated site-specific specifications.

[Footnote 16: For example, the proposed benzene specification for no. 2 fuel represents the 90th percentile value from among all the benzene data points that EPA has collected from all of its no. 2 fuel oil samples.]

CFBF3.05(commenter 128)

3. The sheer number of comparable fuels constituents and the fact of variability require levels to be set at the extreme end of their ranges.

CMA strongly urges EPA to set exemption levels for comparable fuel constituents at the 90th percentile of their observed ranges, at the very minimum. Even levels set at this percentile are likely to be of little benefit, however. Limits set at the 90th percentile means that for =W given constituent, there is a 1 in 10 probability that the limit will be exceeded for the "safe" fossil fuels on which the standard was based. The proposed comparable fuels standards set limits for over 150 constituents. Multiplying these two values reveals that normal fossil fuels would be expected to fail for 15 constituents on average even if the levels were set at the proposed 90th percentile values. Obviously, setting levels at the 50th percentile would lead to fossil fuels failing -- in virtually all cases -- the very benchmark standards supposed to represent them. CMA commends to EPA's attention on this point the excellent discussion of this issue contained in the comments of the American Forest & Paper Association.

The comparable fuels approach, very reasonably, is premised on the idea that wastes with compositions like fossil fuels should be regulated like those fuels. To implement this analogy in fair and consistent way, EPA needs to construct benchmark standards and analytical requirements that would result in real fossil fuels passing almost all the time. In other words, to make the benchmarks truly representative of normal fossil fuels, EPA should set the various constituent levels and analytical testing frequency such that a fossil fuel could meet all of the levels at some high probability, like 95% or 99%. (This is how the Agency typically sets air emission limitations.) The percentile value at which individual constituents must be set in order for all of them to be met simultaneously at a given level of confidence is explained in statistical texts. See, e.g., Gastwirth, J.L., 2 Statistical Reasoning in Law and Public Policy:

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Tort Law Evidence and Health (Academic Press, 1988).

CFBF3.08.b(commenter 134)

The Agency has requested comment on whether to establish the composite fuel specification at the 50th or the 90th percentile. Ciba requests that EPA base the composite specification, at a minimum, at the 90th percentile. The 90th percentile has the advantage of providing the regulated community with a specification that is representative of a range of fuels that are burned nationally in combustion devices. While the Agency speculates that the 90th percentile may allow for higher amounts of toxic constituents than a lower percentile, this is very unlikely, as the Agency itself recognizes on page 17464, because no excluded fuel is likely to contain all the hazardous constituents at or near the 90th percentile composite specification level.

Ciba believes the 50th percentile would preclude many fossil fuel-like materials from qualifying for the exemption. In fact, many fossil fuels would not themselves be able to meet the comparable fuel limits because the methodology requires each specific constituent or limitation to be at or below the 50th percentile. For example, fuel oil No. 6 would most likely fail for certain metals and gasoline would most likely fail for certain Appendix VIII constituents. Such an outcome would make the comparable fuel exclusion of little utility.

CFBF3.09(commenter 151)

Comparable Fuels Exclusion EPA's intent to establish fuel specifications to exempt materials from the definition of solid and hazardous waste is a positive step forward towards encouraging beneficial energy recovery. We support the use of the 90th percentile as more appropriate for establishing the specification levels especially since multiple fuel types are being used in the calculation; use of the 50th percentile would be too restrictive.

CFBF3.10(commenter 153)

XX. COMPARABLE FUEL EXCLUSION

A. Comparable Fuel Specification (61 Fed. Reg. at 17,460-17,464)

CWM generally supports EPA's proposal to exempt certain hazardous waste fuels from Subtitle C regulation. Although it is uncertain as to whether the proposal will achieve the Agency's objective to encourage recycling, it will ease the regulatory burden on manufacturers and other industry sources who generate waste fuels which are chemically and physically comparable to fossil fuel products.

In order to ensure the exempt fuels are treated in an environmentally sound manner, however, it is important that the fuels contain no contaminants which could be released to the environment during the combustion process. Consequently, CWM advocates the Agency adopt a composite fuel specification based on the 90th percentile benchmark approach. The 90th percentile specification will enable more waste fuels to exit RCRA regulation than the 50th percentile specification, but will still provide a sufficiently stringent standard to ensure no Appendix VIII contaminants are present in the fuel at unacceptable levels.

CFBF3.11(commenter 174)

I.C.3. Options For The Benchmark Approach:
We feel where EPA has no risk-based information to rely on EPA should use the 90th percentile values to determine the Comparable Fuel Specification. When determining the used oil specifications EPA used the 90 and 95th percentile values of Virgin Fuels. Using the 50th percentile values would in reality require Comparable Fuel Wastes to be cleaner than Virgin Fossil fuels. This is due to the fact that if the maximum constituent concentration allowed was 50% of Virgin Fuels, the average constituent concentration would be lower than that, when measuring the average of all Comparable Fuels burned (The average would not be the maximum). This in effect would require Comparable Waste Fuels to be cleaner than the Virgin Fossil Fuels they would replace. We feel this is not a fair burden to try and achieve with a waste fuel, and may open up the rule to possible litigation.
We also feel that a composite of all grades of Fossil Fuels should be used for the 90th percentile values. Practically all burners that burn liquid fuels can modify their equipment to burn any particular grade and indeed some do burn different grades at different times due to availability and pricing considerations. Multiple specifications would be very confusing to the regulated community and burners.

CFBF3.15(commenter 201)
4. The use of the ninety (90%) percentile for setting limits appears most appropriate as it will accommodate for the inherent variability's found in the fossil fuels. Using an average such as the fiftieth (50%) percentile may produce significant statistical variations depending upon where, when and how many samples are collected and would exclude many constituents that may be encountered is a specific type of fuel in a specific part of the country.

CFBF3.18(commenter 214)
Composite Data/90th Percentile
NORA supports EPA's approach of determining fuel specifications via the use of composite data. This approach is less expensive but provides useful and reliable data. No sound environmental reason exists for establishing specifications based on individual data points. Similarly, 90th percentile aggregate values for composite fuels provides more representative values. To put it another way, using the 50th percentile value would, in effect, require "comparable fuels" to be cleaner than their virgin fuel counterparts.

Response:
In the final rule, EPA is establishing specifications based on the composite at the largest value of its benchmark fuels. In its proposal, EPA took comment on using: (1) the 90th percentile aggregate values for the benchmark fuels; and (2) the 50th percentile aggregate values for the benchmark fuels. At the time of the proposal, EPA believed that a 50th percentile analysis represented a midpoint of potential benchmark fuels that were studied. EPA also believed that a 90th percentile analysis represented a reasonable upper bound of what is found in all fuels capturing variability both with each fuel category and in the case of the composite approach, between categories. However, when the individual fuel samples were compared to the benchmark specifications, EPA found that at the 50th percentile composite none of the

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fuel samples met the specification and at the 90th percentile composite only 40 percent met the specification. It was EPA's goal to base the comparable fuel specifications on the 99th percentile, a level near which 90 percent of EPA's individual fuel samples would meet the specification. However, the size of the data base precluded the calculating of a 99th percentile constituent specification. Therefore, in this case, the Agency used the largest measured value to approximate an upper percentile. [In the future, EPA may choose alternative methods of evaluating any new data that may be submitted suggesting that these specifications need to be modified.] After re-calculating the specification taking joint probability into account, EPA believes that the composite at the largest value more closely represents what EPA intended to propose with the 90th percentile, a reasonable upper bound that is also useable in practice. The 90th percentile closely represents what EPA intended with the proposed 50th percentile, i.e., a midpoint.

Because none of EPA's own fuel samples meet this specification, the 50th percentile is overly conservative. If EPA selected the 50th percentile, comparable fuel would have to "cleaner" than all commercial liquid fuels (or at least all of those in the Agency's current database), which would greatly restrict the utility of the provision. Also, with such a strict approach, additional quantities of virgin oils with higher contaminant levels would be burned, leading to greater emissions than if a higher percentile was chosen. A higher percentile better reflects the liquid fossil fuels burned nationally in combustion devices, and is a better benchmark.

9. Use the 50th percentile composite.

CFG(commenter 105)

Laidlaw supports the concept of a comparable fuel specification but believes in an alternative method of implementation. The EPA should develop the specification based on one of the five alternatives provided in the proposed rule. Laidlaw would support a specification based either on No. 4 fuel oil or the 50th percentile values.

CFBF3.03(commenter 106)

B. Sampling, Analysis and Statistical Protocols Used

ENSCO supports EPA's sampling and analysis program used to define specifications for comparable waste fuels, as described on pages 17462 and 17463. The program incorporated a large number of fossil fuel samples from a wide geographic distribution, and is therefore representative. ENSCO supports the use of the 50th percentile values, as a reasonable specification since it is based on the average of hazardous constituents encountered in fossil fuels. In this respect it is more protective than an upper bound approach, and provides more margin for protection, considering the greater variability expected for hazardous wastes.

CFBF3.06(commenter 130)

C. Sampling, Analysis and Statistical Protocols Used

The ETC supports EPA's sampling and analysis program used to define specifications for comparable waste fuels (pages 17462-63). The program incorporated a large number of fossil fuel samples from a wide geographic distribution, and is therefore representative. The ETC supports the use of the 50th percentile values as a reasonable specification since it is based on the average of hazardous constituents encountered in fossil fuels. In this respect it is more protective than an upper bound approach, and provides more margin for safety, considering the greater variability expected for hazardous wastes.

Response:

Because none of EPA's own fuel samples meet this specification, the 50th percentile is overly conservative and was not the average of hazardous constituents encountered in fossil fuels. If EPA selected the 50th percentile, comparable fuel would have to "cleaner" than all commercial liquid fuels (or at least all of those in the Agency's current database), which would greatly restrict the utility of the provision. Also, with such a strict approach, additional quantities of virgin oils with higher contaminant levels would be burned, leading to greater emissions than if a higher percentile was chosen. A higher percentile better reflects the liquid fossil fuels burned nationally in combustion devices, and is a better benchmark.

10. Use the 99+ percentile composite.

CFBF3.08.c(commenter 134)

Ciba also requests, however, that the Agency set a higher percentile in establishing the comparable fuel specification. This, in fact, would still meet (if not better represent) EPA's goal for a comparable fuel specification -- that is, to establish a specification which is of the greatest utility to the regulated community, but assures that an excluded material poses no greater risk than burning of fossil fuel. Higher percentiles have been used by EPA in other regulatory programs in setting various limits. For example, in EPA's land disposal restrictions program, EPA used a 99 percentile in establishing treatment standards to account for a wastes inherent variability in order to assure that the treatment standard is achievable 99 percent of the time (see 55 FR 22538, June 1, 1990).

Likewise, EPA used a higher than 90 percentile in calculating the proposed effluent guidelines standards for the pharmaceutical industry. (See 60 FR 2i624, May 2, 1995.) Specifically, the Agency used a 95th percentile factor for the maximum monthly average limitation and a 99 percentile factor for the maximum daily limitation[4] in establishing discharge limits. These variability factors were used to give a high degree of confidence that the discharge limitation can be met using the identified technology.

Similar to the reasoning used in setting the LDR specifications and the effluent limits, Ciba believes that any material that is comparable to fossil fuel in most, if not all cases, should be included within the exclusion. Therefore, Ciba strongly suggests that the final composite comparable fuel specification be based on the 90th percentile at a minimum.

[Footnote 4: These percentile factors were used for constituents of concern other than cyanide.]

CFBF3.14(commenter 198)

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13. ECA recommends that EPA use a 99+% value for determination of the comparable fuel specification
In the proposal EPA solicited input on the use of 50% or 90% values for determination of the clean fuel specifications. ECA recommends that EPA use a 99+% value. It could be argued that the limit in clean fuels should be a multiplier (greater than one) times a 99+% level and still be protective of human health and the environment. However, ECA recognizes that the data is not available to support a particular multiplier. As a minimum, EPA should allow a comparable fuels exclusion as long as the hazardous waste fuel has constituent levels comparable to any commercial fuel. Commercial fuels themselves are not subject to RCRA regulation.

CFBF3.16(commenter 201)
5. As previously noted, since all of the comparable fossil fuels under consideration are not subject to hazardous waste incineration requirements regardless of the range of constituents contained in the comparable fuel samples, the same standard should apply to the comparable waste fuel. A fair composite specification would be based in taking the highest detected level of constituents from each of the benchmark comparable fuels.

Response:
In the final rule, EPA is establishing specifications based on the composite at the largest value of its benchmark fuels. As discussed in the above comment response, the composite better reflects the liquid fossil fuels burned nationally in combustion devices, and is a better benchmark.

11. Non-paramteric approach

CFMISS.50(commenter 220)
Selection of Percentile to Set Maximum Concentrations
EPA's use of the 50th or 90th percentile to set concentration limits for comparable fuels is overly conservative and does not reflect the concentration ranges found in gasoline and fuel oil oil. Because gasoline and fuel oil are typical fuels, even the highes concentrations of hazardous constituents found in these fuls should also be acceptable in comparable fuels. Because EPA has a relatively small number of samples on which to base its limits, it must account for the uncertainty in its estimates, but EPA's use of the nonparametric distribution does not allow it to make a reasonable estimate of this uncertainty. EPA could use the normal distribution to calculate tolerance limits for individual fuel types to account for the uncertainity with small sample sizes.
EPA is proposing to use either the 50th or 90th percentile with the nonparametric distribution to set concentration limits for comparable fuels. In the proposed rule, EPA presents several options for consideration. If comparable fuel specifications are established for individual fuel types (gasoline and fuel oil nos. 2, 4, and 6), EPA proposes to use the 90th percentile value based on the nonparamteric distribution for each fuel type. If EPA instead decides to

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establish a comparable fuel specification based on a composite of all fuel types, it is considering using the 50th or 90th percentile value of the nonparamteric distribution of the combined data. EPA's choice of percentiles as well as the nonparamteric distribution result in concentration limits that are overly restrictive and in fact, would define some gasolines and fuel oils as unacceptable fuels.

The percentile value of a distribution reflects what proportion of a sample population is included. If the 50th percentile is selcted, half of the values are greater or outside this level. If the 90th percentile is selected, 10% of the values are greater or outside this level. As an example, consider EPA's values for toluene in the eight gasoline samples analyzed for this rulemaking. The values from least to greatest, in mg/kg, are as follows:

29,000	32,000	34,000	42,000
49,000	50,000	68,000	69,000

EPA calculates the 90th percentile of the ranked data by averaging the 7th and 8th highest values.{2} Thus, the estimated 90th percentile of the above data is 68,500 mg/kg. Although the data set is too small to see it clearly, use of the 90th percentile is a problem because it effectively eliminates 10% of representative fuel values. For examples, if there were 100 samples, the highest ten values would not be considered acceptable. If the 50th percentile were assumed, half of the samples would not be considered acceptable. EPA also has not considred the uncertainty in its estimate due to the limited sample size. However, EPA cannot incorporate a reasonable level of uncertainity with the nonparamteric distribution as explained below.

In other rulemakings, EPA has considred the nonparamteric distribution to set concentration limits. Howver, in those rulemakings, EPA did consider the effect of sample size on the estimate as well as what a reasonable percentile value would be. Typically, EPA uses the 99th percentile of the nonparametric distribution with a probability level of at least 50%. This is interpreted as the value below which 99 percent of the values will fall at a 50% probability or reliability level. However, in order to obtain at least a 50% probability level on the estimate, at least 69 values or samples are needed.{3} EPA described this limitation in a slightly different way in he rulemaking for the Centralized Waste Treatment Industry. In the statistical support document for this rulemaking.{4} EPA makes the following observations: "The nonparametric estimate of the 99th percentile of an effluent concentration data set is the observed value that exceeds 99 percent of the data points. If a data set consists of fewer than 100 observations the best that can be done, using nonparamteric methods, is to use the maximum value as an approximate nonparamteric estimate estimate of the 99th percentile, but this clearly can underestimat the true value. Because most data of the data sets analyzed in support of limitations development had fewer than 100 observations, it was necessary to adopt a paramteric approach, such as the modified delta-lognormal distribution, to avoid undeestimating limitations."

Concentrations levels of hazardous constituents measured by EPA appear to lie within a normal enough range to assume a normal distribution at least within each fuel type. An example is shown for toluene concentrations in gasoline in the following figure. The data points fall fairly close around the line shown in the probability plot which indicates that the normal distribution is an acceptable fit of the data.

To account for uncertainty in a percentile estimate based on a small sample size, EPA should calculate the upper tolerance limit for the concentration. Thus, for the toluene data given previously, the upper tolerance limit for the 99th percentile estimate, assuming a 95% significance level for the estimate would be around 123,000 mg/kg. This is the statistically valid estimate of an upper concentration level for toluene if all gasoline samples were considered.

In summary, EPA should use at a least a 99th percentile estiamte for ist concentration limits for comparable fuels; otherwise, it is effectively saying that a high prcentage of gasolines and fuel oils are unceptable for burning. In addition, EPA needs to adjust this estimate to account for the effect of sample size, that is, EPA needs to calculate upper tolerance limits.

Footnote{1} U.S. EPA, "Draft Technical Support Document for HWC MACT Standards, Volume VI, Development of Comparable Fuels Specifications," Washington, D.C., November 1995. Footnote {2} To determine which value must be averaged, first multiply the number of samples (8) by 0.90 (90th percentile). The answer is 7.2 and represents the rank of the 90th percentile value in the data set. Since 7.2 is between the 7th and 8th position, the average of the 7th and 8th values is used to estimate the 90th percentile. Footnote {3}The number of samples required is determined by the statistical equation relating the probabilty level to the percentile level. Footnote {4} U.S. EPA, "Statistical Support Document for Proposed Effluent Guidelines and Limitations Guideliens and Standards for the Centralized Waste Treatment Industry," EPA 821/R-95/005, Washington, D.C., 1995.

Response:

In the final rule, EPA is establishing specifications based on the composite at the largest value of its benchmark fuels. At the time of the proposal, EPA believed that a 50th percentile analysis represented a midpoint of potential benchmark fuels that were studied. EPA also believed that a 90th percentile analysis represented a reasonable upper bound of what is found in all fuels capturing variability both with each fuel category and in the case of the composite approach, between categories. However, when the individual fuel samples were compared to the benchmark specifications, EPA found that at the 50th percentile composite none of the fuel samples met the specification and at the 90th percentile composite only 40 percent met the specification. It was EPA’s goal to base the comparable fuel specifications on the 99th percentile, a level near which 90 percent of EPA’s individual fuel samples would meet the specification. However, the size of the data base precluded the calculating of a 99th percentile constituent specification. Therefore, in this case, the Agency used the largest measured value to approximate an upper percentile. [In the future, EPA may choose alternative methods of evaluating any new data that may be submitted suggesting that these specifications need to be modified.] After re-calculating the specification taking joint probability into account, EPA believes that the composite at the largest value more closely represents what EPA intended to propose with the 90th percentile, a reasonable upper bound that is also useable in practice. The 90th percentile closely represents what EPA intended with the proposed 50th percentile, i.e., a midpoint.

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COMPARABLE FUELS: SPECIFICATIONS

Applicability to Gases and Liquid

1. Specification should include an ash and solids content

CFFS2.01(commenter 106)
In addition, in response to EPA's request for comment on page 17460/3, we strongly urge EPA to add a specification for ash and solids content, since the comparable fuel exclusion must not be extended to solid hazardous wastes. ENSCO notes that the CMA's Proposed Clean Waste Fuels Exemption limited ash content to 0.1% and only liquids (see Docket Document #RCSP-S0044). ENSCO concurs with CMA's specification in this docket document and urges EPA to restrict the specification to liquids and adopt the 0.1% ash criteria.

CFFS2.03(commenter 130)
In addition, in response to EPA's request for comment (page 17460/3), we strongly urge EPA to add a specification for ash and solids content, since the comparable fuel exclusion must not be extended to solid hazardous wastes. The ETC notes that the CMA's Proposed Clean Waste Fuels Exemption limited ash content to 0.1% and only liquids (see Docket No. RCSP-S0044). The ETC concurs with CMA's specification in this docket document and urges EPA to restrict the specification to liquids and adopt the 0.1% ash criteria.

CFFS2.06(commenter 191)
104. Page 482
The Agency should include ash and solids content to the list of specifications.

Response:
In the final rule, EPA is not establishing a specification for ash and solids content. EPA is establishing a viscosity specification which limits the comparable fuels exclusion to liquids. In addition, EPA is promulgating metals specifications which would limit the burning of fuels with high ash/solids content that could potentially result in high emissions of metals or particulate matter. Thus, EPA believes an ash specification would be redundant.

2. Specification Should Not Include an Ash and Solids Content

CFFS2.02(commenter 110)
H. The Specifications Need Not and Should Not Include Ash Content and Solids Content
The CCF does not believe that the extensive specifications need to be expanded to include ash and solids limits. This conclusion is partially based on the premise that exempted waste should be burned in industrial boilers, industrial furnaces and other heat recovery units that are permitted under the Clean Air Act or state analogs. Burning fuels with high ash/solids content

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could potentially result in high emissions of heavy metals and/or particulate matter. High heavy metals emissions are prevented by the very tight limits on heavy metals which are already included in the proposed specifications. Any concern over PM emissions would be addressed by the particulate matter limits in the air permits that we believe should be in place for the combustion unit in which the qualified fuel would be burned.

CFFS2.04(commenter 134)
B. EPA's Comparable Fuel Specification Should Only Address Toxic Compounds:
EPA's proposed comparable fuel exclusion would establish a specification for kinematic viscosity, flash point, heating value, and nitrogen[7], as well as total halogens, individual toxic metals, and individual Appendix VIII toxic organics and fluorine. Although we support the Agency's effort to establish specifications for toxic constituents and heating value, Ciba does not support specifications for nitrogen, a pollutant that is already controlled under the CAA, or the physical parameters of kinematic viscosity and flash point. In addition, the comparable fuel specification should not be expanded to include other physical parameters, such as ash and solids content. [Footnote 7: Ciba assumes that establishing a comparable fuel specification for nitrogen would control oxides of nitrogen.]

CFFS2.05(commenter 174)
We feel EPA should not include ash and solids content in the specification. Acceptable levels of these constituents vary widely from burner to burner. For instance, a blacktop plant can burn very high ash and solid levels due to the fact that the process simply atomizes a flame into a kiln to dry aggregate. The solids and ash simply combine with the aggregate in the blacktop pavement, and are of no concern to the burner (or the environment). Water content, in reality, is also regulated by the minimum BTU value. Different burners can again accept varying water levels. As long as stream meets the minimum BTU level, water content should not be regulated by the agency.

CFFS2.08(commenter 214)
ASTM Standards
NORA recommends that existing ASTM standards for engine fuels (such as gasoline) and heating fuel oils serve as the performance benchmarks for "comparable fuels" wherever possible. These are the basic specifications that have been established within the business community that has bought and sold fuel for many decades. Thus, it is unnecessary, for example, for EPA to establish a specification for ash content or water content. Ash content and water content are not related to any environmental criteria. To the extent that a given parameter is not addressed in an ASTM standard, nothing prevents a burner from establishing, for example, a specific ash or water content of fuel (or rely on a BTU specification) to meet the particular requirements of his boiler or furnace.

<u>Response:</u>
EPA agrees with commenter. Responses to viscosity, flashpoint, and nitrogen specification are addressed in comment responses below.

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3. Specification should include an ash content, but no solids or water content.

CFFS2.07(commenter 205)

Comparable Fuels Specs - Ash (p. 17460): TCC agrees that physical specifications for comparable fuels should be promulgated for ash. Ash should be a specification to prevent excessive particulate emissions of carbonaceous residues and inorganic constituents of the fuel.

Comparable Fuels Specs - Solids (p. 17460): TCC disagrees that physical specifications for comparable fuels should be promulgated for solids.

Solids need not be limited if ash is limited. Limiting solids (in conjunction with an ash limitation) essentially serves to limit organic solids. Certain solids (e.g. tars, resins, suspended organic particles) may not be conducive to operating capabilities of a combustion unit's piping and atomizing burner. Therefore, the combustion unit would seek to prevent such solids by imposing its own solids specifications on the comparable fuel.

The issue of water content and heat value of fuel is analogous to the issue of solids and ash in a fuel. Combustion units minimize the water content of a fuel due to depression of fuel heat value and the potential for burner flame instability and even flameouts. Thus, combustion units are essentially imposing their own specifications on water content based upon their site-specific equipment capabilities. EPA is correct in not proposing a water content specification in addition to a BTU/lb specification because combustion units manage this issue themselves. Likewise, EPA should not impose a solids specification when combustion units will themselves impose site specific solids specifications that will consider their site-specific equipment capabilities.

Response:

EPA agrees with the commenter with regard to solids and water content. In the final rule, EPA is not establishing a specification for ash content, instead using viscosity and metal specifications which accomplish the same end. EPA is promulgating metals specifications which would limit the burning of fuels with high ash content that could potentially result in high emissions of metals or particulate matter.

Fuel Specification - Viscosity

1. Specifications should not include kinematic viscosity

CFFS3.01(commenter 099)

Dow also does not support specifications for the physical properties of kinematic viscosity and flash point and would not support expanding the specification to include other physical parameters, such as ash and solids content. In particular, while the American Society of Testing Materials (ASTM) has established a specification for viscosity, Dow is uncertain why the Agency has included this parameter in the comparable fuel specification. In fact., in

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reviewing both the preamble and Technical Support Document on comparable fuels, Dow could find nothing in the record that would support including viscosity in the specification other than a general statement that the Agency wanted to ensure that the excluded fuels have the same handling and combustion properties of fossil fuel. (See 61 FR 17460, April 19, 1996.) Rather, Dow believes that any material that is similar to fossil fuel in terms of its hazard component and heating value, should be considered a comparable fuel. The Agency, in fact, stated as much in the preamble where it said, "The rationale for the Agency's approach is that if a secondary material-based fuel is comparable to a fossil fuel in ten-ns of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has ample authority to classify such material as a fuel product, not a waste." In making this statement, EPA does not point to physical parameters that are necessary (except for heating content) in order for EPA to classify a material as a fuel.

CFFS3.05(commenter 110)
B. EPA's Proposed Specifications for Viscosity and Flash Point Are Unnecessary from the Standpoint of Environmental Protection and Are Inappropriate Because They Would Significantly Limit the Utility of the Exemption for the Regulated Community
3.The Proposed Viscosity and Flash Point Specifications are Unnecessarily Restrictive
The Coalition also notes that a specification for viscosity based on gasoline, and a flash point specification based on No. 6 fuel oil, are unnecessarily restrictive from an environmental standpoint. There is simply no need to establish a maximum viscosity of less than 3.4 cSt[12] or a minimum flash point of 69° C, in any case. This is particularly so in light of the fact that gasoline has a much lower flash point, and no.4 oil(and for that matter no.6 fuel oil) have much higher viscosities.
[Footnote 12: In fact, even a much higher viscosity would still allow good atomization and burning.]

CFFS3.09(commenter 134)
Ciba also does not support specifications for the physical properties of kinematic viscosity and flash point. (As already indicated a specification should be established for heating value to ensure that only those materials that provide sufficient energy value are eligible for the exclusion). Although the American Society for Testing Materials (ASTM) has established a specification for viscosity, Ciba does not understand why the Agency has included this parameter in the comparable fuel specification. In fact, in reviewing both the preamble and Technical Support Document on Comparable Fuels, there appeared to be nothing in the record that would support including viscosity in the specification other than a general statement that the Agency wanted to ensure that the excluded fuels have the same handling and combustion properties of fossil fuel. (See 61 FR 17460, April 19, 1996.)

CFFS3.12(commenter 198)
16. ECA recommends that no specification be established for viscosity
While lower viscosity is desirable because it enables better flow through feed piping and burner elements and better atomization and mixing, ECA does not support establishing a

physical specification on viscosity. The feed viscosity acceptable to a combustion unit will be a function of the design of the facility. In addition, the constituent specifications and CO limits proposed by CMA should be sufficient to achieve the desired impact.

CFFS3.14(commenter 205)
Comparable Fuels Specs - Flash Point/Kinematic Viscosity (p. 17464): TCC believes flash point and kinematic viscosity limitations should be left to the combustion unit. TCC prefers that sites specify, per equipment limitations, the kinematic viscosity and flash point. Compliance limits are not needed. These physical specifications are integral to a customer's use of a product in a free market. Further, there is no overwhelming evidence that lower viscosity or lower flashpoint translate into better combustibility. For example, the low viscosity material benzene is rated to have a high thermal stability (Class 1, Rank 3 on the Thermal Stability Index per Incinerability Ranking Systems for RCRA Hazardous Constituents, Publication PB91-196352, U.S. Environmental Protection Agency, Cincinnati, OH, 1990).

<u>Response:</u>
EPA believes that viscosity is an important specification to help ensure that a comparable fuel is as readily burnable as the benchmark fuel used as the basis for the exclusion. Viscosity is important to the proper atomization and feed to the burning device, and is an important design specification of the liquid burner assembly. The viscosity specification is based on that of No.6 fuel oil - the heaviest, most viscous, liquid fossil fuel. EPA is promulgating a comparable fuel viscosity specification of 50 cSt, as-fired. This is based on ASTM standard for No.6 fuel oil of 50 cSt (at 100°C, which is a common firing temperature for No.6 oil). Note that No.6 residual oil must be heated (from 30 to 50°C) for handling and pumping purposes due to high viscosity at normal ambient temperatures. For atomization and burning, it must be heated further to reduce the viscosity needed for efficient atomization and combustion, usually to temperatures in the range of 70 to 130°C (160 to 270°F). The exact temperature (and corresponding viscosity) requirement depends on factors including burner design, atomization method (steam assisted, mechanical pressure, etc.), and viscosity characteristics of the No.6 fuel oil. Thus, it is appropriate for a comparable fuel, when fired, to have the same viscosity as No.6 fuel when fired. This will allow for a specification that is achievable for all liquid fossil fuels.
With regard to flashpoint, see comment response below.

<u>2. Viscosity should apply at the point the fuel is fired.</u>

CFFS3.02(commenter 099)
In the alternative, if the Agency insists on including viscosity as a parameter in the comparable fuel specification, then Dow would recommend that the specification apply at the point that the fuel is fired. That is, the issue for the Agency to consider is the ability of the fuel to be properly atomized as it is fed to the combustion device and not the viscosity of the unused

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material.

CFFS3.04(commenter 110)

2. Viscosity

Burning a liquid fuel which has a high viscosity as fired can result in inadequate atomization in the burner nozzle, possibly resulting in incomplete combustion. Therefore, it has been common practice for at least one hundred years to reduce the as-fired viscosity to promote good atomization and combustion through blending with less viscous fuels or by warming the fuel to above-ambient temperature prior to firing. For example, while No. 6 fuel oil has an elevated viscosity at ambient conditions it is typically stored and fired at temperatures which promote good atomization and combustion. If No. 6 fuel oil is allowed to cool, then the material is re-heated prior to burning.

A significant number of clean fuel streams currently burned in RCRA Subtitle C combustion units (including those of CCF members) are generated at above-ambient temperature and are maintained above ambient temperature until they are burned. If the material is allowed to cool due to equipment problems, unusually cold weather, incinerator outage, or other non-standard occurrence, it is re-heated prior to being burned. These higher melt point streams typically must be managed on-site largely for economic reasons. Commercial facilities are generally not equipped to re-heat these wastes and thus charge a significant premium for handling this type material. Thus, the on-site management of these materials is protective of human health and the environment (because good atomization and combustion are consistently achieved) and economical (except for the extensive regulation under RCRA Subtitle C).

EPA, however, proposes to establish a standard that would measure viscosity (1) not at the point of firing, but at the point of generation, and (2) not at the temperature at which the fuel is maintained and burned, but at 40°C. As discussed above, requiring a candidate clean fuel to achieve a maximum viscosity either at the point of generation, or at 40°C, serves no useful purpose and furthers no conceivable. environmental goal. The irrationality of this approach is pointed up by the fact that EPA is inclined to support allowing blending of a candidate stream to meet the viscosity (and flash point) specification. 61 Fed. Reg. at 17467. if (as the agency seems to concede) it is appropriate to allow blending to meet these specifications (as we believe it would be), then there is surely no technical justification for EPA then to say that a fuel that can achieve the viscosity standard "as fired" without blending does not qualify for the exemption. Maintaining a candidate clean fuel at an above- ambient temperature, or occasionally re-heating it to achieve the requisite as-fired temperature, is analogous to blending a candidate clean fuel with lower viscosity material. From a technical standpoint, there is no reason to exempt burning from RCRA Subtitle C in the second instance but not in the first instance.

In short, the CCF believes that if the Agency must promulgate a viscosity (and flash point) specification, the specification should apply to the fuel as-fired, including the temperature at which it is fired. Any other result would be technically unjustifiable and arbitrary. It is not appropriate to insist that a stream be tested for viscosity at a temperature which the material does not experience (except during occasional cold spells/ outages) -- just as it would be inappropriate to say that No. 6 fuel oil is not a benchmark fuel because it has a high viscosity

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at 40°C. Congress does not regulate the burning of No. 6 fuel oil because, among other reasons, its viscosity at the temperature at which it is burned is acceptable from a thermodynamic and environmental standpoint. That is all that should matter for purposes of the comparable fuels exemption.

CFFS3.07(commenter 128)

6. CMA agrees with the Agency in establishing a physical specification for viscosity.

On page 17465 of the preamble, EPA solicits comment on setting a viscosity physical specification of 24.0 cSt at 40°C, based upon the ASTM specification for No. 4 fuel oil. CMA agrees that a viscosity specification is appropriate for the comparable fuels exemption. However, we support using the ASTM D396 Standard Specification for No. 4 fuel oil over EPA's proposed viscosity specification (based on the Agency's very limited sampling database). Moreover, as noted in Part X.B.5 below, CMA supports evaluating a fuel against the viscosity exemption criteria at the temperature of the fuel as fed to the boiler when higher fuel feed temperatures are used. CMA urges the Agency to revise its comparable fuels viscosity specification to 1) be based on the ASTM specification for No. 4 fuel oil and 2) be evaluated at the temperature of the fuel as fed to the boiler when higher fuel feed temperatures are used.

CFFS3.11(commenter 180)

A. If EPA maintains a viscosity specification, it should be evaluated at the temperature as fed to the nozzle.

The proposed physical specification for kinematic viscosity (cSt at 100°F) should be altered or dropped as comparable fuel specification. For viscosity, the key consideration is that the comparable fuel's viscosity is low enough for proper atomization at the specific atomizing temperature of the fuel when delivered to the burning device. Many of DuPont's potential comparable fuels are generated, stored, and pumped at temperatures far above the temperature associated with the proposed viscosity specification (100 F).

Our potential comparable fuels are handled at temperatures as high as 200 F and would never be subjected to low temperatures. These continuously burned streams have low CO emission levels and have also been burned during successful boiler DRE tests. If EPA maintains a viscosity specification, it should be evaluated at the temperature as fed to the nozzle.

CFFS3.13(commenter 204)

2.7. Viscosity

APS feed material is fed to the combustion device at a pressure of 160 psig and temperature of 180°F. These high pressures and temperatures are necessary to maintain APS in a liquid state. When allowed to cool and depressurize, APS forms a solid material similar to a pencil eraser. For this reason, APS will not pass the viscosity specification which is required to be conducted at 40°C.

Fina believes that EPA should measure viscosity in the condition as fired. This would be consistent with the current low risk exemption under the BIF rule (see 40 CFR 266.110(f)(1))

Since the proposed method for determining kinematic viscosity (i.e., ASTM D240) is not suitable for hot pressurized ignitable fluids, Fina believes that alternate methods of determining viscosity should be allowed. In-line viscosity meters similar to those used with #6 fuel oil should be allowed.

Response:

EPA agrees with the commenter that the viscosity specification should be "as-fired". EPA is promulgating a comparable fuel viscosity specification of 50 cSt, as-fired. This is based on ASTM standard for No.6 fuel oil of 50 cSt (at 100°C, which is a common firing temperature for No.6 oil). Note that No.6 residual oil must be heated (from 30 to 50°C) for handling and pumping purposes due to high viscosity at normal ambient temperatures. For atomization and burning, it must be heated further to reduce the viscosity needed for efficient atomization and combustion, usually to temperatures in the range of 70 to 130°C (160 to 270°F). The exact temperature (and corresponding viscosity) requirement depends on factors including burner design, atomization method (steam assisted, mechanical pressure, etc.), and viscosity characteristics of the No.6 fuel oil. Thus, it is appropriate for a comparable fuel, when fired, to have the same viscosity as No.6 fuel when fired. This will allow for a specification that is achievable for all liquid fossil fuels.

With regard to alternative methods for determining viscosity, the final rule allows the use of alternative methods that meet the performance based criteria described in section §261.38(c)(7). It is the responsibility of the generator to ensure that the sampling and analysis is unbiased, precise, and representative of the waste.

3. Specifications should include viscosity.

CFFS3.03(commenter 106)

In addition the ENSCO feels that the comparable fuel specification must include ASTM physical specifications for flash point and viscosity (see page 17460/3)... The viscosity is important to the proper atomization and feed to the burning device, and is an important design specification of the burner assembly. ENSCO therefore urges EPA to incorporate viscosity and flash point standards into the comparable fuel exclusion, consistent with ASTM specifications.

CFFS3.08(commenter 130)

In addition, the ETC feels that the comparable fuel specification must include ASTM physical specifications for flash point and viscosity (see page 17460/3)...The viscosity is important to the proper atomization and feed to the burning device, and is an important design specification of the burner assembly. The ETC therefore urges EPA to incorporate viscosity and flash point standards into the comparable fuel exclusion, consistent with ASTM specifications.

CFFS3.10(commenter 174)

In addition, we feel EPA should make use of ASTM's physical specification for flash point

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and viscosity for comparable fuels. Viscosity for fuels is normally measured by Saybolt Seconds Universal, not the Kinematic method. These tests are much more readily obtained from laboratories than EPA procedures and burners are more familiar with the specifications and understand them better.

Response:
EPA agrees with commenter with regard to viscosity.

4. Flexibility to choose either the ASTM or the EPA-based specifications.

CFFS3.06(commenter 110)
C. If Viscosity and Flash Point Benchmarks Are Promulgated, Facilities Should Have the Flexibility to Choose Either the ASTM or the EPA-Based Specifications for Both Characteristics
For reasons expressed in the preceding sections of these comments, CCF does not believe that specifications for these two parameters are necessary to assure safe storage and transportation and good combustion. Establishing standards for these parameters is not reasonably related to the goals of this rulemaking. The Department of Transportation and OSHA, the agencies with jurisdiction to address risks associated with flash point in connection with the handling and transportation of candidate clean fuels, have done so.[13]
If EPA nonetheless chooses to establish limits for these characteristics, it must do so in a way that provides maximum flexibility for the regulated community -- precisely because limits on viscosity and flash point would not serve any legitimate purpose that is related to the comparable fuels exemption. Consequently, if EPA establishes specifications, it should allow each facility to choose to rely either on the ASTM or the EPA-based specification for flash point and viscosity, respectively; this must include the option of relying on the ASTM-based specification for one characteristic and the EPA-based specification for the other. Otherwise, the utility of the exemption may be sharply reduced for no valid environmental purpose. The analytical results obtained by the Coalition indicate that in several instances, CCF members meet the ASTM-based specification for one characteristic and the EPA-based specification for the other characteristic, but do not meet the EPA specifications for both characteristics and do not meet the ASTM specifications for both characteristics.
It should also be noted, however, that if EPA provides an exemption for flash point, then CCF stream #4 and #6A would benefit from the ASTM-based specifications. In fact, stream #4 would qualify for the 90th percentile composite benchmark if the ASTM-based viscosity specification were applied and no flash point requirement were established. Stream #6A would pass the viscosity specification for all benchmarks except gasoline using the ASTM data; it would fail gasoline and the 90th percentile composite specification for viscosity if the EPA data were used.
[Footnote 13: Moreover, to the extent that candidate clean fuels are like the benchmark fuels, they are replacements for commercial products, not wastes to be regulated under RCRA Subtitle C. See note 11, supra.]

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Response:
EPA is promulgating a comparable fuel viscosity specification of 50 cSt, as-fired. EPA is not establishing a flashpoint specification in the final rule (see comment response below). EPA believes its approach will provided maximum flexibility to the regulated community.

Fuels Specification - Flash Point

1. Flash point specification is not necessary.

CFFS4.01(commenter 099)
Likewise, Dow opposes establishing a comparable fuel specification for flash point. In particular, while Dow recognizes that materials with low flash points can present some unique handling problems, both the Department of Transportation (DOT) and the Occupational Safety and health Administration (OSHA) have developed and promulgated regulations that control such materials through transport and storage so as not to present a hazard. More importantly, owners and operators of boilers and other such devices that burn these materials have a real interest in ensuring that the material they burn will not present any problems at the facility, especially if the material is to be used as a fuel. Thus, a specification for flash point would be redundant and unnecessary.

CFFS4.03(commenter 110)
1.Flash Point
a. Flash Point Specifications are unnecessary
The flash point of a fuel is a secondary property which reflects the temperature at which a material can continue to support a flame once an outside ignition source has been provided. From an environmental viewpoint, it is a good property for a fuel to have -- atomized droplets vaporize readily and maintain stable combustion more easily. Thus, human health and the environment are not adversely affected by the burning of low flash point fuels. There is, however, a safety concern associated with the handling of low flash point materials -- a low flash material will ignite and maintain combustion more easily than a high flash material.
For this reason, several comprehensive standards for designing and operating equipment and systems have been developed and refined over approximately the last one hundred years. For example, DOT has developed and refined very comprehensive requirements for the safe transport of low flash point (and many other, more complex) materials. Similarly, OSHA, insurance underwriters (such as Factory Mutual), and chemical manufacturers and other clean fuel generators all have comprehensive requirements for the safe handling of low flash point materials on the industrial site at which the material is generated.
With these safety procedures, low flash point materials are safely produced, stored, transported and used throughout the economy on a daily basis. Millions of gallons of gasoline are transported, stored and dispensed by the general public daily in the United States. Thus, there is no need to add another set of requirements to those already in place. Where low flash point waste fuels which otherwise qualify for the proposed exemption are transported off-site

for burning, it is sufficient to require that transporters and other off-site handlers of the material be notified of the flammable nature of the material and appropriate related details. As we understand it, EPA is inclined to exempt low- flash comparable fuels if such notice is provided. We strongly support such an exemption and urge the agency to adopt it; as discussed in detail in these comments, the elimination of a flash point requirement is essential for the comparable fuels exemption to have any utility to CCF and, we suspect, the regulated community at large.

CFFS4.04(commenter 110)

b. Flash Point Specifications Surely Should Not Be Required For Waste Fuels that are Burned On-Site By the generator

The vast majority of candidate clean fuels -- including those generated by the Coalition's members -- are burned as supplemental fuel on-site by the generator of the fuel or would be burned on-site if it were not for the BIF regulations. In these instances, there is even less rationale for promulgating a separate flash point requirement since the employees who handle the fuel prior to burning can be expected to be more familiar with the material, and hence be more likely to take appropriate precautions, then third parties. The accompanying data show that just among the CCF's members, the proposed flash point specifications pose a material obstacle preventing them from qualifying for the comparable fuels exemption. In these circumstances, the imposition of a flash point requirement would significantly limit the utility of the proposed exemption with no countervailing environmental, health or safety benefits; a flash point requirement would simply add regulatory burdens and costs where they are not justified and distract the regulated community and the environmental agencies from higher, more useful priorities.

It should also be noted, however, that if EPA provides an exemption for flash point, then CCF stream #4 and #6A would benefit from the ASTM-based specifications. In fact, stream #4 would qualify for the 90th percentile composite benchmark if the ASTM-based viscosity specification were applied and no flash point requirement were established. Stream #6A would pass the viscosity specification for all benchmarks except gasoline using the ASTM data; it would fail gasoline and the 90th percentile composite specification for viscosity if the EPA data were used.

CFFS4.05(commenter 128)

5. CMA believes that a physical specification for flash point is not needed for comparable fuels.

The Agency does not request comment on whether its comparable fuel specification should include a flash point specification; it simply assumes that such a specification - apparently a minimum value - is warranted for safety reasons. The Agency indicates on 17465 that it believes a flash point specification of 38°C (100°F) ensures adequate safe handing during transportation and storage. (This 38°C spec is based on #2. fuel oil, as gasoline's flash point (-40°C) was discarded as extreme). The preamble also solicits comments on whether ASTM's physical specifications for flash point should be used instead of the results of EPA's analysis. CMA believes that a flash point specification is simply not needed, as a plethora of controls

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are already in place to ensure safe handling and transport. The materials that will be eligible for the exemption are no different then the millions of gallons of lower flash products currently in commerce, including commonplace commercial fuels such as gasoline, kerosene, propane, and butane. The general public and transportation, service and manufacturing industries all manage these products safely on a daily basis. Their safe handling is regulated during loading, unloading and transport by the DOT, during storage by state and local fire codes, and in the workplace by OSHA. For example, DOT's hazardous material rules (49 CFR Parts 100-199) include provisions for loading and unloading operations, packaging, vessel/container design, hazard communication, emergency response, labeling and/or placarding, and tracking requirements via bills of lading.

The flash point specification is one of the reasons CMA prefers the its own Clean fuels approach over the "benchmark approach." The proposed flashpoint specification of 38°C (100°F) would eliminate many streams that we truly believe should be eligible for an exemption. It should be noted that a clean fuels specification of 38°C would preclude the burning of materials that are normally fuels, e.g., gasoline, methanol. This includes numerous byproduct, solvent and product return streams that comprise high BTU organics/low metals; for example, ethanol and methanol. Even gasoline would be excluded by the proposed flash point specification. Burning for energy recovery in boilers is a prudent management method and these materials do not present any more of a hazard than the fuels they would be replacing.

CFFS4.07(commenter 134)

Likewise, we oppose establishing a comparable fuel specification for flash point since both the Department of Transportation (DOT) and the Occupational Safety and Health Administration (OSHA)have each developed and promulgated regulations to control such materials throughout and storage so as not to present a hazard. [9] In addition, owners and operators of combustion devices that burn such flammable materials have a real interest in ensuring that the material they burn will not present any problems at the facility, particularly if the material is to be used as a fuel. While it is true that materials that have low flash points are a good indicator of a material's ability to be fuel-like, the Agency is already addressing this parameter by establishing a specification for heat content. Thus, a specification for flash point would be redundant. Consequently, Ciba strongly believes that the final comparable fuel specification should not include nitrogen, ash, kinematic viscosity, and flash point.

[Footnote 9: See Section IV.A below for more detail on this point.]

Ciba agrees with the Agency that material that is similar to fossil fuel in terms of its hazard component and heating value, should be considered a comparable fuel. The Agency stated in the preamble that "The rationale for the Agency's approach is that if a secondary material-based fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has ample authority to classify such material as a fuel product, not a waste." In making this statement, EPA does not point to physical parameters that are necessary (except for heating content) in order for EPA to classify a material as a fuel.

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CFG.46.a(commenter 139)

FMC and FCC are opposed to the Comparable Fuels Specification because the specifications are excessively restrictive. For example, gasoline and pure methanol could not be incinerated because of flash point restrictions!

CFFS4.08(commenter 198)

15. ECA recommends that no flash point specification be established

The proposed flash point specification of 38 degrees C would eliminate many streams that would be eligible for an exemption. The issue on flash point is not about combustion but rather about safe handling during storage and transport. A specification is not needed as there are already controls in place to ensure safe handling and transport (e.g. DOT standards). The suggested specification would even eliminate gasoline as a clean fuel since the flash point for gasoline is -40 degrees C. Burning for energy recovery in boilers is a prudent management method and low flash materials can be managed safely in properly designed facilities. In summary, a flash point specification will unnecessarily restrict the comparable fuels exclusion.

CFFS4.09(commenter 204)

2.6. Flash Point

APS contains a significant fraction of flammable gases such as propane, propylene, and ethane. These flammable gases make the flash point of APS extremely low. Flash point values are typically not given for flammable gases. As discussed on page 17468 of the preamble, Fina agrees with EPA that a waiver should be given to low flash point comparable fuels. This waiver could apply to both wastes that are burned at the location that they are produced and comparable fuels shipped to commercial facilities.

Since APS is neither transported or stored, the adequacy of DOT and OSHA regulations on storage and transportation in not an issue for Fina. The Fina plant produces polypropylene plastic from propylene monomer. Because of the large quantities of flammable gas kept at the plant, Fina has an extensive fire prevention program that exceeds DOT and OSHA standards. This fire prevention program extends to the management of APS feed material.

Response:

EPA is not promulgating a flashpoint specification in the final rule. There are currently many products with low flashpoint (gasoline, kerosene, propane, etc.) that are being handled in the market place without RCRA control. Department of Transportation (DOT),OSHA, and state and local regulations are protective for the transportation and handling of low flashpoint material. DOT (49 CFR Parts 171 through 180) regulates low flashpoint materials during loading, unloading and transport. State and local fire codes regulate during storage and OSHA (29 CFR Part 1910) regulates in the workplace where the material is handled. Setting a flashpoint specification under RCRA would be unnecessarily redundant with no ostensible gain in protectiveness. Furthermore, setting a flashpoint might limit the comparable fuel exclusion, making high Btu, high organic, candidate comparable fuels ineligible for the exclusion.

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2. Flash point specification should be included.

CFFS4.02(commenter 106)
In addition the ENSCO feels that the comparable fuel specification must include ASTM physical specifications for flash point and viscosity (see page 17460/3). These are important physical properties of fuel, and the flash point is particularly important for safe management of the comparable fuel. The flash point is critical for storage of the fuel prior to use, since a given storage system is designed to certain NFPA and building fire prevention code requirements defined on the basis of flash point.

CFFS4.06(commenter 130)
In addition, the ETC feels that the comparable fuel specification must include ASTM physical specifications for flash point and viscosity (see page 17460/3). These are important physical properties of fuel, and the flash point is particularly important for safe management of the comparable fuel. The flash point is critical for storage of the fuel prior to use, since a given storage system is designed to certain NFPA and building fire prevention code requirements defined on the basis of flash point.

Response:
EPA is not establishing a flashpoint specification in the final rule. Department of Transportation (DOT),OSHA, and state and local regulations are protective for the transportation and handling of low flashpoint material. DOT (49 CFR Parts 171 through 180) regulates low flashpoint materials during loading, unloading and transport. State and local fire codes regulate during storage and OSHA (29 CFR Part 1910) regulates in the workplace where the material is handled. Setting a flashpoint specification under RCRA would be unnecessarily redundant with no ostensible gain in protectiveness.

3. Ignitability standard should be re-evaluated.

CFFS4.10(commenter 095)
FLASHPOINT: Generally the solvent used in our distillation process has a flashpoint between 105°F to 115°F. Some operations may use solvent with a flashpoint of 142°F or greater, particularly in warmer climates. Automotive crankcase oil can range in flashpoint from 350°F to 520°F. Of course there are many other specialized oils used in the electronics. metal finishing and aircraft industries that may have flashpoints of less than 100°F. Based on testing of distillation residues in routine use at vehicle and fleet maintenance facilities, flashpoint of the residues consistently range between 152°F and 175°F.
The regulated community has to contend with regulatory flashpoint levels that are sometimes inconsistent and historical antiquated. Used oil to be burned for energy recovery, or made into fuel is considered to be on-specification if it has a flashpoint as low as 100°F.[4] [Footnote 4: 40 CFR 279.11.] Ignitable hazardous waste is defined by a 140°F. flashpoint. US DOT allows shippers to classify and transport containers as "combustible" when materials

have a flashpoint at or above 100°F. EPA chose to deviate from the DOT combustibility standard in 1980 (i.e. define hazardous waste at a 140°F. level rather than 100°F.) specifically because of additional concerns that could be encountered during routine waste management. EPA. at the time was particularly concerned about the ambient air temperatures encountered during land disposal.[5] [Footnote 5: 45 FR, May 19. 1980, p. 33108.] Now that liquids and solvents have been banned from land disposal since the 1980's. We believe EPA should reassess the ignitability characteristic level and move to better align itself with regulatory levels of other agencies. We recommend that EPA re-evaluate the ignitability standard based on the current type of waste management methods employed coupled with the national policy emphasis to move waste up the hierarchy and encourage prevention. recycling and reclamation. This is a particularly important consideration as the used oil mixture rule is re-evaluated and standards for inherently comparable fuel are established.

We believe there is a need for a realignment of the current inconsistent regulatory levels associated with flashpoint between various regulatory authorities and recommend that EPA redefine the characteristic of ignitability for hazardous waste to be less than 100°F. This would have the practical effect of encouraging more reclamation, recycling, and energy-recovery, while assuring environmental and health protection. It would also improve the regulatory consistency, between agencies and update EPA's rules to reflect current waste management reality.

WM3.073(commenter 154)

FLASHPOINT:

Generally the solvent used in our distillation process has a flashpoint between 105°F. to 115°F. Some operations may use solvent with a flashpoint of 142°F. or greater, particularly in warmer climates. Automotive crankcase oil can range in flashpoint from 350°F. to 520°F. Of course there are many other specialized oils used in the electronics, metal finishing and aircraft industries that may have flashpoints of less than 100°F. Based on testing of the distillation residues in routine use at vehicle and fleet maintenance facilities, flashpoint of the residues consistently range between 152°F. and 175°F.

The regulated community has to contend with regulatory flashpoint levels that are sometimes inconsistent and historically antiquated. Used oil to be burned for energy recovery or made into fuel is considered to be on-specification if it has a flashpoint as low as 100°F.[4] Ignitable hazardous waste is defined by 140°F. flashpoint. US DOT allows shippers to classify and transport containers as "combustible" when materials have a flashpoint at or above 100°F. EPA chose to deviate from the DOT combustibility standard in 1980 (i.e. define hazardous waste at 140°F> level rather than 100°F.) specifically because of additional concerns that could be encountered during routine waste management. EPA, at the time, was particularly concerned about the ambient air temperatures encountered during land disposal.[5] Now that liquids and solvents have been banned from land disposal since the 1980's, we believe EPA should reassess the ignitability characteristic level and move to better align itself with regulatory levels of other agencies. We recommend that EPA re-evaluate the ignitability standard based on current type of waste management methods employed coupled with the national emphasis to move waste up the hierarchy and encourage prevention, recycling and

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reclamation. This is a particularly important consideration as the used oil mixture rule is re-evaluated and standards for inherently comparable fuel are established.

We believe there is a need for a realignment of the current inconsistent regulatory levels associated with flashpoint between various regulatory authorities and recommend that EPA redefine the characteristic of ignitability for hazardous waste to be less than 100°F. This would have the practical effect of encouraging more reclamation, recycling and energy recovery, while assuring environmental and health protection. It would also improve the regulatory consistency between agencies and update EPA's rules to reflect current waste management reality.

[Footnote 4: 40 CFR 279.11.] [Footnote 5: 45 FR, May 19, 1980, p.33208]

<u>Response:</u>

EPA is not promulgating a flash point specification in this final rule. Furthermore, EPA is not reassessing the ignitability characteristic level is this rulemaking. This final rulemaking is not the appropriate place to address possible inconsistency among regulatory levels associated with flash point.

<u>Limits for CAA Metal HAPs</u>

<u>1. It is not necessary to include cobalt and manganese as hazardous constituents.</u>

CFFS5.01(commenter 128)

7. CMA does not believe it is necessary to include cobalt and manganese as hazardous constituents in the benchmark or clean fuels exemption.

The Agency is proposing to consider cobalt and manganese as hazardous constituents and therefore limit the constituent levels to those contained in the benchmark composite fuel. Since the concentrations of these constituents in the benchmark fuel samples were below detection levels, the limitation would likely become the Maximum Detection Limit. The only rationale indicated in the preamble for imposing this limitation is that these metals are HAPS. CMA does not believe it is necessary to consider cobalt and manganese as hazardous constituents in either the benchmark or clean fuel approaches. Limiting the concentration of these two metals to the Maximum Detection Limit in the liquid fuel just serves to further restrict the utility of the benchmark exemption with no apparent environmental benefit. Cobalt and manganese are not considered hazardous constituents under RCRA. They are not LVM's or SVM's under MACT and are considered to exhibit lower volatility and toxicity.

The Agency is not obligated to control every individual metal constituent. In the HWC MACT, the Agency has proposed to regulate emissions of metal HAP's in groups (i.e., LVM and SVM), and not to issue individual standards for each of the 14 HAP metals. As indicated earlier in CMA's comments, we support this approach and believe the metal controls on boilers and incinerators to control emissions of LVM's and SVM's will also serve to control the other HAP metals including cobalt and manganese.

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Response:
EPA is setting limits for two metals that are not found on Part 261, Appendix VIII: cobalt and manganese. EPA included these metals in the analysis because they are listed in the Clean Air Act as hazardous air pollutants (HAPs). See CAA, section 112(b). By including these metal HAPs and RCRA metals listed on Appendix VIII, Part 261, the Agency will ensure that the specification limits all toxic metals of concern in hazardous wastes to levels in the benchmark fossil fuels.

The commenter's reference to the proposed MACT standards is not apposite because the Agency there is regulating both PM and LVM/SVM which serve as surrogates for particular metal HAPs. The surrogate approach is possible in the MACT standard because the different metal HAPs which are grouped are amenable to control by the same air pollution control technology. No such surrogate approach is possible in establishing a fuel specification, since it always possible that one metal will be present even if the others are not. Put another way, for the comparable fuels approach, it would be inappropriate to group metals because the content of the comparable fuel is being compared to the benchmark fuel. Grouping in the case of air emissions standards is appropriate because the same pollution control device is employed to control metal groupings. The comparable fuels approach is a comparison of constituent make-up and not a comparison of emissions.

Organic Constituent Specs

1. No specification should be established for benzene and toluene.

CFFS6.01(commenter 099)
3. No quantitative specification should be established for benzene and toluene in EPA's comparable fuel specification.

Dow recommends that the comparable fuel specification not set a quantitative limit for benzene and toluene to be consistent with existing regulations. In particular, under current rules, commercial chemical benzene and toluene are not considered wastes when burned as fuels because (as the Agency states) "...normal fossil fuels can contain significant fractions of these chemicals and these chemicals have fuel value." See 61 FR 17459, April 19, 1996. As such, a person today can burn up to 100 percent commercial benzene and toluene as a fuel and not be regulated under Subtitle C of RCRA. Dow believes that the Agency has correctly noted that both benzene and toluene are significant fractions of various fossil fuels and thus have fuel value. Thus, the proposed comparable fuel specification is inconsistent with existing rules. If a facility can today burn commercial benzene and toluene as a fuel without any restriction on concentration, then what is EPA's justification for placing a limit on benzene and toluene in the comparable fuel specification; no justification appears to be offered in the record. Therefore, Dow strongly recommends that EPA maintain its current position and not set a quantitative limit in the comparable fuel specification for benzene or toluene.

CFFS6.06(commenter 134)

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F. No Quantitative Specification Should Be Established For Benzene and Toluene
The comparable fuel specification should not set a quantitative limit for benzene and toluene to be consistent with existing regulations. In particular, under current rules, commercial chemical benzene and toluene are not considered wastes when burned as fuels because (as the Agency states) "... normal fossil fuels can contain significant fractions of these chemicals and these chemicals have fuel value." (See 61 FR 17459, April 19, 1996). As such, a person today can burn up to 100 percent commercial benzene and toluene as a fuel and not be regulated under Subtitle C of RCRA. The Agency correctly noted that both benzene and toluene are significant fractions of various fossil fuels and have fuel value. Thus, the proposed comparable fuel specification is inconsistent with existing rules.

CFFS6.09(commenter 174)
I.D.1.A Hazardous Constituent Specifications:
If pure Benzene and Toluene are allowed in unused form to be safely burned as fuel why should their levels be regulated in the Comparable Fuel Specification?

CFFS6.14(commenter 198)
10. ECA recommends that constituents that themselves are fuels should not be limited by the comparable fuels specification.
Some compounds on the Appendix VIII list are themselves fuel. There should be no clean fuels specification established for these. As EPA noted in the preamble, "commercial chemical products such as benzene, toluene, and xylene are not considered to be wastes when burned as fuels because normal fossil fuels can contain significant fractions of these chemicals and these chemicals have a fuel value" (61 FR 17459). There is no justification to limit compounds which themselves contribute to the desirable characteristics of commercial fuels.

CFFS7.12(commenter 201)
3. A comparable fuel rule should also recognize and accommodate the use of chemical fuel additives that are often placed in liquid fuels to stabilize and promote efficient combustion. Combustion residuals of these additives should be factored into the benchmark profile of the various fossil fuels.

<u>Response:</u>
Establishing no limits for benzene and toluene would depart from the comparable benchmark approach. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. To establish no limits for benzene and toluene (or compounds on the Appendix VIII that are themselves fuels) would require the assessment of risk which EPA is not prepared do in this rulemaking. Therefore, the final rule allows benzene and toluene to be present at any concentrations detected in EPA's analysis.
The section 261.33 provision, and associated interpretive exclusion for characteristic <u>unused</u>

commercial chemical products, applies (as 261.33 makes clear) only to unused or off-specification commercial chemical products that are otherwise fuels. It is not apply to generated hazardous waste. Thus, hazardous wastes containing toluene or benzene would be RCRA regulated (unless the hazardous waste meets the comparable fuel specifications).

2. Errors and data that was not used in calculating the specification for benzene and toluene.

CFFS6.02(commenter 099)
Regardless of EPA's policy decision on this matter, there appears to be errors and data that was not used in calculating the specification for benzene and toluene. In particular, the Draft Technical Support Document on comparable fuels provides the procedure that was used in deriving the specification. [18] The Draft Technical Support Document also includes the raw data that EPA used in calculating the various specifications. [Footnote 18: See HWC MACT Standards, Volume VI, Development of Comparable Fuel Specifications, pp. 3-1 to 3-4.]

In reviewing the analytical data for benzene from the eight gasoline samples, it shows a range from 4,500 mg/kg to 8,000 mg/kg. Dow does not understand how EPA can establish a specification for benzene of 3,500 mg/kg that is less than all the values obtained by EPA in its analytical studies. Dow has similar concerns with the specification for toluene based on EPA's methodology in calculating the specification. Moreover, in Dow's rulemaking petition on comparable fuels, analytical data was provided on benzene and toluene for various fossil fuels, including gasoline. The data demonstrates that benzene is found in gasoline at 60,000 parts per million (ppm), while toluene is found at 130,000 ppm. However, the Agency did not consider these data in deriving the comparable fuel specification for benzene and toluene in gasoline. Therefore, Dow would encourage the Agency to review all data and develop a revised comparable fuel specification for benzene and toluene, if the Agency decides to establish a quantitative limit for benzene and toluene.

CFFS6.07(commenter 134)
Additionally there appears to be errors and data that was not used in calculating the specification for benzene and toluene. In particular, the Draft Technical Support Document on comparable fuels provides the procedure that was used in deriving the specification.[15] The Draft Technical Support document also includes the raw data that EPA used in calculating the various specifications. In reviewing the analytical data for benzene from the eight gasoline samples, it shows a range from 4,500 mg/kg to 8,000 mg/kg. Ciba does not understand how EPA can establish a specification for benzene of 3,500 mg/kg that is less than all the values obtained by EPA in its analytical studies. A similar situation occurred with the toluene limit. Moreover, The Dow Chemical Company (Dow) submitted a rulemaking petition to EPA (dated August 10, 1995) in which Dow requested, among other things, that EPA promulgate a generic comparable fuel specification. As part of its rulemaking petition, Dow provided analytical data on benzene and toluene for various fossil fuels, including gasoline. The values provided by Dow were 60,000 parts per million (ppm) for benzene and 130,000 ppm for

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toluene. However, the Agency did not consider these data in deriving the comparable fuel specification for benzene and toluene in gasoline. Therefore, Ciba encourages the Agency to review all data and develop a revised comparable fuel specification for benzene and toluene, if the Agency decides to establish a quantitative limit for these constituents.
[Footnote 15: See HWC MACT Standards, Volume VI, Development of Comparable Fuel Specification, pp 3-1 to 3-4 .]

Response:
The analytical data for benzene from EPA's eight gasoline samples does range from 4,500 mg/kg to 8,000 mg/kg. The reason the 90th composite specification for benzene is 3,500 mg/kg is due to the statistical methodology used to calculate the composite value. First, constituent levels presented in today's final rule have been corrected from the fuel's heating value (approximately 20,000 BTU/lb) to 10,000 BTU/lb. This was done to address the issue of environmental loading. In this way, a facility that burns a comparable fuel would not be feeding more total mass of hazardous constituents than if it burned fossil fuels. (Note that the heating value correction would apply only to allowable constituent levels in fuels, not to detection limits. Detection limits would not be corrected for heating value.) Second, to calculate benchmark specifications for the proposed rule, EPA used a nonparametric rank order statistical approach to analyze the fuel data. Rank order involved ordering the data for each constituent from lowest to highest concentration, assigning each data point a percentile value from lowest to highest percentile, respectively. Results were then calculated from the data percentiles. Because there were different numbers of samples for each fuel type, EPA's statistical analysis "normalized" the number of samples, i.e., treats each fuel type in the composite equally without regard to the number of samples taken.

The gasoline data submitted by Dow Chemical was not included in the benchmark specifications because of analytical problems. The concentration reported by the laboratory for benzene exceeded the maximum permitted concentration according to 40 CFR 80.41, "Standards and Requirements for Compliance" under "Regulations of Fuels and Fuel Additives". The Simple Model and Phase I and Phase II Complex Model Average Standard for benzene for gasoline is less than or equal to 0.95 percent by volume. This value translates to approximately 10,000 mg/kg. The laboratory reported benzene in the Dow Chemical gasoline sample at 60,000 mg/kg, which is about six times the specified limit. A probable explanation for this concentration discrepancy is the laboratory performed a 1,250,000 fold dilution of the sample. Assuming Class A volumetric flasks were used for the dilution of the sample, and the sample was serially diluted, each dilution would have a 0.5% error. Assuming the initial sample preparation is a 125 fold dilution, than 4 serial dilutions, each a 10-fold dilution, would yield the final 1,250,000 dilution. The propagation of the standard tolerances of Class A volumetric flasks could easily lead to a dilution error in this order of magnitude.

3. Support specifications for the full range of hazardous metal and organic constituents.

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CFFS6.03(commenter 106)
ENSCO also applauds EPA for setting specifications for the full range of hazardous metal and organic constituents under Appendix VIII, and urges EPA to retain this in the final rule. We agree that the content of the comparable waste fuel relative to these constituents must not be any greater than what is encountered in fossil fuels. Otherwise substantial emissions of toxic constituents can result from a wide range and large number of burning devices, including institutional units. The large number of devices, combined in the lower efficiency of many burner devices, can lead to more environmental loading of pollutants. Wastes with Appendix VIII constituents exceeding levels typically found in fossil fuels must only be burned in highly efficient and controlled treatment units, regulated under RCRA.

CFFS6.05(commenter 130)
The ETC also applauds EPA for setting specifications for the full range of hazardous metal and organic constituents under Appendix VIII, and urges EPA to retain this in the final rule. We agree that the content of the comparable waste fuel relative to these constituents must not be any greater than is typical of fossil fuels. Otherwise substantial emissions of toxic constituents can result from a wide range and large number of burning devices, including institutional units. The large number of devices, combined with the lower efficiency of many burner devices, can lead to more environmental loading of pollutants. Wastes with Appendix VIII constituents exceeding levels typically found in fossil fuels must only be burned in highly efficient and controlled treatment units, regulated under RCRA.

<u>Response:</u>
EPA agrees with commenters.

<u>4. No specifications should be established for pure hydrocarbons.</u>

CFFS6.04(commenter 128)
d) CMA recommends that no comparable fuels specification limits should be established for pure hydrocarbon compounds.
As noted previously, EPA's proposes to limit pure hydrocarbons (i.e., substances composed of carbon and hydrogen molecules only) only to the detection limits in EPA's analysis. With the appropriately designed combustion unit, pure hydrocarbons will burn cleanly, precisely because they are made up of only of carbon and hydrogen. In addition, the CMA Clean Fuels proposal includes a CO limit to ensure organic destruction.

CFFS6.13(commenter 198)
9. ECA recommends that no comparable fuel specification limits be established for pure hydrocarbon compounds.
As noted previously, EPA's only relief on pure hydrocarbons (comprised of carbon and hydrogen molecules only) is to allow pure hydrocarbon compounds up to the detection limits in EPA's analysis. With the appropriately designed combustion unit, pure hydrocarbons, made

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up only of carbon and hydrogen, will burn cleanly. Therefore, no specifications for pure hydrocarbons should be required.

Response:
EPA disagrees with establishing no limits for Appendix VIII hydrocarbons because this would depart from the comparable benchmark approach and even relatively clean-burning compounds may produce some toxic emissions. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. To establish no limits for hydrocarbons would require the assessment of risk which EPA is not prepared do in this rulemaking. Pure hydrocarbons may possibly be clean burning, but EPA would have to model risk to positively conclude that fact. The comparable fuel approach has been taken to avoid the difficulties associated with making a risk assessment.

EPA's analysis confirms that these compounds are not present in the benchmark fuels above the minimum detection limits. However, it is reasonable to assume that the "non-detect" pure hydrocarbons could in fact be present in fossil fuels up to the detection limit since fossil fuels are comprised entirely of pure hydrocarbons. Therefore, the final rule allows hydrocarbons in Appendix VIII to be present at any concentration less than or equal to the detection limits in EPA's analysis.

5. Formic Acid Should Not Be Included in the Comparable Fuel Specification.

GEN1.030.b(commenter 099)

Footnote 6: While formic acid is identified as a hazardous constituent, the Agency did not propose a specification for formic acid. Dow agrees with EPA that a specification should not be promulgated. In particular, in reviewing the Background Document to the List of Commercial Chemical Products in 40 CFR 261.33, it indicates that the reason formic acid was listed was that it met the ignitable (1), corrosive (C) or reactivity (R) characteristic. Thus, EPA provides no support in the record for defining formic acid as toxic. In fact, most of the information in the record would support just the opposite. In particular, in reviewing the Health and Environmental Effects Profile for Formic Acid (See Health and Environmental Effects Document for Formic Acid, U.S. Environmental Protection Agency, final Draft, ECAO-CIN-GO54, July 1990.), it indicates that the subchronic toxic potency of formic acid is low. In addition, this document indicates that formic acid is used as a food additive and as a constituent of paper and paperboard in food packaging. In fact, after a comprehensive safety review, the U.S. Food and Drug Administration affirmed that formic acid is generally recognized as safe as an ingredient in human food.

CFFS6.08(commenter 134)

3. Formic Acid Should Not Be Included in the Comparable Fuel Specification

The proposed comparable fuel specification did not include a specific limit for formic acid. Ciba agrees with this and would urge the Agency not to include a specification for formic acid in the final rule, even though formic acid is listed on Appendix VIII of Part 26 1. Our basis for this is several-fold. First, although formic acid is listed in 40 CFR 261.33 for both its toxicity and corrosivity, the only reason provided in the background document for its listing was that it met the criteria for ignitability (1), corrosivity (C), or reactivity (R).[18] Thus, EPA provides no support in the record for defining formic acid as toxic.[19]

In fact, most of the information in the record would support just the opposite. In particular, in reviewing the Health and Environmental Effects Profile for Formic Acid[20] ,it indicates that the subchronic toxic potency of formic acid is low. In addition, this - document indicates that formic acid is used as a food additive and as a constituent of paper and paperboard that is used in food packaging. In fact, the U.S. Food and Drug Administration (FDA) conducted a comprehensive safety review of formic acid and determined that it is generally recognized as safe as an ingredient in human food.

Moreover, since formic acid is aliphatic and only comprised of carbon, hydrogen and oxygen, it would be very unlikely for the combustion of this compound to generate PICS, one of the major concerns the Agency has from the combustion of hazardous wastes. Formic acid should not be included in the final comparable fuel specification because it only presents a hazard due to its corrosive nature, and not due to its toxicity.

[Footnote 18: See pg. 75 of the Background Document for the Listing of Section 261.33 Commercial Chemical Products and the Containers and Spill Residues Thereof, January 1981, and updated April 1981.] [Footnote 19: Based on Ciba's assessment, Ciba also questions whether formic acid should remain on Appendix VIII of Part 26 1, and would request the Agency to re-evaluate its position regarding the toxicity of formic acid.] [Footnote 20: Health and Environmental Effects Document for Formic Acid, U.S. Environmental Protection Agency, Final Draft, ECAO-CIN-GO54, July 1990.] [Footnote 21: Under EPA's proposed specification, comparable fuels would generally have a flash point of less than 100 degrees Fahrenheit. Materials having this property are already controlled under the DOT and OSHA regulations as flammable materials.]

Response:

EPA is not including a specification for formic acid in this final rulemaking. Formic acid was not analyzed because a routine analytical method is not available. Because EPA did not analyze for formic acid, EPA will not be promulgating a specification for formic acid. EPA believes it highly unlikely that a hazardous waste-derived fuel would contain this undetectable Appendix VIII constituent.

6. F001 through F005 solvents should be allowed at up to 1000 ppm.

CFFS6.10(commenter 174)

In addition as detailed above we feel that F001 through F005 solvents should be allowed at up to l000 ppm where currently lower in the proposed specification. Solvents are everywhere

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in industry and as EPA has stated. We feel some incidental contamination is inevitable also. Some contamination can even occur through airborne transmission of volatile solvents. Such levels (<1000 ppm) are not high enough to promote mixing. will not affect the performance of a comparable fuel and will not significantly increase measurable pollution leeks from burning these wastes. Therefore we ask EPA to allow them.

Response:
It is not appropriate to allow F001 through F005 solvents up to 1000 ppm. Any constituents contained in these solvents are limited to the concentrations found in EPA's analysis of its benchmark fossil fuels. Allowing these solvents up to 1000 ppm would depart from the comparable benchmark approach. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. To allow F001 through F005 solvents up to 1000 ppm would require the assessment of risk which EPA is not prepared do in this rulemaking.
It should be noted that EPA is not restricting these waste codes from being classified as a comparable fuel. All wastes consisting primarily of alcohols (e.g., ethanol or isopropanol), petroleum distillates, oils, or other ignitable organic liquids) are the most likely candidates for applying today's rule. This is quite logical, in that, these chemicals tend to have good fuel value when compared to the fuels examined for today's rule. The most probable listed wastes that are expected to be able to comply with today's rule are F003 and F005 solvents (except those F005 wastes containing carbon disulfide, pyridine, or nitrobenzene).

7. Question logic behind limiting constituents to concentrations found in benchmark fuels.

CFFS6.11(commenter 178)
3. We question the logic behind limiting constituents from eligibility to those Appendix VIII constituents and concentrations found in benchmark fuels. There are many high BTU organic constituents found on Appendix VIII and not present in benchmark fuels, that industrial boilers safely combust and achieve >99.99% DRE efficiency .

Response:
Although there may be high BTU organic constituents found on Appendix VIII, it is not appropriate to not establish specifications for these compounds because this would depart from the comparable fuel approach. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. To make changes to this approach would require the assessment of risk which EPA is not prepared do in this rulemaking.

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8. No specifications be established for constituents that could not be analyzed by EPA.

CFFFS6.12(commenter 198)

7. ECA recommends that no specifications be established for constituents that could not be analyzed by EPA

In the proposal preamble, EPA indicated that if it was not able to analyze for compounds on Appendix VIII, the standards for these remaining Appendix VIII constituents would be proposed as "non detect" without a maximum detection limit. EPA analyzed for 151 compounds out of the almost 480 compounds on the Appendix VIII list. Compounds were not analyzed for a number of reasons, including:

- The constituent is reactive/unstable in the presence of air or trace amounts of water, such as may be found in fuels;
- The constituent can be analyzed by high purity liquid chromatography methods only; the methods are either not validated or inappropriate for fuel and waste stream samples;
- No acceptable method is available;
- Standards are not readily available

The EPA proposal is unreasonable and unworkable. It will result in no hazardous waste fuels meeting the specification of non detect because, as EPA themselves indicated, no acceptable test methods are available for some compounds. If a company can't analyze for the compound, it can't validate a non detect measurement and therefore fails the specification test. This problem is resolved by either not establishing specifications for constituents that could not be analyzed by EPA or, preferentially, adopting the CMA cleans fuels proposal which establishes a CO limit to ensure destruction of organics.

CFSA4.07(commenter 110)

2. Constituents For Which EPA Did Not Analyze

EPA also notes that there are Appendix VIII compounds for which analytical methods and/or standards are not currently available. In addition, some Appendix VIII constituents are not chemically stable under analytical conditions. Consequently, EPA has not analyzed, or could not analyze, for the presence of these constituents in benchmark fuels. Nonetheless, as we understand it, the agency proposes that in order to qualify for the exemption a candidate clean fuel must establish "non-detects" for these constituents. Again, the agency does not propose any specific numerical limit, but would leave it to each individual facility to establish its own detection limits.

This approach suffers from the same fatal problems described in the preceding section. But it is highly inequitable and inappropriate for other reasons as well. If the agency has been unable or unwilling to analyze the benchmark fuels for a given constituent, it cannot properly require the regulated community to analyze for that constituent. Whatever analytical problems caused EPA to refrain from performing such analyses on benchmark fuels applies equally to members of the regulated communities with respect to their candidate clean fuels. The agency cannot promulgate a rule that requires, in effect, that the regulated community define a detection limit where EPA has not done so or cannot do so.

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Moreover, as noted above, setting the specification as a non-detect without defining a numerical detection limit fails to give the regulated community adequate notice of the requirement it must meet.

CFSA4.09(commenter 128)

b) CMA recommends that no specifications be established for constituents that could not be analyzed by EPA.

In the proposal preamble, EPA indicated that if it was not able to analyze for compounds on Appendix VIII, the standards for these remaining Appendix VIII constituents would be proposed as "non detect" without a maximum detection limit. EPA analyzed for 151 compounds out of the almost 500 compounds on the Appendix VIII list. Compounds were not analyzed for a number of reasons, including:

- The constituent is reactive/ unstable in the presence of air or trace amounts of water, such as may be found in fuels;
- The constituent can be analyzed by high purity liquid chromatography methods only; the methods are either not validated or inappropriate for fuel and waste stream samples;
- No acceptable method is available

The EPA proposal is unreasonable and unworkable. It will result in no hazardous waste fuels meeting the specification of non-detect because, as EPA themselves indicated, no acceptable test methods are available for some compounds. If a company can't analyze for the compound, ft can't validate a non-detect measurement and therefore fails the specification test. This problem is resolved by either not establishing specifications for constituents that could not be analyzed by EPA or, preferentially, adopting the CMA cleans fuels proposal which establishes a CO limit to ensure destruction of organics.

CFSA4.15(commenter 180)

B. The specifications should contain numerical levels. EPA must establish a numerical specification for the benchmark fuel constituent where results indicate no detectable level of a specific Appendix VIII constituent. Different waste matrices will have different detection limits for constituents. This will cause the exclusion limits to vary from waste to waste and thereby from company to company. In order to avoid excessive analytical evaluation and provide consistency, specific levels should be codified for those Appendix VIII constituents that tested non-detect in EPA's development of the specifications. For those constituents which cannot be analyzed, no specifications should be established.

CFSA4.18(commenter 198)

7. ECA recommends that no specifications be established for constituents that could not be analyzed by EPA

In the proposal preamble, EPA indicated that if it was not able to analyze for compounds on Appendix VIII, the standards for these remaining Appendix VIII constituents would be proposed as "non detect" without a maximum detection limit. EPA analyzed for 151 compounds out of the almost 480 compounds on the Appendix VIII list. Compounds were

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not analyzed for a number of reasons, including:

- The constituent is reactive/unstable in the presence of air or trace amounts of water, such as may be found in fuels;
- The constituent can be analyzed by high purity liquid chromatography methods only; the methods are either not validated or inappropriate for fuel and waste stream samples;
- No acceptable method is available;
- Standards are not readily available

The EPA proposal is unreasonable and unworkable. It will result in no hazardous waste fuels meeting the specification of non detect because, as EPA themselves indicated, no acceptable test methods are available for some compounds. If a company can't analyze for the compound, it can't validate a non detect measurement and therefore fails the specification test. This problem is resolved by either not establishing specifications for constituents that could not be analyzed by EPA or, preferentially, adopting the CMA cleans fuels proposal which establishes a CO limit to ensure destruction of organics.

CFSA4.26(commenter 240)

III. COMMENTS ON COMPARABLE FUELS ADDENDUM

A. Failure to analyze all Appendix VIII compounds

Safety-Kleen's primary concern with EPA's supplemental data for the comparable fuels specification is that the Agency still has not analyzed the benchmark fuels for all 271 Appendix VIII compounds and therefore has not developed comparable fuels specifications for these compounds. In the preamble to the August 23 proposed rule, EPA states the following:

> There are also compounds found in Appendix VIII which were not analyzed for, either because an analytical method is not available or could not be identified in time for this analysis. These compounds are not listed in today's specifications. If EPA is able to identify methods for these compounds and is able to analyze for these compounds prior to promulgation, an appropriate specification or detection limit will be promulgated for Appendix VIII compounds missing from today's specification. If EPA is not able to analyze for compounds on Appendix VIII, we propose that the standard for these remaining Appendix VIII constituents be "non-detect" without a maximum limit proposed."

The supplemental data also does not evaluate for all Appendix VIII compounds. In fact, the NODA does not contain data on such Appendix VIII compounds as acetyl chloride, aldrin, aidicarb sulfone, I-acetyl-2-thiourea, 5-(aminomethyl)-3-isoxazotol and others. The NODA essentially excludes those compounds from the list. Therefore, EPA has still failed to either identify a method for analyzing these compounds and has failed to proposed that the standards for these constituents be "non-detect." As we discuss in detail in our comments on the proposed rule, Safety-Kleen does not believe that EPA has sufficiently analyzed its proposed comparable fuels program and that this rulemaking is not the proper place for a comparable fuels proposal. The continued lack of data on various Appendix VIII constituents is further evidence that additional work is necessary before proceeding with this program.

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Response:
EPA agrees that no specifications should be established for constituents that could not be analyzed by EPA. Some Appendix VIII compounds were not analyzed because a routine analytical method is not available. Because EPA did not analyze for some compounds in Appendix VIII, EPA will not be promulgating standards for these remaining Appendix VIII constituents. These compounds are not listed in today's specifications, and a comparable fuel generator will not have to comply with specifications for these compounds. EPA believes it highly unlikely that a hazardous waste-derived fuel would contain only these undetectable Appendix VIII constituents.

9. Should not include a specification for chlorides.

CFFS6.15(commenter 226)
4. There is no Basis or Authority for EPA to Include a Specification for Chlorides
EPA says its new list consists of additional "Appendix VIII" compounds for which the agency has developed analytical methods. However, chlorides is not an Appendix VIII compound. EPA articulates absolutely no reason or justification for including chlorides among the constituents for which it would establish benchmark specifications. The administrative record concerning the comparable fuel exemption provides no basis for EPA to include chlorides as a benchmark constituent. As noted in the previous section, since chlorides are not an Appendix VIII compound EPA has a particularly heavy threshold burden to justify its inclusion as a benchmark constituent. EPA has not done so. If EPA decides to articulate its rationale, the regulated community must have a chance to comment on it.

Response:
EPA agrees that chlorides is not an Appendix VIII compound and will not be promulgating a chloride specification in the final rulemaking.

Specific Levels for Oxygenates

1. No limits should be established for oxygenates.

CFFS7.02(commenter 099)
4. EPA invites comment on whether oxygenates should be allowed in a comparable fuel up to the detection limit.
Dow agrees that there are certain classes of compounds such as alcohols that are not typically found in fossil fuels, yet are fuel-like. Dow supports inclusion of these types of compounds as comparable fuels. However, Dow does not agree that these compounds should be limited to their detection limit. In particular, because alcohols are flammable and thus, have significant energy value and because many of these alcohols are only comprised of carbon, hydrogen and oxygen, these materials would be effectively destroyed -- that is, it is

extremely unlikely that PICs would be formed -- when burned in boilers and other such devices. The Agency has already taken such a position when it proposed to exclude methanol condensate generated by the pulp and paper industry from RCRA Subtitle C control based on the premise that such control under RCRA is not necessary to protect human health and the environment. (See 61 FR 9397, March 8, 1996.) Therefore, Dow recommends that EPA indicate that fuel-like alcohols[19], including isobutyl alcohol that is listed on Appendix VIII of Part 261, be considered comparable fuels and be excluded from the definition of solid and hazardous waste when burned for energy recovery or when contained in a material that is burned for energy recovery.
[Footnote 19: Dow would, at a minimum, define those alcohols that are only comprised of carbon, hydrogen and oxygen as fuel-like alcohols.]

CFFS7.05(commenter 110)

G. No Specifications Should Be Established for Oxygenates

The agency describes "oxygenates" as organic compounds comprised solely of hydrogen, carbon and oxygen with a minimum but unspecified oxygen to carbon ratio.- The agency explicitly recognizes that oxygenates are "fuel-like," "are used as fuels or fuel additives" (e.g., methanol, ethanol and MTBE), and "are believed to burn well." Yet it also asks if these compounds should be allowed up to -- but no higher than -- the detection limits established by EPA's analysis. 61 Fed. Reg. at 17461.

The CCF believes that precisely because oxygenates burn well and promote good combustion of other constituents in a fuel, the agency should not promulgate any numeric specification limits for these compounds. In fact, to require that an oxygenate cannot be present in comparable fuels at concentrations greater than the detection limits established by EPA for those constituents in benchmark fuels effectively would penalized those oxygenates that are detected in the benchmark fuels. Under EPA's proposal, a comparable fuel may contain an Appendix VIII constituent that is not an oxygenate above the detection limit for that constituent if it has been detected in the benchmark fuel. It is irrational to put oxygenates (which are "fuel-like, and burn well) in a worse position than non-oxygenates by requiring them to be present below detection limits even when they have been detected in benchmark fuels. It should be noted, in this regard, that (contrary to EPA's assertion) some oxygenates have been detected in benchmark fuels. For example, creosol -- which consists solely of benzene with an OH attached and a methane attached -- was detected in gasoline. In addition, Di-n Octyl Phthalate and Dibenzo [A,H] anthracene also were detected in benchmark fuels.[17]
[Footnote 17: Since EPA has declined to specify an oxygen to carbon ratio, we may presume that the above-named compounds, which consist only of carbon, oxygen and hydrogen, are oxygenates.]

CFFS7.06(commenter 128)

c) CMA recommends that no specification limits should be established for oxygenated compounds.

In the proposal EPA noted that since oxygenates can serve as fuels and are believed to burn well, they are inviting comments on whether these compounds should also be allowed up to

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the detection limits in EPA's analysis, and ff there an appropriate minimum oxygen-to-carbon ratio to identify an oxygenate.

Oxygenated compounds consist of oxygen, hydrogen, and carbon. Oxygenated compounds promote combustion and reduce CO emissions due to the oxygen already present in the compounds. In automobiles, oxygenates in gasoline contribute to octane needs, reduce emissions, and act as a volume extender. Oxygenates used in gasoline typically include ethers and alcohols such as MTBE, methanol and ethanol.

CMA supports a rule basis that establishes no specification for oxygenated compounds in hazardous waste fuels (which is a further step from EPA's consideration that oxygenated compounds be allowed up to the detection limits in EPA's analysis). As noted above, oxygen content is beneficial in promoting combustion and lowering CO levels through more complete combustion.

A more conservative approach is to establish a minimum oxygen to carbon ratio for oxygenates to be excluded from analytical requirements. EPA has prepared a table of compounds with a minimum oxygen to carbon ratio of 0.266, which is referenced to MTBE. However, while adopting this approach is a partial recognition of the benefits of oxygenated compounds, CMA supports excluding all oxygenates from specification requirements.

CFFS7.08.a(commenter 134)

D. EPA's Proposal Should Allow Oxygenated, Aliphatic Hydrocarbons in the Comparable Fuel Specification Without Any Limits:

EPA recognizes that there are classes of fuel-like compounds that serve as fuels but are not typically found in fossil fuel. Examples of compounds mentioned by EPA in the preamble are oxygenates (which are used as fuel or fuel additives), including alcohols such as methanol and ethanol, and ethers such as methyl tert-butyl ether (MTBE). Because of this, EPA is soliciting comment on: (1) whether these compounds should be allowed up to the detection limit and (2) an appropriate minimum oxygen-to-carbon ratio to identify an oxygenate.

Ciba supports the premise that oxygenated, aliphatic hydrocarbons, such as methanol, ethanol and MTBE as well as others should not be restricted by EPA's comparable fuel specification. In fact, the Agency should encourage. that such compounds be burned for energy recovery, if not recycled by some other means, so as to reduce or eliminate the need for fossil and other such fuels and thereby decrease the emissions of various pollutants.

CFFS7.08.c(commenter 134)

However, Ciba believes other oxygenated, aliphatic hydrocarbons including isobutyl alcohol, formic acid and methyl ethyl ketone which are listed on Appendix VIII of Part 261, should also be considered fuel-like compounds and excluded from the definition of solid and hazardous waste when burned for energy recovery or when contained in materials that are burned for energy recovery. This is based on the fact that these oxygenated, aliphatic hydrocarbons contain significant energy value and when burned would not generate significant PICs (see 61 FR 1746 1, April 19, 1996). The Agency has already taken such a position when it proposed to exclude methanol condensate generated by the pulp and paper industry from RCRA Subtitle C control based on the premise that such control under RCRA

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is not necessary to protect human health and the environment (See 61 FR 9397, March 8, 1996).

In conclusion, Ciba strongly disagrees that these oxygenated, aliphatic hydrocarbon compounds should in any way be viewed as adulterants and thus, be limited to their detection limit. Ciba recommends that the Agency indicate that fuel-like compounds such as methanol, ethanol, and other such compounds, including isobutyl alcohol, formic acid and methyl ethyl ketone be considered comparable fuels and be excluded from the definition of solid and hazardous waste when burned for energy recovery or when contained in a material that is burned for energy recovery.

CFFS7.09(commenter 156)

While ISP believes a risk-based regulation should be developed by EPA, we believe that the currently proposed benchmark approach could be rendered more useful to ISP if EPA does not establish nitrogen and oxygenate specifications. We hope that our comments, on these two issues can point the way to an exemption that is both responsible and meaningful to the regulated community.

OXYGENATE SPECIFICATION

In response to request for comment on a non-detectable oxygenate specification level, the EPA clean fuels proposal will have no utility to ISP and probably the rest of the regulated industry if it is established. Again referring to the 1 million gallons per year of clean waste fuel generated at our Calvert City Plant, approximately 70 to 80% contains high concentrations of methanol, ethanol, butanol, and ketones. ISP supports a rule basis that establishes no specification level for oxygenated compounds in hazardous waste fuels because they burn well, promote combustion, and reduce CO emissions due to the oxygen already present in the compounds.

CFFS7.11(commenter 198)

8. ECA recommends that no specification limits should be established for oxygenated compounds.

In the proposal EPA noted that since oxygenates can serve as fuels and are believed to burn well, they are inviting comments on whether these compounds should also be allowed up to the detection limits in EPA's analysis, and if there an appropriate minimum oxygen-to-carbon ratio to identify an oxygenate.

Oxygenated compounds consist of oxygen, hydrogen, and carbon. Oxygenated compounds promote combustion and reduce CO emissions due to the oxygen already present in the compounds. In automobiles, oxygenates in gasoline contribute to octane needs, reduce emissions, and act as a volume extender. Oxygenates used in gasoline typically include ethers and alcohols such as MTBE, methanol and ethanol.

ECA supports a rule basis that establishes no specification for oxygenated compounds in hazardous waste fuels (which is a further step from EPA's consideration that oxygenated compounds be allowed up to the detection limits in EPA's analysis). As noted above, oxygen content is beneficial in promoting combustion and lowering CO levels through more complete combustion.

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A more conservative approach is to establish a minimum oxygen to carbon ratio for oxygenates to be excluded from analytical requirements. EPA has prepared a table of compounds with a minimum oxygen to carbon ratio of 0.266, which is referenced to MTBE. While adopting this approach would be a partial recognition of the benefits of oxygenated compounds, ECA supports excluding all oxygenates from specification requirements.

Response:
EPA agrees that oxygenates burn well and promote good combustion of other constituents in a fuel. EPA disagrees with not establishing any limits because this would depart from the comparable benchmark approach. EPA's analysis confirms that these compounds are not present in the benchmark fuel above the minimum detection limits. Furthermore, oxygenates are listed on Appendix VIII for their toxicity and in particular, one group of organic oxygenates, organic peroxides, can be extremely hazardous to manage. However, since oxygenates burn well and are not likely to produce significant PICs, EPA will allow these compounds at any concentration less than or equal to the detection limits found in EPA's analysis.
With regard to a minimum oxygen-to-carbon ratio to define an oxygenate, EPA believes that defining an oxygenate with a minimum oxygen-to-carbon ratio or limiting the definition to only aliphatics is more conservative than necessary. Instead, EPA is defining an oxygenate as any compound comprised solely of hydrogen, carbon, and oxygen. In the final rule allows oxygenates, defined as any compound comprised solely of hydrogen, carbon, and oxygen, at any concentration less than or equal to the detection limits in EPA's analysis.

2. Oxygenates should not be allowed up to the detection limits.

CFFS7.01(commenter 089)
2. The Comparable Fuel Specification
f. Specification Levels for Other Fuel-like Compounds
Pg 17461 "EPA invites comment on: (1) whether these compounds (organic oxygenates should also be allowed up to the detection limits in EPA's analysis; and, (2) an appropriate minimum oxygen-to-carbon ratio to identify an oxygenate."
It appears EPA may be concerned with preventing the addition of dibenzo-p- dioxins and furans to materials that could be exempt as a comparable fuel. If this is the case, then we would prefer that EPA simply exclude these compounds from consideration as a comparable fuel. EPA does not establish how the minimum oxygen to carbon ratio is to be calculated on the applicability of this ratio. Please also note that one group of organic oxygenates, organic peroxides, can be extremely hazardous to handle. EPA should reconsider whether the comparable fuel exemption should include this class of oxygenated organic materials.

CFFS7.03(commenter 102)
The agency also requests comment on 1) whether oxygenates should be allowed in the comparable fuel at up to the detection levels in EPA's analyses, and 2) an appropriate

minimum oxygen-to-carbon ratio to define an oxygenate. NACR does not believe that a oxygen-to-carbon ratio is the only criteria that should be used to define an innocuous oxygenate for purposes of a comparable fuel specification. As the agency footnotes, non-chlorinated dioxins and furans could be considered oxygenates under a low enough oxygen-to-carbon ratio. In addition, an oxygen-to-carbon ratio is not a recognized indicator of the tendency for a given constituent to contribute to PIC emissions. For these reasons we do not feel that oxygenates should be allowed at up to the detection limit in the comparable fuel specifications--the oxygenate limit should be "non-detect" at the PQL similar to other Appendix VIII constituents.

CFFS7.04(commenter 106)
On page 17461/3, EPA invites comment on whether oxygenated Appendix VIII constituents should be allowed in comparable fuels. ENSCO is opposed to such an allowance, and notes that oxygenated compounds can readily produce PIC emissions through free radical formation mechanisms [10].
[Footnote 10: See EPA Publication Number EPA/600/S2-90/039, August 1990. B. Dellinger, P. Taylor, and D. Tirey. "Minimization and Control of Hazardous Combustion Byproducts".]

CFFS7.07(commenter 130)
EPA invites comment (page 17461/3) on whether oxygenated Appendix VIII constituents should be allowed in comparable fuels. The ETC is opposed to such an allowance, and notes that oxygenated compounds can readily produce PIC emissions through free radical formation mechanisms.[20]
[Footnote 20: See B. Dellinger, P. Taylor, and D. Tirey, "Minimization and Control of Hazardous Combustion Byproducts", EPA/600/S2-90/039, August 1990.]

<u>Response:</u>
Oxygenates generally burn well and contribute to the combustion of other consituents in the fuel (organically bound oxygen provides a source of oxygen for combustion process). It should be noted that oxygenates are added intentionally to clean-burning "reformulated" gasoline to enhance the completeness of combustion in internal combustion engines. However, under poor combustion conditions, breakdown of the oxygenate at the oxygen bond can lead to the production of free radicals (Weltzman, 1991). These radicals can recombine with other radicals or compounds to form higher molecular weight chlorinated PICs. Thus, a comparable fuel specification for oxygenates (up to the detection limit in EPA's analysis) continues to be included.

<u>4. Clarify that the oxygenates, methanol, ethanol, and MTBE, would not be restricted.</u>

CFFS7.08.b(commenter 134)
It should be noted that methanol, ethanol and MTBE are not identified as hazardous

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constituents, that is, they are not listed on Appendix VIII of Part 261. Since these compounds are only comprised of aliphatic carbons, hydrogen, and oxygen, it is unlikely that products of incomplete combustion (PIC) would be formed. Thus, the Agency should clarify that these (and other compounds that are not identified as hazardous constituents) would not be limited or restricted in the comparable fuel specification.

Response:
A candidate comparable fuel meets the exclusion as long it is in compliance with all the specifications identified in the final rule. The specifications include heating value, viscosity, total halogens and total nitrogens, and individual Appendix VIII specifications. Methanol, ethanol, and MTBE are not listed on Appendix VIII and thus, these compounds and other non-Appendix VIII compounds are not part of the comparable fuels specification.

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5. Suitability of oxygenate materials as fuels.

CFFS7.10(commenter 177)
Cytec is concerned that the agency questions the suitability of oxygenate materials as fuels. Compounds of this type have been used as fuel for decades. Witness the use of alcohol heaters and stoves when particularly clean burning heat sources are required or when sources of these materials are available for general fuel use. Elimination of these materials as fuels for purposes of the regulation is as arbitrary as eliminating 'Non liquid" fuels such as anthracite, bituminous and subituminous coals, lignite, peat and oil shale, all of which are "fossil fuels". Cytec notes that many standard references such as 'Steam, Its Generation and Use", a publication of the Babcock and Wilcox Co., which has served as a standard reference for boiler and furnace design in the industry discusses alcohol as a fuel as does "Heat Engineering" by N.P. Baily.

Response:
The Agency does not questions the suitability of oxygenate materials as fuels. Although oxygenates on Appendix VIII may be suitable as fuels, it is not appropriate to not establish specifications for these compounds because this would depart from the comparable fuel approach. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. To make changes to this approach would require the assessment of risk which EPA is not prepared do in this rulemaking.

6. Isobutyl alcohol and MEK should not be limited to its detection limits

Additional, outside comment period (commenter 128)

CMA would like to draw EPA's attention to portions of the Agency's reformulated gasoline regulations, as they bear directly on the comparable fuels rule. The reformulated gasoline rules support our positions that:

1. isobutyl alcohol (i-butanol) should not be limited to its detection limit since it is recognized as a beneficial oxygenate in gasoline; and
2. methyl ethyl ketone should not be limited to its detection limit since it is an oxygenate that is structurally almost identical to propanone, which is recognized as a beneficial oxygenate in gasoline.

The reformulated gasoline regulations (40 CFR Part 80, Subpart D, finalized September 19, 1994) provide a list of selected oxygenates that are capable of being used by manufacturers to meet the oxygenate requirements of the reformulated gasoline provisions of the Clean Air Act (42 U.S.C. § 7545(k)). The oxygenates listed are methanol, ethanol, propanone, 2-propanol, t-butanol, n-propanol, MTBE, 2-butanol, ibutanol, ETBE, n-butanol, TAME, and i-pentanol. See 40 C.F.R. § 80.46(g)(6)(vi) (relevant portions of rule and preamble attached). The list of oxygenates is expanding as their use is increasing. For example, in an amendment to the reformulated gasoline rules, EPA approved the use of alternative analytical test methods to reduce costs to all interested parties. 61 Fed. Reg. 58304 (Nov. 13, 1996). Oxygenates allowed to utilize this alternative test method include C1-C4 alcohols (including isobutyl alcohol), tertiary amyl alcohol and DIPE. Thus, even though MEK is not yet on a list of gasoline oxygenates, because propanone is recognized as an oxygenate and is structurally almost identical to methyl ethyl ketone, CMA believes the comparable fuels rule should consider MEK as another oxygenate that should be allowed without limit.

More generally, in the reformulated gasoline rule the Agency states a preference for aliphatic fuels. The preamble to the July 20, 1994 direct final rule states that "reductions in fuel benzene and aromatics are much more effective in reducing emissions of toxic compounds [than reducing Reid Vapor Pressure]." 59 Fed. Reg. 36948. The preamble continues its discussion of aromatics by noting that fuels with aromatic levels as high as 55 percent currently are in use. Id In that rule EPA also reduced the low end aromatic content from 10% to 0% to encourage fuels with very low levels of aromatics. Id. 3648-9. Such fuels are qualitatively considered to be cleaner burning. Therefore, in the comparable fuels rule, EPA should encourage use of clean burning fuels that contain less aromatics and more aliphatics such as isobutyl alcohol and MEK.

For these reasons, CMA recommends that isobutyl alcohol and MEK not have concentration specifications in the final comparable fuels rule.

Response:

The CAA act does provide limits for oxygenates in unleaded gasoline. The oxygen content of unleaded gasoline is restricted to no more than 2.7 percent oxygen by weight. Within this oxygen content limit, any combination of aliphatic ethers and/or aliphatic alcohols is allowable (see revised interpretive rule, 58 FR 5352, February 11, 1991). Thus, it would not be appropriate to have no specification for an oxygenate.

With regard to isobutyl alcohol or MEK, it would in appropriate to allow this oxygenates above the detection limits found in EPA's analysis of the benchmark fuel. MEK is neither an

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aliphatic alcohol or ether and is not an allowed additive oxygenate. Although isobutyl is an allowed oxygenate additive, EPA did not detect in its own benchmark fuel analysis. EPA has established its comparable fuel specifications by examining the constituents found in its benchmark fuels. Establishing a specification without fuel data containing isobutyl alcohol would depart from the comparable fuel approach. EPA has chosen the comparable fuel approach to avoid the complication of a risk assessment approach.

Heating Value

1. Energy value should be tied to the Btu/lb level identified for the fossil fuel.

CFFS8.01(commenter 102)

G. Minimum Value for Energy Recovery

EPA proposes establishing a minimum heating value of 5,000 Btu/lb to ensure that wastes that meet the comparable fuels exclusion have a legitimate use as fuels. NACR believes the minimum heating value to meet the comparable fuel exclusion should be directly con-elated to the benchmark fuel.

NACR believes that the minimum energy value should be directly tied to the Btu/lb level identified for the fossil fuel which will be substituted for. We believe that any heating value specification for comparable fuel should be directly linked to the specification of the benchmark fossil fuel. If a hazardous waste is excluded from Subtitle C regulation because it is comparable to a fossil fuel, then the fuel should be comparable in all physical and chemical characteristics.

This issue is separate from the issue of an appropriate minimum heating value for purposes of energy recovery within Subtitle C. NACR recommends that if, for example, the heating value specification for gasoline is 18,000 BTU/lb, and if gasoline is the benchmark fossil fuel being replaced by the comparable fuel, then the minimum heating value specification for a comparable fuel is 18,000 Btu/lb. We note for the record that the reference within the proposal to 5000 BTU/lb as a "bright line" for determining legitimate energy recovery is irrelevant. We further advocate that any decision to establish a minimum heating value for determining legitimate energy recovery within Subtitle C should be established by separate rulemaking, in accordance with the Administrative Procedures Act.

At one time, as referenced in the rulemaking, the agency used the 5,000 Btu/lb. figure as guidance, to distinguish legitimate energy recovery from sham recycling. The need for that "test" was obviated, however, when the BIF regulations went into effect.

CFFS8.02(commenter 106)

In addition, ENSCO urges EPA to restrict the comparable fuel exclusion to wastes with a minimum heat content of 10,000 BTU/lb. This must be a firm benchmark, and no allowance for exemption of wastes of 5,000 to 10,000 BTU/lb should be allowed (see 17461). The heat content of most fossil fuels are substantially higher than 10,000 BTU/lb. The only fossil fuel that is less than 10,000 BTU/lb is moisture saturated wood, which has a heat content of 6,000

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to 7,000 BTU/lb. The 5,000 BTU/lb minimum has no technical justified basis or linkage to any fossil fuel, and is inappropriate to use in defining a comparable waste fuel. A minimum of 10,000 BTU/lb is generous and can allow a substantial quantity of waste to be used as fuel.

CFFS8.06(commenter 130)
In addition, the ETC urges EPA to restrict the comparable fuel exclusion to wastes with a minimum heat content of 10,000 BTU/lb. This must be a firm benchmark, and no allowance for exemption of wastes of 5,000 to 10,000 BTU/lb should be allowed (see page 17461). The heat content of most fossil fuels is substantially higher than 10,000 BTU/lb. The only fossil fuel that is less than 10,000 BTU/lb is moisture saturated wood, which has a heat content of 6,000 to 7,000 BTU/lb. The 5,000 BTU/lb minimum has no technically justified basis or linkage to any fossil fuel, and is inappropriate to use in defining a comparable waste fuel. A minimum of 10,000 BTU/lb is generous and can allow a substantial quantity of waste to be used as fuel.

Response:
The Agency is concerned with the acceptability of the potential fuel and wants to ensure that comparable fuels have a legitimate use as a fuel. It would be overly conservative to establish a heating value specification that is directly related to the benchmark fossil fuels. Although the heating value for the benchmarks fuels are higher, the 5000 Btu/lb represents a reasonable value to define a fuel and there are other fossil fuels (e.g., wood) that are close to this value. In addition, the Agency has relied on a heating value of 5,000 Btu/lbm (11,500 J/g) as a reasonable heating value specification for determining if a waste is being burned for energy recovery, at least under some circumstances. (See §266.103(c)(2)(ii).) The 5,000 Btu/lb measure is not, however, an unvarying measure of legitimate versus insufficient energy recovery. See, e.g., 48 FR at 1158 (March 16, 1983). This type of minimum Btu value specification is appropriate here as well as for the overall fuel.

2. Support normalizing specifications relative to heat content.

CFFS8.03(commenter 106)
ENSCO does applaud EPA for normalizing the specifications for metals and other Appendix VIII constituents in comparable waste fuels, relative to the heat content of the fossil fuels used in defining the benchmark (17461/1). ENSCO agrees with EPA's rationale for doing this, and concurs that if the heating value of a waste is lower than a fossil fuel, then the operator will have to feed more to get the equivalent heat loading. This will result in higher emissions unless the standard is normalized relative to heat content. ENSCO urges EPA to retain this adjustment in the final rule.

CFFS8.5.a.i(commenter 128)
As CMA understands the Agency's methodology, a generator would be required to determine, say, metals content of a comparable fuels candidate and then to normalize the finding to a

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BTU content of 10,000 BTU/lb. (Thus, a fuel with a BTU content of 5000 pounds and a mercury analytical finding of 7.1 mg/kg would "correct" the constituent level to 14.2 mg/kg before comparing to the specification. CMA supports this concept, as it will work to prevent increases in emissions due to lower-than-fossil fuel heating values in the waste fuel. CMA's proposal, in fact, would actually set the specifications on a "per million BTU" basis, and CMA proposed an even more conservative normalizing value of 20,700 BTU/ lb to cover the full range of fossil fuels. CMA is comfortable with this higher normalizing fuel value, but would not oppose use of the less conservative 10,000 Btu/lb value proposed by the Agency.

CFFS8.07(commenter 130)
The ETC does applaud EPA for normalizing the specifications for metals and other Appendix VIII constituents in comparable waste fuels, relative to the heat content of the fossil fuels used in defining the benchmark (page 17461/1). The ETC agrees with EPA's rationale for doing this, and concurs that if the heating value of a waste is lower than a fossil fuel, then the operator will have to feed more to get the equivalent heat loading. This will result in higher emissions unless the standard is normalized relative to heat content. The ETC urges EPA to retain this adjustment in the final rule.

CFFS8.10(commenter 214)
Minimum BTU Content
NORA does not oppose EPA's proposed 10,000 BTU per pound minimum for fuels burned for their heating value. However, fuels used in engines frequently have smaller BTU values. For engine fuels, a minimum 5000 BTU per pound limit is appropriate and should be specifically reflected in the exclusion.

Response:
EPA agrees with commenters.

3. Address issue of what Btu level results in legitimate energy recovery.

CFI3.05.c(commenter 108)
Safety-Kleen understands EPA's desire in the comparable fuel provision to limit "bona fide' treatment to activities other than simple mixing or physical manipulation of waste streams. However, Safety-Kleen strongly believes that in the area of energy recovery, EPA cannot proceed to define "bona fide" treatment without first addressing the long festering issue of what BTU level results in legitimate energy recovery. EPA's intent in defining "bona fide" treatment for energy recovery should be to eliminate sham blending, not to preclude legitimate blending conducted pursuant to RCRA at a fully regulated TSD facility.
EPA's 1983 sham recycling policy clearly stated that 5000 BTU was only a guideline and in industrial settings, lower BTU levels might be appropriate. Since that time, EPA has applied this criteria much more rigidly. In fact, the 1991 BIF regulations utilize the 5000 BTU level as an absolute limit on legitimate energy recovery in 40 CFR 266.103(a)(6). While that

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regulatory section applies pre-certificate of compliance, EPA has stated that burning "as generated" material less than 5000 BTU subjects the clinker to additional restrictions under 40 CFR 266.20.

Despite ongoing discussions with EPA on the inappropriate 5000 BTU "bright line" level for defining legitimate energy recovery in cement kilns, EPA has remained overly reliant on the 5000 BTU number. In a 1994 rulemaking petition, CKRC provided documentation which indicates that legitimate energy recovery occurs in cement kilns at 2500 - 3000 BTU. At these levels, the fuel provides the autogenic energy necessary to make a net positive input to the thermal process at the gas temperatures which support calcination. Consequently, Safety-Kleen believes it is important to formalize a change in the BTU number for industrial situations.

CFFS0.08(commenter 170)

D. CKRC Opposes the Agency's Continuation Of The Unsubstantiated 5000 Btu Policy.

EPA inappropriately uses the 500 Btu/lb as a minimum value for energy recovery, and proposes to do so without acknowledgement or discussion of the alternative CKRC rulemaking petition submitted to the Agency in February, 1994. In the preamble to the proposed rule, EPA states that it wants to ensure that wastes which meet the comparable fuels exclusion have a legitimate use as fuels and therefore is proposing a minimum heating value of 5000 Btu/lb (61 FR 17461). The Agency continues to ignore industry data which indicates that 5000 Btu/lb should not be considered a "bright line" below which all materials are automatically from being considered to be legitimate energy recovery. In February, 1994, the CKRC submitted a rulemaking petition in which, among other issues, provides technical documentation demonstrating that materials exhibiting less than 5000 Btu/lb heat content could provide the autogenic energy necessary to make a net positive input to the thermal process at the gas temperatures which support calcination in a cement kiln. This portion of the rulemaking was not directly addressed by the EPA, nor was it addressed in the Final version in 40 CFR 268.3 referenced in the preamble. In addition, EPA is ignoring its own recent guidance on the subject. EPA guidance memorandum dated June 7, November 4, and November 8, 1994 all indicate that less than 5000 Btu/lb material may be considered to be legitimately utilized for energy recovery if so demonstrated by the utilizing facility. While, the Agency's use of the 5000 Btu/lb concept in the comparable fuels context is dubious due to the completely arbitrary nature of that proposal, CKRC understands the Agency's need to limit the proposed deregulatory action. CKRC, however, specifically objects to the Agency's use of 5000 Btu/lb as a bright line, and its continued refusal to acknowledge petitions of CKRC.

Response:

EPA believes that the issue of what Btu level results in legitimate energy recovery is not germaine to the comparable fuels rulemaking. Furthermore, the comparable fuel heating value specification does not effect the status or decision on the alternative CKRC rulemaking petition submitted to the Agency on February, 1994. A minimum heating value is appropriate for the comparable fuels exclusion because the Agency is concerned with the acceptability of the potential fuel and wants to ensure that comparable fuels have a legitimate use as a fuel. For the comparable fuels exclusion, under which EPA is establishing a national minimum heating value limit, it is appropriate to use a bright-line, in this case a historical bright line. The Agency has relied on a heating value of 5,000 Btu/lbm (11,500 J/g) as a reasonable heating value specification for determining if a waste is being burned for energy recovery. (See §266.103(c)(2)(ii).) The 5,000 Btu/lb measure is not, however, an unvarying measure of legitimate versus insufficient energy recovery. See, e.g., 48 FR at 1158 (March 16, 1983). In addition, this is an exclusion on the basis of being a product, and a heating value similar to other fuels (e.g., wood) is appropriate.

The final rule does not define "bona fide" treatment, but allows the treatment of hazardous waste to generate a comparable fuel and provides that the claimant must demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituents or materials of concern from the waste. The treater must either: 1) document that the unit that will treat the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents (at the levels present in the waste) or materials of concern from the type of waste being treated; or 2) treat the waste in a unit that removes or destroys the constituents of concern, then reanalyze the waste, in accordance with the requirements of §261.38(c)(7), to document that the constituent specifications have been satisfied.

The waste remains subject to subtitle C control during treatment and thus treatment can only occur in regulated units.

4. <u>Support heating value of 5,000 Btu/lb.</u>

CFFS8.04(commenter 110)

J. A Minimum Heating Value of 5,000 BTU/lb is Appropriate

The CCF believes that the 5,000 BTU/lb threshold that EPA has traditionally adopted to distinguish bona fide energy recovery from sham recycling is a rational criterion that has served the regulated community and the environment reasonably well. The CCF sees no reason to tamper with that traditional benchmark, particularly in the context of the comparable fuels exemption.

CFFS8.5.a(commenter 128)

9. CMA supports a minimum specification of 5000 BTU/lb for a clean fuels exemption.

The Agency proposal would require that wastes which qualify for the Clean Fuels exemption "have a legitimate use as a fuel." The Agency further proposes to require that exempted waste fuels have a minimum heating value of 5000 BTU/lb. as further assurance that the materials are legitimate fuels. 17461. CMA fully supports these positions and has incorporated them also in its "Clean Waste Fuels" proposal.

In support of the 5000 BTU/lb. specification, CMA notes that this value was also previously stipulated by EPA as a value which would act to prevent sham burning as heat recovery, for the RCRA exemption available prior to February 21, 1991. See 52 Fed. Reg. 11158 (Mar. 16,1983). The 5000 BTU/lb value is also used by the Agency in the BIF rule at 40 CFR-

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§266.103(a)(5)-(6) as a limit on wastes that could be burned in a BIF prior to certification.

CFFS8.09(commenter 177)
12. Cytec supports a minimum specification of 5,000 BTU/lb for the alternative or clean fuels exemption. This value has been previously established by EPA as the demarcation for materials that have fuel value. The 5,000 BTU/LB value was stipulated by EPA as the value which would act to prevent sham burning as heat recovery and in the BIF Regulations as a limit on wastes that could be burned in a BIF prior to certification.

Response:
EPA agrees with commenters.

5. Heat content specification to be met as-generated basis.

CFI3.12(commenter 130)
To control impermissible dilution, the ETC agrees with EPA's proposal (page 17467/2) to require that the heat content specification be met on an as-generated basis. This is particularly critical to ensure that waste of little to no fuel value is not blended up to meet the specification. Otherwise, waste loaded with metals and concentrated toxic constituents will go to uncontrolled burning, as opposed to properly regulated and controlled treatment facilities under Subtitle C.

Response:
EPA agrees with the commenter.

6. Should not normalize for heating value

CFMISS.51(commenter 220)
Adjustment for Heating Value
EPA has not demonstrated that heating value is an appropriate parameter for normalizing concentration limits for comparable fuels or made it clear that compliance with the concentration limits is based on measured levels is adjusted by heating values. EPA should used the as-is concentrations measured in regular fuels without adjustment for heating value. EPA uses a heating value of 10,000 BTU/lb as the nominal level for comparable fuels. The concentrations limits (not the MDLs) presented by EPA in Tables 1-5 in the preamble to the proposed rule (61 FR 17481-94) have all been adjusted by this assumed heating value. For example, the 90th percentile estimate for toluene in gasoline, based on as-is concentrations in gasoline is 68,500 mg/kg. EPA assumes that the toluene concentrations are in direct proportion to heating value and adjusts the percentile estimates by a ratio of assumed to actual heating values. This effectively adjusts all of the concentrations limits downward since the heating values of gasoline and fuel are greater than 10,000 BTU/lb. The adjusted value

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for toluene in gasoline is 35,000 mg/kg as shown in Table 1 in the proposed rule.
Although it is not noted in the tables of concentration limits, EPA intends for compliance to be determined after adjusting the limits for heating value. EPA's reason for this adjustment is that it believes that most comparable fuels will have heating values lower than regular fossil fuels and by adjusting the limit based on heating value, "a facility that burns a comparable fuel would not be feeding more total mass of hazardous constituents than if it burned fossil fuels" (61 FR 17461).
The problem with this adjustment is that EPA has not demonstrated that heating value directly relates to hazardous constituents and more importantly, to their fate or destruction when burned. EPA should set a concentration limits based on the as-is or unadjusted values found in regular fossil fuels.

<u>Response:</u>
It is appropriate to use a heating value of 10,000 BTU/lb as the nominal level for comparable fuels. The heating value is directly associated with the overall environmental loading of the hazardous constituents. Comparable fuels could have lower heating value than the fossil fuels they displace. In these situations, more comparable fuel would be burned to achieve the same heat input, with the result that more hazardous constituents would be fired and emitted (e.g., halogenated organic compounds and metals) than if fossil fuel were to be burned. This would lead to greater environmental loading of potentially toxic substances, which is not in keeping with the intent of the comparable fuels exclusion nor with RCRA’s overall protectiveness goals.
To address environmental loading, the approach used in this final rule is to establish a minimum heating value specification comparable to the BTU content of the benchmark fossil fuel(s). The Agency is establishing the specification(s) for comparable fuels at a heating value of 10,000 BTU/lb, which is near to what liquid commercial fuels contain. EPA chose 10,000 BTU/lb because it is typical of current hazardous waste burned for energy recovery. However, candidate comparable fuels when generated initially can have heating values very different than 10,000 BTU/lb. Therefore, under this final rule, when determining whether a waste meets the comparable fuel constituent specifications, a generator must first correct the constituent levels in the candidate waste to a 10,000 BTU/lb heating value basis prior to comparing them to the comparable fuel specification tables. In this way, a facility that burns a comparable fuel would not be feeding more total mass of hazardous constituents than if it burned fossil fuels.

<u>Total Halogen Specification and Fluorine</u>

<u>1. Total halogen specification should be based on solid fossil fuels.</u>

CFFS9.01.a(commenter 099)
B. Modification of the Halogen Level for the Comparable Fuel Specification
Dow is recommending that the Agency promulgate an additional comparable fuel

specification. However, Dow also suggests that the Agency promulgate a more appropriate total halogen level for its proposed benchmark comparable fuel specification. In particular, Dow is recommending that EPA promulgate a single total halogen level of 250 mg/kg (as corrected for heat content) as its comparable fuel specification. Dow believes that the Agency should adopt such a level for several reasons.

First, such halogen levels are typically found in fossil fuels and thus, are consistent with the Agency's goal of developing a specification that is similar in composition to commercially available fuels. In fact, a level of 250 mg/kg is in the mid to lower end of the range of halogens found in wood and coal -- for example, 250 mg/kg of total halogen is 50% or less of the amount of total halogen typically found in wood, while this level is approximately 5 percent of the maximum concentration of halogen contained in coal. Second, as the Agency itself recognizes, such levels are not considered highly halogenated. Rather, such levels can be found in various materials as a trace contaminant. Such trace levels should not be a factor in disqualifying a material from being a comparable fuel, particularly if it is unlikely that such trace levels would have an increased potential to present a risk to human health and the environment.

CFFS9.04.a(commenter 134)

C. EPA Should Increase the Total Halogen Level in the Comparable Fuel Specification to 800 mg/kg (As Corrected For Heat Content)

The preamble to the comparable fuel exclusion states that the comparable fuel specification should not be based on fossil fuels that have high levels of toxic constituents that may not be destroyed or detoxified when burned.[10] As a result of the Agency's desire to not consider coal as a basis of comparison, the Agency excluded all solid fuels. Thus, other solid fuels such as wood and biomass were not considered in developing the comparable fuel specification.[11] Rather, the Agency used gasoline and No.2, 4 and 6 fuel oil in formulating the proposed comparable fuel specification.

Ciba understands the Agency's decision to not include coal as a benchmark fuel, however, EPA must recognize that solid fuels such as wood and biomass are used as a fuel in boilers and other such devices by a number of different industries. For example, bark and wood is burned in large wood waste boilers and provide a significant portion of the energy needed to operate pulp and paper mills. Also, furniture manufacturers and sawmills burn wood in boilers as a fuel. Furthermore, biomass combustors burn many types of agricultural by-products, such as straw, stubble and orchard prunings. Thus, by excluding these fuels in formulating the comparable fuel specification, the Agency is ignoring a number of legitimate fuels that are used by certain industries as well as for meeting heating needs.

The study published by the American Society of Mechanical Engineers (ASME) entitled, "The Relationship Between Chlorine in Waste Streams and Dioxin Emissions From Waste Combustion Stacks", discussed the levels of halogens in wood fuel [12]. The study reported that the level of halogens in wood-based fuel is between 500 and 800 ppm; assuming the wood has not been treated with preservatives while the level of halogen in many biomass fuels can be as high as 7000 ppm. Thus, a reasonable halogen limit would be 800 ppm.

The effect of the decision not to consider wood-based fuels could increase the amount of

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pollutants that are emitted into the atmosphere, including criteria pollutants and products of complete combustion and thus, create a perverse effect. For example, a generator that generates a material that would not meet the proposed comparable fuel specification because of its halogen content, but contains halogens at much lower levels than found in coal, might be tempted to burn coal or other such fuels rather than hazardous waste. It clearly would not be more beneficial for the environment to burn fuels that contain higher concentrations of halogens than hazardous wastes that contains lower levels of halogens. In fact, this result is contrary to the Agency's goal of reducing the level of pollutants (such as halogens) into the environment.

Consequently, EPA should consider solid fuels, such as wood and biomass in the development of the comparable fuel specification for total halogens. In recommending this, Ciba is suggesting that EPA consider these fuel sources and factor them in making a balanced policy decision about what level of halogens[13] in comparable fuels is acceptable. This, in fact, is consistent with EPA's goal in the development of the comparable fuel specification -- to develop a specification of use to the regulated community, while assuring that an excluded waste is similar in composition to commercially available fuel that poses no greater risk than burning of fossil fuel. (See 61 FR 17459, April 19, 1996.)

In considering solid fuels, Ciba recommends that the Agency adopt and promulgate a total halogen level of 800 mg/kg I (as connected for heat content). Ciba believes that the Agency should adopt such a level for several reasons. First, such halogen levels are consistent with halogen levels in wood-based fuels and thus, furthers the Agency's goal of developing a specification that is similar to commercially available fuels. Second, as the Agency itself recognizes, a level of 800 mg/kg of total halogen is not considered highly halogenated. Rather, such a level can be found in many materials as a contaminant. Such levels should not be a factor in disqualifying a material from being a comparable fuel, particularly as it is unlikely that such levels would have an increased potential to present a risk to human health and the environment, which is demonstrated by the study described below.

[Footnote 10: EPA has not defined or indicated what it considers a high level of toxic constituents.] [Footnote 11: The Agency also decided that basing the comparable fuel specification on a gas fuel (i.e., natural gas) would be overly conservative and serve very little, if any, utility to the regulated industry.] [Footnote 12: See"The Relationship Between Chlorine in Waste Streams and Dioxin Emissions From Waste Combustion Stacks," (CRDR, Vol. 36, dated December 1995, Section 5.)] [Footnote 13: In determining the total halogen level the Agency does not appear to distinguish between inorganic and organic halogen compounds. Ciba believes that inorganic halogens (e.g. sodium chloride) react differently in a combustion device and would suggest the Agency consider setting a different specification for inorganic halogens or specify that halogenated organics are constituents of concern.]

Response:

EPA does not believe that it is appropriate to change the total halogen specification based on the halogen content found in solid fuels like wood or coal. As discussed in other comment responses, EPA has decided not to include solid fuels in its benchmark specification. Thus, EPA is not inclined to consider using solid fuels to set one of the specifications. Also, EPA is concerned about the formation of halogenated PICs from comparable fuels containing halogens. At this time, EPA has no data to a support a conclusion that the higher halogen levels in solid fuels would not cause an increase in halogenated PIC formation compared to benchmark fuels.

Although total halogens are not listed in Appendix VIII, Part 261, EPA is establishing a total halogen specification to ensure that halogenated products of incomplete combustion (PICs) generated from burning a comparable fuel would not be emitted at higher levels than from burning a benchmark fossil fuel. PICs resulting from the burning of halogenated organic compounds can pose a particular hazard to human health and the environment. See comment response below for further discussion.

However, EPA's proposed composite fuel total halogen limit of 25 ppm has been revised to 540 ppm for the final rule. At the time of the proposal, EPA intended to establish a total halogen limit that included both organic and inorganic halogens. However, the total halogen data used by EPA in the proposed rule for its No. 4 and No. 6 fuel oils were based on analytical methods measuring only total organic halogens, not both organic and inorganic halogens. Commenters raised concerns about including total halogen data that did not include inorganic halogens because it did not represent typical halogen content found in benchmark fuels. EPA was persuaded by commenters' arguments and noticed additional total halogen data gathered from its own database (i.e., Certifications of Compliance (CoC) required by the Boilers and Industrial Furnace Rule) and data submitted by one commenter. In addition, EPA will continue to use its original gasoline and No. 2 fuel oil halogen data, which included both organic and inorganic halogens. For further discussion, see NODA 61 FR at 47402.

In response to EPA's NODA, commenters argued that some of the data should not be used to establish the total halogen specification due to the use of inappropriate methods. In particular, commenters believe that CoC data from two facilities (Huntsman Polypropylene Corporation and American Cyanamid) should not be included because the analytical method used measured organic halogens only. In addition, commenters believe that CoC data from another facility (Dow Chemical) should not be included because the detection limit of the method used to analyze for total halogens (ASTM Standard D 808) is not sensitive below 1000 ppm, and unless some other, more sensitive analytical method were followed afterward, the method could not have been effective at the levels reported. EPA is persuaded by commenters' arguments and has excluded the data from these three facilities from its halogen data set. Using this revised data set, the total halogen specification would be 540 ppm for the highest value composite.

2. <u>No correlation between the chlorine content of wastes and dioxin emissions.</u>

CFFS9.01.b(commenter 099)

In fact, a recent study published by the American Society of Mechanical Engineers (ASME) concluded that there is no correlation between the chlorine content of wastes going to industrial combustors and the amount or type of dioxin emissions (see footnote 13 for

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reference). The study analyzed over 1,900 test results from 169 combustion facilities, many with multiple units, including municipal waste combustors, hazardous waste incinerators and boilers, medical waste incinerators, cement kilns, biomass combustors, and laboratory-bench and pilot-scale combustors. Of these facilities, the authors were able to analyze 90 specific sites because the data allowed a comparison to be made between the input and output data. Of the 90 facilities, 72 (or 80 percent) showed no statistically significant relationship between chlorine input[15] and dioxins/furan emissions; of the remaining 18 facilities, there was an apparent relationship. However, ten facilities demonstrated an increased -dioxin concentration with increased chlorine level, whereas eight facilities produced decreased dioxin emissions when chlorine levels were increased. Consequently, Dow believes it is inappropriate to assume that higher halogen levels being fed to a combustion device would necessarily lead to higher dioxin/furan emissions.

[Footnote 15: Chlorine feed concentrations ranged from less than 0. 1 percent to 80 percent.]

CFFS10.05.b(commenter 110)

1. Halogens

The Agency has not shown that the presence of 26 ppmw of total chlorine (or Cl^+ + Br^+ + I^+) -- which is the proposed specification -- necessarily (or even probably) results in the emission of toxic chlorinated (or halogenated) organic compounds. There is substantial evidence to the contrary. Setting these extremely tight limits for halogens based largely on the theory that toxic halogenated organic constituents might be emitted in sufficient quantities to harm human health and the environment is unsupported and unjustified. The Coalition is familiar with a number of bench scale and pilot scale experiments which EPA has conducted under extreme worst-case conditions in which chlorinated organics were formed. However, these test conditions were intentionally set to cause these compounds to be formed and do not remotely represent conditions which exist in practice. Further, there is little literature to date supporting the premise that pilot/bench scale experimentation accurately reflects emissions of chlorinated dioxin and furan (PCDD/F) from full scale equipment.

An example of this theoretical approach not duplicating real world results involves the belief (which is strongly held in some quarters) that there is a strong correlation between chlorine concentrations in the feeds to a hazardous waste combustion unit and the emission rate of chlorinated dioxins and furans. Attached as Exhibit D are three recently published technical papers which attempted to correlate these two factors (chlorine concentration and dioxin/furan emissions) without success, i.e, there is no apparent correlation. Additionally, at least one of these papers (Lanier et al.), which is based on EPA-sponsored full scale testing and data evaluation, did not replicate results of previously reported bench/pilot scale studies. Thus, the agency's own research demonstrates that bench-scale and pilot-scale research does not necessarily predict performance of full-scale processes.

Moreover, the American Society of Mechanical Engineers (ASME) recently published a study based on test data from 169 hazardous waste combustion facilities. In this study, chlorine content ranged from less than 0.1% up to 80% of the waste fed. The study authors were able to consider contemporaneous chlorine feed rates and chlorinated dioxin and PCDD/F emission rates at the stack for 90 facilities. Of those 90 facilities, 72 (or 80%) showed no statistically significant correlations between chlorine input and PCDD/F emissions. The remaining 20% did show statistically significant but contradictory correlations. Ten facilities demonstrated increased PCDD/F emissions with increased chlorine while eight facilities demonstrated the reverse effect. The study concluded that reduced dioxin emissions "are unlikely to be realized by reducing waste chlorine content." The Relationship Between Chlorine in Waste Streams and Dioxin Emissions from Waste Combustor Stacks ASME 1996.

Thus, EPA's assumption that a limit on total chlorine is necessary to control PCDD/F emissions is not only undocumented and unproven, but is directly contradicted by the scientific literature. Particularly under these circumstances, promulgating regulatory limits for total halogens would be arbitrary and unjustified.

CFFS9.02.b(commenter 128)

The CMA proposal for a chlorine limit is also supported by the recent report of the American Society of Mechanical Engineers, which reported on an extensive study of dioxin/ furan emissions from 107 combustion units at 90 facilities. In the ASNM study, 72 facilities (80%) showed no statistically significant relationship between chlorine input and dioxin/furan measured in gaseous emissions. Where there was an apparent relationship, 10 facilities displayed increasing dioxin/furan concentrations with increasing chlorine, while 8 demonstrated decreasing concentrations. Clearly, over the wide range of chlorine concentrations in fuel covered by the study, the issue of chlorine concentration was greatly diminished as a health-and-the-environment concern.

A copy of the Executive Summary of the ASME report, "The Relationship Between Chlorine in Waste Streams and Dioxin Emissions From Waste Combustor Stacks" (CRDT, Vol. 36, Dated 1995) is attached as Appendix P to these comments.

CFFS9.04.b(commenter 134)

In fact in the study published by the American Society of Mechanical Engineers (ASME) it was their conclusion that there is no correlation between chlorine content of wastes going to industrial combustors and the amount or type of dioxin emissions. (See footnote 12 for reference.) The study analyzed over 1,900 test results from 169 facilities, many with multiple units, including municipal waste combustors, medical waste incinerators, hazardous waste incinerators and boilers, cement kilns, biomass combustors, and laboratory-bench and pilot-scale combustors. Of these facilities, dioxins/furans and chlorine[14] are simultaneously characterized at 107 units at 90 facilities. Of the 90 facilities, 72 (Pr 80 percent) showed no statistically significant relationship between chlorine input and dioxin/furan emissions; of the remaining 18 facilities, there was an apparent relationship. However, ten facilities demonstrated an increased dioxin concentration with increased chlorine levels, while eight facilities produced decreased dioxin emissions when chlorine levels were increased. In fact, one of the major findings of the study was that any effect chlorine has on the concentrations of dioxins/furans is smaller than the influence of other causative factors, such as the air pollution control system temperature, ash chemistry, combustion conditions, measurement imprecision, and localized flow stratification. Consequently, it is inappropriate to assume that

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less than 0.1 percent higher halogen level being fed to a combustion device would necessarily lead to higher dioxin/furan emissions.
[Footnote 14: Chlorine feed concentrations ranged from less than 0.1 percent to 80 percent.]

Response:
A comparable fuel specification for total halogens will continue to be considered, in addition to meeting the individual specifications on chlorinated Appendix VIII compounds. The total halogen limit is not used solely for controlling PCDD/PCDF emissions. Analysis of PCDD/PCDF data from full-scale waste combustion systems indicates that the waste feed chlorine level does not have a dominant impact on PCDD/PCDF emissions (generally of primary importance is the PM air pollution control device temperature). However, the waste feed chlorine level may have a secondary influence. Certain well-controlled pilot-scale experimental studies indicate there can be strong relationship between HCl and Cl_2 levels in the flue gas and PCDD/PCDF emissions (e.g., Gullett et al., 1994).
In any case, a limit on the chlorine feed to the combustor is desired from an environmental protection perspective to: (1) reduce the emissions of the hazardous air pollutants of HCl and Cl_2, both of whose formation is directly related to the chlorine content of the waste feed; and (2) prevent the formation of chlorinated products of incomplete combustion (PICs), which includes PCDD/PCDF as well as others such as chlorinated benzenes, biphenlys, phenols, etc. Limiting the waste feed chlorine level reduces the potential for the formation of chlorinated PICs through (Dellinger et al., 1990):

- Limiting the release from the combustion zone of undestroyed and/or partially fragmented chlorinated precursors contained in the waste feed. Note that kinetic theory and experimental work indicate that the chlorination of unchlorinated hydrocarbons is very unlikely at combustion temperatures (i.e., chlorinated PICs are not formed from unchlorinated hydrocarbons in the combustion zone). Thus, the emissions of chlorinated PICs from the combustion zone is related directly to the chlorinated organic constituents in the waste feed. It is highly desired to minimize the level of chlorinated precursors in the combustion gases since the major route to formation of high molecular weight chlorinated PICs is through reactions of already chlorinated precursors.
- Limiting the potential for the formation of chlorinated PICs due to radical-radical association reactions as the combustion gas is cooled -- in particular organic radical reactions with Cl radicals formed in the combustion zone.
- Ensuring adequate flame stability (and corresponding combustion efficiency) and reducing flame sooting. Increasing levels of chlorine are known to increase flame sooting and decrease flame stability and efficiency. Cl atoms scavenge H atoms, depleting the flame radical pool that drives the combustion reactions.

3. Should use the chlorine MACT standard to control halogens.

CFFS9.01.c(commenter 099)

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CMA, in its Clean Fuel Proposal, suggested that the Agency adopt an alternative approach in setting the halogen level. Specifically, the halogen level was calculated from the value proposed (under the hazardous waste MACT combustion rule) for chlorine/HCl emissions for hazardous waste-burning incinerators. The chlorine/HCL limit was converted to a fuels basis assuming n-hexane as the reference fuel, 7 percent oxygen (dry basis) in the stack, and no removal by pollution control devices. Such level would lead to a halogen level of approximately 7200 ppm in the waste material. Clearly, this level of 7,200 ppm, which is intended to reflect very conservative assumptions, shows that Dow's recommended level of 250 mg/kg is protective by more than an order of magnitude. Therefore, Dow is recommending that EPA establish and promulgate a total halogen level of 250 mg/kg (as corrected for heat content) in its benchmark comparable fuel specification.

CFFS9.02.a(commenter 128)

8. EPA should use the chlorine MACT standard to control halogens.

The EPA is proposing using a total halogen level of 10 to 25 ppm based upon the 50th and 90th percentile composite samples analyses. CMA believes that such a low level is unrealistic and would offer relief to very few waste streams. CMA realizes that halogenated compounds are not typically found in liquid fuels, but they are commonly found in solid fossil fuels.

As an alternative to the fossil fuel analysis, CMA urges EPA to use the chlorine MACT standard. An estimate of the feed stream concentration using the proposed MACT standard has been determined. The proposed MACT emission standard for chlorine (CI) is 280 ppmv as hydrogen chloride (HCL), dry basis, in the effluent gas stream. 17385. Back-calculating, the feed stream would contain 7200 ppmw, assuming the unit operates without any pollution control device for chlorine or HCL, and using a conservative fuel heat content of 20,700 BTU/lb.

CMA believes that since the MACT standard may allow up to 7200 ppmw of chlorine to be in the feed stream, then some reasonable amount of chlorine in the 7000 ppmv range should be permissible under the comparable fuel exclusion. CMA's proposal of March 15,1996 suggested using the MACT standard. CMA still believes that the MACT result of 7200 ppmv waste feed concentration for total halogens or chlorine is adequate to protect human health and the environment.

CFFS9.04.c(commenter 134)

CMA, in its Clean Fuel Proposal, suggested that the Agency use an alternative approach in establishing the halogen level. Specifically, the total halogen level was calculated from the value proposed (under the hazardous waste MACT combustion rule) for chlorine/HCl for hazardous waste burning incinerators and furnaces. The chlorine/HCL limit was converted to a fuels basis assuming n-hexane as the reference fuel, 7 percent oxygen (dry basis) in the stack, and no removal by pollution control devices. Such an approach would lead to a total halogen level of approximately 7,200 ppm in the waste material. Clearly this level of 7,200 ppm, which is intended to reflect very conservative assumptions, shows that Ciba's recommended level of 800 mg/kg, based on the Agency's approach of using specifications derived from concentrations of contaminants in standard fuels, is also protective. Therefore,

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Ciba is recommending that the Agency establish and promulgate a total halogen level of 800 mg/kg (as corrected for heat content) in its benchmark comparable fuel specification.

Response:
It is inappropriate to use the chlorine MACT standard to set a total halogen specification because it would depart from the benchmark approach. Chlorine MACT standard is based on combustion device feeding hazardous waste and provides no comparison to the combustion of a benchmark fossil fuel. EPA has set a comparable fuel specification such that concentrations of hazardous consituents in the comparable fuel could be no greater than the concentration of hazardous consituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. Alternatives to this approach would in most likelihood require an assessment of risk which EPA is not prepared do in this rulemaking. To use the chlorine MACT standard, EPA would have to make assumptions about risk and appropriateness of this standard to all combustion devices, which is not the intent of the comparable fuels rulemaking.
It should be noted, as discussed in the comment response above, EPA's proposed composite fuel total halogen limit of 25 ppm has been revised to 540 ppm for the final rule.

4. Separate fluorine specification is not necessary.

CFFS9.03(commenter 128)
Fluorine exists as a gas at standard temperature and pressure. Fluorine is a listed hazardous waste because of its extreme corrosivity as a "contained gas." Upon contact with organic compounds, violent reactions may occur. Upon contact with water, hydrogen fluoride is formed. Consequently, fluorine is not burned in standard incinerators and boilers, but only in specially designed industrial furnaces. Regulating fluorine separately from total halogens is unnecessary.
The establishment of a limit on fluorine in the flue gas does not permit a back-calculation to the feed stream since it would be a fluorine "contained gas" that would have to be fed to the unit. The analytical methods as proposed by the Agency and in SW-846 do not recover fluorine in many organic and inorganic compounds. Poor analytical recovery makes it difficult to establish a limit that can work with all matrices. Also, the Agency has suggested several times in the proposed rule that the Agency wishes to reduce sampling and analysis burden. Since a unit will not be burning fluorine gas without knowledge, and only then in special units, having a separate analysis required for fluorine is unnecessary.

CFFS9.5(commenter 134)
2. Fluorinated Compounds Should Be Part of the Total Halogen Standard If the Agency Establishes A Specification For These Compounds: The preamble indicates that because the analytical method for determining total halogens does not measure fluorine, that EPA will establish a separate specification for fluorine since it is specifically listed on Appendix VIII of Part 261 (see 61 FR 1746 1, April 19, 1996). Although the Agency indicates in the preamble that the test method for analyzing total halogens does not measure fluorine, the

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Technical Support Document on Comparable Fuels (pg. 2-2) identifies the same test method for fluorine as it does for other halogens. Ciba requests clarification on whether the limit for fluorine would be simply for the hazardous constituent listed in Appendix VIII of Part 261 or whether the specification would encompass all fluorinated compounds. If the Agency plans to promulgate a fluorine limit without addressing the remaining fluorinated compounds, this point should be made clear. Ciba however, opposes a specification for fluorine that in fact would encompass all total fluorinated compounds.

In should be noted that, fluorine was listed as a hazardous constituent because of its acute toxicity. [17] In fact, in response to a specific comment that the Agency received on the listing of fluorine, the Agency indicated, "This chemical was listed as intended. The hazardous material is fluorine, the diatomic molecule F_2, not the polynuclear aromatic 'fluorene' discussed in the conunent. Since fluorine has a reported inhalation (human) TCLO of .00035 mg/l/hr, which falls within the standards for acutely hazardous waste, it will remain listed under 261.33(e)." (See pg. 94 of the same document identified in footnote 19.) Other fluorinated compounds have much different toxicities and in fact, very few fluorinated compounds are themselves listed on Appendix VIII of Part 261. Consequently, Ciba believes it is inappropriate to use the word "fluorine" as a synonym for fluorinated compounds.

If the Agency has concerns with total fluorinated compounds, these should be included within the total halogen standard to address the Agency's primary concern with halogenate compounds -- that is, the potential to generate dioxins/furans during the combustion process. However, since fluorinal pd compounds burned in a boiler or other such energy recovery device will create hydrofluoric acid, an extremely corrosive material, its content would be limited because of operational concerns related to maintenance. Thus, EPA should use fluorine as a synonym for F2. To the extent the Agency wants to limit fluorinated compounds, these should be included in total halogens.

[Footnote 17: See pg. 55 of the Background Document for the Listing of Section 261.33 Commercial Chemical Products and the Containers and Spill Residues Thereof, January 1981 and updated April 1981.]

Response:

Solid and liquid wastes and fuels can contain fluorine at standard temperature and pressure conditions. Certain fluorine-containing species are solids at standard conditions. For example, as shown in the discussion on metals and halogens in coal, coal can contain from 20 to 500 ppmw of fluorine. The fluorine is present in fluorine containing minerals such as fluorspar, cryolite, and fluorapatite. Fluorine is also contained in certain fluorocarbons, such as teflon, that are in solid phase at standard conditions, and is also well-known to be contained in trace quantities in teeth and bone material. Thus, a solid fuel benchmark specification for fluorine is appropriate.

Fluorinated wastes, such as chlorinated fluorocarbons and plastics, can and are burned in hazardous waste incinerators, just like chlorinated wastes. Fluorine in the combustion process is released primarily as HF, with much smaller amounts of F_2 and fluorinated products of incomplete combustion, al of which are hazardous air pollutants. HF is highly soluble in water, and is very easily controlled in neutralizing wet and dry scrubbing air pollution control

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systems (even easier than HCl).

Fluorine was not included in the proposed rule total halogen limit of 25 ppmw because its quantification was not included in the analytical method used to determine the total halogen content of the benchmark samples (note that as discussed elsewhere, the analytical technique for the fuel oils was limited to the determination of organic chlorine, iodine, and bromine only). It was intended to set a separate limit for total fluorine. However, fluorine was one of the compounds not analyzed by EPA and therefore, EPA will not be promulgating a fluorine standard in the final rule.

5. <u>Used oil fuel specification of 1000 ppm total halogens should apply to a comparable fuel.</u>

CFFS9.06.a(commenter 174)

However, we feel a Total Halogen Level of 25 mg/kg is much too low. With a detection limit of 700 mg/kg for many individual Halogenated compounds (90th percentile composite specification), a 25 mg/kg Total Halogens Limit is not practical. The Total Halogen Limit. should at least be as high as the highest detection limit for any individual Halogenated compound. Otherwise, what is the practical value of the individual Halogen compound detection limits? A waste testing 600 ppm Tetrachloroethylene would pass the individual detection limit, but then fail the Total Halogens Limit. This, in effect, makes the individual Halogenated compound detection limits useless. We feel the used oil fuel specification of 1000 ppm Total Halogens should apply to a comparable fuel. Mixture of some Halogenated compounds is inevitable, not through deliberate mixture but through incidental contact with solvent residue, used oils with chlorinated additives, etc. We have heard of Chlorine levels as high as 35 ppm in virgin motor oil. Also some greases have chlorinated additives. 1000 ppm is a much more practical Total Halogen Limit. The limit must be as high or higher than the highest individual constituent allowed or the individual constituent levels are, in effect, useless. After a lot of research 1000 ppm was deemed safe for burning. If this level is safe for oil burning, it will be safe for comparable fuel burning also.

CFFS9.06.b(commenter 174)

EPA has stated (FR, Nov. 29, 1985) in discussing the Halogen Rebuttable Presumption for used oil "Both used oil and hazardous halogenated solvents are frequently generated by the same facility, and some incidental contamination is probably inevitable". The same holds true for comparable fuel wastes. By setting the level at 25 mg/kg a lot of wastes will be shut out from the exclusion due to incidental contamination occurring in the facility. EPA further indicated that incidental contact may occur at levels up to 1000 ppm. Also, "When light ends containing less that 4000 ppm Total Halogens (but perhaps up to 4000 ppm of halogenated compounds that are listed as hazardous spent solvents) are burned, emissions of hydrogen chloride or incompletely burned halogenated compounds will not pose a substantial risk to human health and the environment". In addition, stated in footnote #63 was "as discussed above, even very small boilers can achieve 99% to 99.99% destruction efficiency for halogenated compounds". EPA also stated elsewhere in this same text that they assumed a

97 destruction rate for boilers. Yet in the current proposal EPA states that Halogens are not destroyed in the combustion process. Has there been new evidence that the previously stated destruction rates of 97% to 99.99% were wrong? If a 4000 ppm limit for Total Halogens for used oil burning is not a risk to human health and the environment, based on EPA's used oil research, why regulate Halogen levels so low in the Comparable Fuels Exclusion?

CFFS9.06.d(commenter 174)

Again from the Nov. 29, 1985 FR concerning used oil and Halogens, "We have reviewed more than eleven hundred used oil analyses available in the record for the proposed rule and the additional data submitted by commenters and concluded that used oil will generally contain less than 1000 ppm of Total Halogens unless it is mixed with hazardous chlorinated solvents..." and "...it is EPA's opinion that the 1000 ppm Total Halogen level is a valid indicator for presence of mixing with listed Halogenated hazardous waste". We strongly feel that for this comparable fuels specification to be a useful regulation, Total solvent levels (F001 and F002) must be allowed up to the Total Halogen limit of 1000 ppm. We also feel that other Nonhalogenated solvent levels (F004 and F005) should be allowed at up to the same level, when combining all levels of F004 and F005 solvents together that are in a particular stream. Otherwise, incidental contamination through use will exclude a very large percentage of possible comparable fuels. If 4000 ppm is low enough for safe used oil burning, surely 1000 ppm is low enough for Comparable Fuel Wastes.

CFFS9.07(commenter 174)

Appendix, Table 6 , Specification:

Total Halogens: As stated we feel for numerous reasons the total halogen level should be set at 1000 mg/kg without individual Halogenated constituent testing required

F004 and F005 Solvents: As stated, in order for the comparable fuel regulations to be practical and useful, we feel levels of these solvents should be allowed at up to 1000 ppm also, when levels are combined together in a single steam.

CFFS10.23(commenter 214)

Testing for Total Halogens/Halogen Level There is no compelling environmental reason that would require testing for individual halogenated substances. It is much less expensive and equally useful to test for total halogens. Setting a halogen specification at 25 parts per million is excessively stringent. In 1985 when it devised the used oil fuel specification level for total halogens, EPA assumed destruction efficiency of furnaces and boilers to be 97 percent and concluded that a 4000 ppm total halogen specification level would not present a significant risk to health. (According to EPA, used oil fuel with halogen concentrations above 4000 parts per million could be still be safely burned but only in industrial furnaces and boilers.) EPA also noted that typical boiler and furnace destruction efficiency is actually higher -- in the range of 99 to 99.99 percent. There appears to be no justification, therefore, for establishing an unnecessarily restrictive halogen specification for comparable fuels. NORA recommends a 1000 ppm specification level. This is achievable even though it is four times more "protective" than the used oil fuel specification level.

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Response:

It is inappropriate to apply the used oil specification of 1000 ppm total halogens to comparable fuels. Due to the fact that the comparble fuel universe is different than the used oil universe, it would be inappropriate to apply the used oil risk anaysis to comparable fuels. In particular, the 1000 ppm limit in the fuel specification rule establishes a rebuttable presumption that hazardous wastes are not mixed with used oil. There is no need for such a presumption in this rule because there are constituent levels for all Appendix VIII constituents. Nor is this proceeding based on an analysis of potential risk.

EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. EPA pursued this approach to avoid the complexities associated with performing a risk assessment on the potential comparable fuels universe.

It should be noted, as discussed in the comment response above, EPA's proposed composite fuel total halogen limit of 25 ppm has been revised to 540 ppm for the final rule. Thus, this higher revised total halogen specification should address the commenter's concern about possible incidental contact with solvent residue. Furthermore, under the comparable fuel approach, a total halogen specification is based on the analysis of benchmark fuels in EPA's database. EPA is not accounting for possible solvent contamination unless it was present in the fuels EPA sampled.

EPA disagrees with the commenter that the total halogen limit should be as high as the highest detection limit for any halogenated compound. If the benchmark fossil fuel had no detectable level of a particular Appendix VIII constituent, then the comparable fuel specification is "non-detect" with an associated, specified minimum allowable detection limit for each compound (note exceptions in the following sections.) The detection limit is a statistically-derived level based on the quantification limit determined for each sample. Essentially, the regulatory level for these constituents is zero. The Agency will allow non-detects at the detection limits up to what EPA was able to obtain, since reading zero is impossible as an analytical matter. Thus, if a detection limit for a halogenated compound is 700 mg/kg and the analysis of the candidate comparable fuel finds a detect at 600 mg/kg, then that candidate comparable fuel does not qualify for the exclusion.

In addition, t is not appropriate to allow F001 through F005 solvents up to 1000 ppm. Any constituents contained in these solvents are limited to the concentrations found in EPA's analysis of its benchmark fossil fuels. Allowing these solvents up to 1000 ppm would depart from the comparable benchmark approach. It should be noted that EPA is not restricting these waste codes from being classified as a comparable fuel. All wastes consisting primarily of alcohols (e.g., ethanol or isopropanol), petroleum distillates, oils, or other ignitable organic liquids) are the most likely candidates for applying today’s rule. This is quite logical, in that, these chemicals tend to have good fuel value when compared to the fuels examined for today’s rule. The most probable listed wastes that are expected to be able to comply with today’s rule are F003 and F005 solvents (except those F005 wastes containing carbon disulfide, pyridine, or nitrobenzene).

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6. Total halogen specification not appropriate for comparable fuels.

CFFS9.08(commenter 204)
APS does not contain measurable levels of toxic metals. However, APS does contain chlorides that result from the use of an inorganic catalyst composed of titanium tetrachloride and magnesium chloride in the production process. This chloride level averages 1145 mg/kg with a standard deviation of 2389. Thus, Fina would need a specification for total halogen in the range of 10,000 mg/kg to be reasonably assured that APS consistently met the comparable fuels exclusion. However, Fina does not believe that a total halogen limit is appropriate for a comparable fuels specification.

Response:
A total halogen limit is appropriate for a comparable fuels specification. Although total halogens are not listed in Appendix VIII, Part 261,a limit on the halogen feed to the combustor is desired from an environmental protection perspective to: (1) reduce the emissions of the hazardous air pollutants of HCl and Cl_2, both of whose formation is directly related to the chlorine content of the waste feed; and (2) prevent the formation of chlorinated products of incomplete combustion (PICs), which includes PCDD/PCDF as well as others such as chlorinated benzenes, biphenlys, phenols, etc. See comment response above for further discussion.

Total Nitrogen Specification

1. Total nitrogen specification covered by CAA.

CFFS10.01(commenter 099)
Furthermore, Dow believes that the comparable fuel specification should only address toxic compounds. Therefore, Dow does not support establishment of a comparable fuel specification for nitrogen. More specifically, EPA has authority under the Clean Air Act (CAA) to control certain criteria pollutants, such as nitrogen and, in fact, has promulgated primary and secondary National Ambient Air Quality Standards (NAAQS) for oxides of nitrogen. Thus, Dow does not understand the need to establish a specification for nitrogen under RCRA's comparable fuel specification when this pollutant is adequately controlled under the CAA. In fact, Dow believes that such a specification would be redundant and is just the type of duplicative regulation that the Clinton Administration has indicated that it wants to avoid. If the Agency has concerns that comparable fuels can or will be burned in units that are not adequately controlled under the CAA, then Dow suggests that EPA promulgate a requirement that any comparable fuel that is excluded from the definition of solid and hazardous waste only be burned in units that have their air emissions controlled by a federal, state or local entity or where the federal, state or local entity has determined that the emissions from the unit need not be subject to control. In this way, the Agency can be

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assured that nitrogen emissions (as well as other pollutants) are adequately controlled, while at the same time avoid needless duplicative regulation.

CFFS10.06.a(commenter 110)

2. Nitrogen

The CCF believes that an even less convincing case can be made for inclusion of a total nitrogen specification because a large part of any organic nitrogen present in the waste will be emitted as either diatomic nitrogen (N_2) or nitrogen oxides (NOx) Emissions of NOx have no adverse environmental impact. Emissions of NOx would be adequately controlled by a Clean Air Act permit (which, as discussed below, the CCF believes should be required as part of a comparable fuels exemption). The theoretical underpinning of the belief that the presence of organic nitrogen will necessarily result in the emission of dangerous quantities of toxic organic nitrogen compounds is extremely weak.

CFFS10.08(commenter 128)

10. CMA does not believe it is necessary to include total nitrogen as hazardous constituents in the benchmark or clean fuels exemption.

The Agency has invited comments about whether Appendix VIII should include total nitrogen. In the preamble on page 17462, the Agency indicates that total nitrogen would ensure compliance with specification levels for individual compounds containing nitrogen.

CMA believes that the Agency adequately regulates total nitrogen in the Clean Air Act under Title I and Title V. The Agency has established protective ambient air quality criteria for nitrogen oxides (NOx), attainment of which is accomplished by states and localities via their SEPS. Additionally, NOx emissions are evaluated and controlled on a facility-specific basis 'm attainment areas through the PSD program and in nonattainment areas through the NSR program. Also, under Title V, each major source facility will have an extensive permit that will need state administrator and/or EPA approval, after much public participation. In view of all these programs regulating nitrogen compounds, it is not necessary to regulate these constituents under the comparable fuels approach.

The Agency has not argued for "specification levels for individual compounds containing nitrogen" based on any toxicity concern. Indeed, the rationale used would also suggest that carbon, hydrogen, and oxygen should also be controlled. Clearly, the simply presence of nitrogen does not warrant its regulation.

CFFS10.11(commenter 134)

EPA's concern regarding nitrogen and ash emissions is addressed under the CAA. EPA has the authority under the CAA to control certain pollutants, including NOx, and PM10.[8] Moreover, EPA has promulgated primary and secondary National Ambient Air Quality Standards (NAAQS) for NOx, and PM10 and is already controlling these pollutants by various means. Thus, proposing to establish a specification for nitrogen and or ash under the comparable fuel specification would result in the control of these pollutants under both RCRA and the CAA. Ciba does not believe it necessary to establish a specification for nitrogen and ash under RCRA when these pollutants are adequately controlled under the CAA. This is the

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type of duplicative regulation that the Clinton Administration has indicated it wants to avoid. Section 1006(b) of RCRA (Integration with Other Acts), where it states that "[t]he Administrator of EPA shall integrate all provisions of RCRA for purposes of administration and enforcement and shall avoid duplication, to the maximum extent practicable, with appropriate provisions of the Clean Air Act (42 U.S.C. 1857 and following),...". Such integration would be undermined by the establishment of specifications for nitrogen and ash. If the Agency has concerns that comparable fuels can or will be burned in units that are not adequately controlled under the CAA, then EPA should require that any comparable fuel that is excluded from the definition of solid and hazardous waste be burned only in units that have their air emissions regulated by a federal, state, or local entity. In this way, the Agency can be assured that these pollutants are adequately controlled, while at the same time avoid needless duplicative regulation.
[Footnote 8: Controlling PM10 content would be analogous to controlling/limiting ash content.]

CFFS10.12(commenter 139)
Furthermore, we propose the use of a stack emission standard for NOx in lieu of a fuel nitrogen standard. FCC has demonstrated that very low NOx emissions can be achieved even with high nitrogen fuel content.

CFFS10.13(commenter 139)
EPA in its Project Summary entitled "Determination of the Thermal Decomposition Properties of 20 Selected Hazardous Organic Compounds" evaluated and ranked 20 compounds on their ability to be incinerated. Incineration ability was defined as the temperature requirement, at a residence time of 2 seconds, to achieve 99 percent destruction. Of the compounds evaluated, methane was the fourth most difficult compound to incinerate. Only acrylonitrile, acetonitrile and tetrachloroethylene were more difficult to incinerate than methane. One conclusion of this work is that for comparable combustion operating equipment and conditions, higher DRE would be expected for many amines than for methane, the primary component of natural gas. Therefore, clean fuel specifications should not focus on the concentrations of specific compounds in waste fuels, but should be crafted to ensure that emissions from comparable fuels are similar to conventional fuels. FMC and FCC suggest and support a clean fuel specification of 200 ppmv NOx averaged over 1 hour.

CFFS10.14(commenter 156)
NITROGEN SPECIFICATION
If a total nitrogen specification level is established for non-Appendix VIII compounds like ammonia, the EPA regulatory proposal will provide little constructive relief to ISP. Approximately 3 1% of the I million gallons per year of clean fuels generated by our Calvert City Plant contains 4% ammonia at the point of generation. There are no nitrogenated compounds that are listed in Appendix VIII and there is no evidence that any of these constituents will be formed during combustion. In contrast, there is data which indicates the ammonia would be converted to nitrogen and nitric oxides. Since the latter compounds are

regulated under Clean Air Act Prevention of Significant Deterioration Regulations, ISP supports a rule basis that establishes no specification level for total nitrogen compounds in hazardous waste fuels.

CFFS10.16(commenter 180)
C. EPA should delete the proposed comparable fuel specification on nitrogen.
Fuels with bound nitrogen which may produce NOx are already managed by air regulations. There is no need to restrict nitrogen content in this comparable fuels regulation and cause confusion by creating competing restrictions for fuel burning. The proposed general specification for nitrogen, total (ppmw) should be eliminated. DuPont currently burns potential comparable fuels with nitrogen bound in fuel (ammonia, nitriles, and amines) content of 20% and are able to burn at low CO emission levels and have demonstrated DRE results of 99.99% destruction. The boilers burning these candidate comparable fuels are subject to and meet existing NOx controls under the Air regulatory program. DuPont sees no additional environmental benefit to restrict the bound nitrogen content of comparable fuels.

Response:
A total nitrogen specification is appropriate for the comparable fuel specification. The counter-arguments advanced do not address EPA's rationale for a total nitrogen limit. Most obviously, the CAA NAAQS do not ensure control of individual combustion units and do not ensure that a hazardous waste-derived fuel would contain no greater amounts of nitrogenated compounds than fossil fuels. Although total nitrogen is not listed on Appendix VIII, Part 261, EPA proposed a total nitrogen specification to ensure that nitrogenated products of incomplete combustion (PICs) from burning a comparable fuel would not be emitted at higher levels than from burning a benchmark fossil fuel. EPA believes that PICs resulting from the burning nitrogenated organic compounds can also pose a particular hazard to human health and the environment.
Under oxidative conditions of typical hazardous waste combustors, the majority of waste nitrogen will be emitted as N_2 (not of environmental concern) or NO_x (a criteria air pollutant whose emissions levels are covered under the Clean Air Act ambient air quality standards for ozone control). However, under starved air (reducing) conditions, nitrogen will form primarily the HAPs of HCN and NH_3. Starved air transient “puffs” can occur in hazardous waste combustors due to chamber overcharging (possibly due to unexpected surges in waste volatile composition), poor waste/air mixing, and poor liquid atomization. Additionally, nitrile radicals (CN) can form nitrogenated PICs (such as HAPs including hydrogen cyanide, acetonitrile, acrylonitirile, nitrophenols, nitroltoluenes, nitrobenzenes, aniline, acetamide, acrylamide, analine, etc.) through radical-radical and radical-molecule reactions which occur as the combustion gas is cooled (Dellinger et al., 1990).

2. Not Provided a Basis to Include Specifications for Total Halogens and Total Nitrogen

CFFS10.06.b(commenter 110)

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The agency has not provided any data or information to support the need for separate total halogen/total nitrogen limits in addition to the limits on listed Appendix VIII halogenated and nitrogenated compounds. Nor has the agency provided any data or information to support setting a limit at the method detection limits for either total nitrogen or total halogens. If EPA believes such information exists, it must place it in the rulemaking record, cite and discuss it in the preamble, and allow the public a chance to comment on it.

CFFS10.24(commenter 226)

3. EPA Has Not Provided a Basis to Include Specifications for Total Halogens and Total Nitrogen

In the Coalition's previous set of comments submitted on August 19, we showed that there is no technical basis for EPA to conclude that emissions from the burning of either total halogens or total nitrogen pose an environmental threat. The Coalition demonstrated that it would be sufficiently protective for EPA to regulate halogenated and nitrogenated compounds that are specifically listed on Appendix VIII -- and that to establish additional specifications for total nitrogen and total halogens would substantially diminish the utility of the proposed comparable fuels exemption.

In its latest notice, EPA says that it is proposing limits on total nitrogen and total halogens "to ensure that "halogenated and nitrogenated products of incomplete combustion (PICS) from burning excluded waste would not be emitted at higher levels than from burning benchmark fossil fuel. Halogenated and nitrogenated organic compounds can pose a particular hazard to human health and the environment." 61 Fed. Reg. at 43502.

First, as discussed at length in our prior comments, the comparable fuels exclusion will contain sufficient safeguards to prevent or minimize the occurrence of incomplete combustion, by requiring air permits, by requiring a minimum BtU value and other conditions). Second, as we also noted in our prior comments, the burning of total nitrogen will not pose an environmental threat, and the best current scientific research does not support the view that the burning of total halogens will pose a significant threat.

Particularly in light of these considerations, the agency has a very high threshold burden to justify any limitations on total nitrogen or total halogens -- which are In the case of Appendix VIII compounds, EPA at least arguably enjoys a presumption that they may be included among the criteria for granting an exemption from RCRA Subtitle C regulation. Not so, however, for compounds or characteristics that are not listed on Appendix VIII. The agency might as well say that since gasoline is yellow, a candidate waste fuel must also be yellow in order to ensure that the risks associated with fuel color are not increased as a result of the comparable fuels exclusion. To take an example that hits closer to home, EPA's proposal to regulate non-Subtitle C characteristics like viscosity at least is accompanied by a rationale that the regulated community can address (and which the Coalition has criticized at length in its earlier comments). The agency has not done this with respect to total halogens or total nitrogen.

Since total nitrogen and total halogens are not listed on Appendix VIII, EPA carries the burden of providing an environmental justification why they should be included among the benchmark specifications. EPA has not done so. In fact, EPA has not articulated any reason whatever as to why the burning of these constituents -- with all of the controls that will apply to the combustion units in question -- will pose any risk warranting the agency's or public's concern.

Response:
Total halogens and total nitrogen are appropriately included in the comparable fuel specification. Limits on total nitrogen and total halogens ensure that halogenated and nitrogenated products of incomplete combustion (PICs) from the burning of an excluded waste are not emitted at higher levels than the from burning a benchmark fossil fuel. The requirement for an air permit or a minimum Btu value do not provide the same assurances. A specification for total halogens is appropriate. A limit on the chlorine feed to the combustor is desired from an environmental protection perspective to: (1) reduce the emissions of the hazardous air pollutants of HCl and Cl_2, both of whose formation is directly related to the chlorine content of the waste feed; and (2) prevent the formation of chlorinated products of incomplete combustion (PICs), which includes PCDD/PCDF as well as others such as chlorinated benzenes, biphenlys, phenols, etc. Limiting the waste feed chlorine level reduces the potential for the formation of chlorinated PICs through (Dellinger et al., 1990):

- Limiting the release from the combustion zone of undestroyed and/or partially fragmented chlorinated precursors contained in the waste feed. Note that kinetic theory and experimental work indicate that the chlorination of unchlorinated hydrocarbons is very unlikely at combustion temperatures (i.e., chlorinated PICs are not formed from unchlorinated hydrocarbons in the combustion zone). Thus, the emissions of chlorinated PICs from the combustion zone is related directly to the chlorinated organic constituents in the waste feed. It is highly desired to minimize the level of chlorinated precursors in the combustion gases since the major route to formation of high molecular weight chlorinated PICs is through reactions of already chlorinated precursors.
- Limiting the potential for the formation of chlorinated PICs due to radical-radical association reactions as the combustion gas is cooled -- in particular organic radical reactions with Cl radicals formed in the combustion zone.
- Ensuring adequate flame stability (and corresponding combustion efficiency) and reducing flame sooting. Increasing levels of chlorine are known to increase flame sooting and decrease flame stability and efficiency. Cl atoms scavenge H atoms, depleting the flame radical pool that drives the combustion reactions.

A specification on total nitrogen is appropriate. Under oxidative conditions of typical hazardous waste combustors, the majority of waste nitrogen will be emitted as N_2 (not of environmental concern) or NO_x (a criteria air pollutant whose emissions levels are covered under the Clean Air Act ambient air quality standards for ozone control). However, under starved air (reducing) conditions, nitrogen will form primarily the HAPs of HCN and NH_3. Starved air transient “puffs” can occur in hazardous waste combustors due to chamber overcharging (possibly due to unexpected surges in waste volatile composition), poor waste/air mixing, and poor liquid atomization. Additionally, nitrile radicals (CN) can form nitrogenated PICs (such as HAPs including hydrogen cyanide, acetonitrile, acrylonitirile,

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nitrophenols, nitroltoluenes, nitrobenzenes, aniline, acetamide, acrylamide, analine, etc.) through radical-radical and radical-molecule reactions which occur as the combustion gas is cooled (Dellinger et al., 1990).

3. Include requirement on CO emissions in lieu of imposing a total nitrogen specification

CFFS10.25(commenter 242)
A. EPA should delete the proposed comparable fuel specification on nitrogen.
In the Notice (p. 43502), EPA states a belief that total nitrogen content should be limited for comparable fuels to ensure that "nitrated products of incomplete combustion (PICS) from burning excluded waste would not be emitted at higher levels than from burning benchmark fossil fuel.
Maintaining carbon monoxide (CO) emission levels for comparable fuels-burning industrial boilers at levels less than or equal to 100 ppmv, corrected to 7% oxygen, on an hourly rolling average basis is a conservative and more direct way of minimizing nitrated PICs from burning comparable fuels containing bound nitrogen than imposing total nitrogen limitations on the feed. EPA should include an operating requirement on boiler CO (or hydrocarbon) emissions in lieu of imposing a total nitrogen specification for candidate comparable fuels.

Response:
An operating requirement on boiler CO (or hydrocarbon) emissions could be used in lieu of imposing a total nitrogen specification for candidate comparable fuels. EPA believes that this would unnecessarily complicate the comparable fuel approach. The underlying philosophy of the comparable fuels exclusion is that, to be excluded from RCRA, a hazardous waste-derived fuel must be comparable to a fossil fuel in terms of hazardous and other key constituents (and properties) in the fuel itself and must have a heating value indicative of a fuel. In this situation, EPA has discretion to classify such material a fuel product excluded from RCRA, and not a RCRA-regulated waste. An operating requirement on boiler CO (or hydrocarbon) emissions would almost certainly result in a complicated conditional exclusion from the definition of solid waste. This eventuality is viewed as both potentially unworkable and very difficult to implement and enforce. Therefore, for the final rule, a total nitrogen limit will be promulgated.

4. Use risk approach to establish total nitrogen and halogen limits.

CFFS10.19(commenter 204)
3. Table 4 shows this problem in the following manner. Several selected chlorinated and nitrogenated compounds have been selected for their relatively low fraction of chlorine and nitrogen by weight. [See hardcopy of Comment RCSP-204 for Table 4 - Individual Constituent Concentrations Equivalent to Total Halogen/Nitrogen Limit] The simplified chemical formulae are used to calculated the per cent by weight that the chlorine or nitrogen

represents of the total molecule. This percentage is divided into the 50th percentile specification for total halogen or nitrogen. This concentration halogenated or nitrogenated compound would then approximately equal the total halogen or nitrogen analytical value. The risk specific dose is then presented to further gauge the relative risk presented by these compounds. Finally, the risk specific dose is divided into the equivalent concentration to provide a risk based ranking of the constituents. Exempting the combustion of waste containing the listed equivalent concentrations of toxic pollutants would not be sound public policy.

CFFS10.20(commenter 204)

4. EPA should set standards for individual constituents and drop the total nitrogen and total halogen limits. Alternatively, EPA could develop one unit risk statistic that represents the composite risk from the hazardous constituents found in commercial fuels. Under this approach, all detected Appendix VIII compounds would be normalized to some standard risk parameter (e.g., equivalent benzene concentration) according to the ratios of their reference air concentration, risk specific dose, or other parameter. These normalized parameters would then be summed into one risk number. If a candidate fuel had a risk parameter less than the equivalent risk parameter for the commercial fuel, then it would qualify for the exemption provided it met other physical specifications appropriate for a fuel (i.e., as-fired viscosity, minimum heat content).

CFAP.14(commenter 204)

2.3. Results of Comparative Emissions Testing

This section of Fina's comments on the comparable fuel specification addresses the results of recently completed comparative emission testing of both APS combustion and #2 fuel oil combustion. Table 3 contains a summary of the results of the stack testing for products of incomplete combustion. Appendix 1 contains diskette #2 that contains the full sampling analytical results for all runs using the VOST, semi-VOST and MM5 test protocols. Preliminary printouts of this data are found in Appendix 7. These data are formatted for Lotus^{TM}. Diskette #3 contains a zipped file that holds the operating data during the tests. These tests were performed under normal operating conditions. Once this file is unzipped, the operating data will be found in the format of Excel for Windows 95.

From a risk perspective, the concentration of benzene is the most significant component of emissions from both APS and #2 fuel oil combustion. As noted previously, the benzene precursors (i.e., naphthalene, and ethyl benzene) in APS are due to the use of kerosene as a solvent in the production system. Nonetheless, the benzene emission from APS is 4% of the benzene emission from #2 fuel oil.

The results include detectable concentrations of chloromethane (i.e, methylene chloride). The risk specific dose of chloromethane is twice as high as benzene (i.e., chloromethane is half has toxic as benzene). The relative risk of chloromethane can be adjusted to benzene by dividing the concentration of chloromethane in half and then adding to the concentration of benzene. Dividing the adjusted #2 fuel oil emissions into the adjusted APS emissions reveals that APS combustion poses 5% of the risk of burning #2 fuel oil.

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In other words, combustion of #2 fuel oil presents 20 times the environmental risk that burning APS does. Creating a specification that includes APS will certainly further EPA's goal of crafting an exclusion that "poses no greater risk than burning fossil fuel". Appendix 8 contains a recent article from the Journal of Air and Waste Management that confirms our findings concerning the combustion of fuel oil.

2.4. Dioxin Testing Results

Fina has conducted a screening test for the emissions of dioxin from Train A. The report of a dioxin screening test is presented in Appendix 9. The TEQ of the emissions was calculated to be 0.0007 ng/dscm @ 7% oxygen when non detects are taken as zero. The TEQ is .0.0569 ng/dscm @ 7% oxygen when non detects are taken at their limit of detection.

2.5. Total Halogen Limit

APS does not meet the comparable fuel specification for total halogen because it contains a significant concentration of inorganic chloride. The inorganic chloride is a residue of a catalyst. APS contains virtually no Appendix VII compounds as demonstrated by the waste analysis discussion presented in section 2.2. As shown by the emissions testing discussed under Section 2.3 above, neither does the inorganic chloride contribute to emissions of hazardous air pollutants.

Response:

The underlying philosophy of the comparable fuels exclusion is that, to be excluded from RCRA, a hazardous waste-derived fuel must be comparable to a fossil fuel in terms of hazardous and other key constituents (and properties) in the fuel itself and must have a heating value indicative of a fuel. In this situation, EPA has discretion to classify such material a fuel product excluded from RCRA, and not a RCRA-regulated waste. It is not appropriate at this time to adopt an alternative approach that is based on risk from emissions. This is because of a number of technical and implementation problems with using a purely risk-based approach, such as the technical complexity and inability to adequately model the risks from all potential burners of an unregulated hazardous waste fuel.

Singling out only the total halogen or total nitrogen specification for a risk-based approach would likely be both technically unwarranted and administratively infeasible. Historically, halogens and halogen emissions impacts have always been a concern with regard to the burning of hazardous waste. Nitrogen-related emissions also remain a concern. There are other compounds for which EPA has established comparable fuel specifications (for example, toxic alcohol compounds) that would likely pose less of a risk when burned than the PICs that can be formed from burning halogenated and nitrogenated compounds. Using a risk-based approach only for the more problematic halogens therefore appears to be counterproductive from an environmental standpoint. EPA has chosen the comparable fuel approach precisely to avoid having to base an exclusion from RCRA regulation on the risks associated with burning individual hazardous compounds in a host of uncontrolled settings.

If the Agency were to develop a risk-based approach for halogen and nitrogen for total halogens, the implementation details to ensure proper combustion of halogenated wastes would be numerous. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste. This eventuality is viewed as both potentially unworkable and very difficult to implement and enforce. At some future point as the state of risk science evolves and as our understanding of emissions from a wider variety of sources grows, EPA may be able to address aspects of the commenter's recommendations if appropriate and feasible.

At this time, EPA believes that it is more appropriate to implement a scheme that can be feasibly applied on a national basis, and to devote further effort at the longer-term goal of a risk-based exclusion for certain fuels (or potentially, a nationally-based type of exclusion).

Total Halogens/Nitrogen Limits in Lieu of Limits on Individual Compounds

1. Should not establish individual limits for halogenated compounds.

CFFS10.02(commenter 099)

5. EPA invites comment on whether or not it is necessary to specify limits for halogenated compounds found on Appendix VIII.

Dow would strongly urge the Agency to limit the comparable fuel specification to "total halogens" and not promulgate a specification for the individual halogenated compounds listed on Appendix VIII of Part 261. There are two compelling reasons for this position. First, as the Agency itself recognizes, and as Dow's own analysis confirms, limiting the specification to total halogens will not only greatly simplify the specification, but also reduce the testing and recordkeeping costs on the regulated community. For example, the cost of analyzing each sample for total halogen is several hundred dollars, while the cost of analyzing each sample for individual halogenated compounds could run as high as several thousand dollars. More importantly, Dow believes that the Agency's primary concern with setting a specification for halogenated compounds is the potential to form dioxins/furans during the combustion process. Because EPA would be establishing a specification for total halogen and because that level would be comparable to that which is found in fossil fuel, the risk of burning these materials (based on its halogen content) and the absolute amount of emissions should be no greater than when fossil fuels are burned. Furthermore, as the Agency indicates, if a generator meets the total halogen level, it is likely that the specification for the individual halogenated compounds would also be met, and thus, there appears to be minimal, if any, benefit of establishing a specification for each individual halogenated compound. Therefore, Dow recommends that EPA only promulgate a comparable fuel specification for total halogen and not for the individual halogenated compounds that are listed on Appendix VIII of Part 261.

CFFS10.10(commenter 134)

1. The Specification Should Not Include Individual Halogenated Compounds:

EPA proposed both a quantitative limit for total halogens and a specification of "non- detect" for the individual halogenated compounds listed on Appendix VIII of Part 26 1. However, EPA is also seeking comment on the need to specify a limit for the individual halogenated hazardous constituents. (See 61 FR 17462, April 19, 1996.)

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Ciba urges the Agency to limit the comparable fuel specification to "total halogens" and not promulgate a specification for the individual halogenated compounds listed on Appendix VIII of Part 261. There are two compelling reasons for this position. First, as the Agency itself recognizes, and as Ciba's own analysis confirms, limiting the specification to total halogens will not only greatly simplify the specification, but also reduce the testing and recordkeeping costs on the regulated community. For example, analyzing for total halogens and total organic halogens costs about $100.00 combined. Analyzing for Appendix VIII halogenated compounds (including pesticide, PCB and dioxin scans) costs about $2000.00. When this type of differential is multiplied by the number of samples that will need analyses throughout the nation, the cost of the specification by individual halogens simply outweighs the benefits.
Ciba believes that the Agency's primary concern with setting a specification for halogenated compounds is the potential to form dioxins/furans during the combustion process. Because EPA would be establishing a specification for total halogens and because that level would be comparable to that which is found in normal fuels, the risk of burning these materials (based on its halogen content) and the absolute amount of emissions should be no greater than when typical fuels are burned. (As noted previously, the effect of halogen on the concentration of dioxins/furans that would be emitted from a combustion unit is smaller than the influence of other causative factors -see Section Ill. C above.) Furthermore; if a generator meets the total halogen level, it is likely that the specification for the individual halogenated compounds -would be met, and thus, there appears to be minimal, if any benefit of establishing a specification for each individual halogenated compound.[16] Therefore, Ciba recommends that EPA only promulgate a comparable fuel specification for total halogens and not for the individual halogenated compounds that are listed on Appendix VIII of Part 261.
[Footnote16: A possible exception to this would derive from the Agency's position on "non-detecel values. However, as discussed in Section 111. D. above, Ciba is recommending that the Agency modify its proposed policy.]

CFFS9.06.c(commenter 174)
A 1000 mg/kg on-specification level would fully safeguard human health and the environment, provide a safeguard against mixing and keep the comparable fuel analysis costs reasonable. This is very important. The specification analysis cost, as proposed, is much too high for the smaller or even medium sized generators to effectively use this comparable fuel exemption.

CFFS9.06.e(commenter 174)
Also, a field screening test kit would be tough to produce at under the 1000 ppm detection level, one already exists for used oil to check at the 1000 ppm level. These existing test kits should work for many potential comparable fuel waste.

CFFS10.15(commenter 174)
I.A.2.H Specification Levels For Halogenated Compounds:
We feel a Total Halogen Level is the correct way to measure all Halogens in a given comparable fuel. Also by measuring only Total Halogens a field kit could be produced to check given streams upon generation, to screen for Halogen contamination as is done with

used oil. Like used oil, Halogen contamination is one of the more likely events to accidently or incidentally occur in a generator's facility. A field test kit would be of benefit to the regulated community as a screening tool in helping them comply with the regulation.

CFMISS.49(commenter 214)
Testing for Total Halogens/Halogen Level
There is no compelling environmental reason that would require testing for individual halogenated substances. It is much less expensive and equally useful to test for total halogens.
Setting a halogen specification at 25 parts per million is excessively stringent. In 1985 when it devised the used oil fuel specification level for total halogens, EPA assumed destruction efficiency of furnaces and boilers to be 97 percent and concluded that a 4000 ppm total halogen specification level would not present a significant risk to health. (According to EPA, used oil fuel with halogen concentrations above 4000 parts per million could be still be safely burned but only in industrial furnaces and boilers.) EPA also noted that typical boiler and furnace destruction efficiency is actually higher -- in the range of 99 to 99.9 percent. There appears to be no justification, therefore, for establishing an unnecessarily restrictive halogen specification for comparable fuels. NORA recommends a 1000 ppm specification level. This is achievable even though it is four times more "protective" than the used oil fuel specification level.

<u>Response:</u>
For the final rule, EPA is using its composite benchmark approach to establish a total halogen specification and allowing compliance with a total organic halogen limit in lieu of complying with limits on individual Appendix VIII halogenated compounds. EPA's proposed limit of 25 ppm for total organic halogens will act as the surrogate for the individual halogenated organics. EPA agrees that this approach will simplify the comparable fuels specification and possibly mean fewer and less costly sampling and analyses of comparable fuel streams for generators.
EPA is concerned that the use of a total organic halogen surrogate will possibly mask illegal PCB disposal. Since low analytical detection limits for PCBs (i.e., 1.4 ppm) in the benchmark fuel matrices have been well-demonstrated, the 25 ppm total organic halogen limit would not be a sufficient screen. Since PCBs are relatively common halogenated contaminants in fuel-like wastes and the probability of finding them is quite reasonable, EPA is keeping the limits on PCBs to ensure levels no greater than from benchmark fuels. EPA also points out that there are several relatively inexpensive analytical screening methods that have been developed specifically for the determination of total PCBs.
Therefore, a comparable fuels generator would have the option of complying with a total organic halogen specification of 25 ppm plus the total PCB specification or with the individual Appendix VIII specifications for halogen compounds. In addition, the generator would have to comply with the total halogen limit (which includes both organic and inorganic halogens) of 540 ppm. The total halogen limit (both organic and inorganic) will ensure that halogenated products of incomplete combustion (PICs) generated from burning a comparable fuel will not

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be emitted at higher levels than from burning a benchmark fossil fuel.

2. Should not use surrogates for individual nitrogen or halogen compounds.

CFFS10.03(commenter 102)
E. Use of Surrogates to Identify Toxic Constituents
NACR also does not support the Agency's proposal to use total nitrogen or total chlorine analyses as surrogates for toxic constituents containing nitrogen and chlorine atoms. The agency states that a waste which meets the total halogen limit should, by default, meet the non-detect levels specified for halogenated compounds. We disagree. We note that tetrachlorodibenzo-p-dioxins are listed in 261 Appendix VIII. We doubt that a crude total halogen analysis will be an effective screen for the extremely hazardous Appendix VIII constituents which constitute a potential risk at very low detection levels. The use of a total halogen surrogate will also possibly mask illegal PCB disposal. Our opposition to a total nitrogen analysis is based on similar concerns. The risk posed by a potential comparable fuel material will not be adequately determined through gross ultimate analyses. The use of such analyses in a comparable fuel specification will only serve to further undermine the existing and effective risk based RCRA regulatory program.

CFFS10.04(commenter 106)
ENSCO is opposed to EPA's proposal on page 17462/1 to not set specifications for halogenated Appendix VIII compounds. The total halogen specification is not sufficient to protect against emissions of halogenated Appendix VIII constituents in the waste fuels, particular if EPA adopts a halogen specification in the CMA proposed 7200 ppm range. Certain of the Appendix VIII halogenated compounds are highly toxic at levels far below the halogen specification.

CFFS10.05.a(commenter 110)
D. The Establishment of Specifications for Total Halogens and Total Nitrogen in Addition to Specifications for Individual Halogenated and Nitrogenated Compounds That are Listed in Appendix VIII Would Impose Unnecessary Requirements That Will Prevent Some Facilities From Qualifying For the Exemption
The agency has proposed to allow a facility to avoid analyzing for individual Appendix VIII halogenated and nitrogenated compounds if the facility meets the total halogen and total nitrogen specifications, respectively. The Coalition believes that this is a reasonable accommodation that would ease the regulatory burdens for some generators without sacrificing environmental protection. However, the accompanying data from the Coalition members' waste streams shows that in some cases, a facility may achieve all specifications for individually listed Appendix VIII halogenated or nitrogenated compounds yet fail to meet a specification for total halogens or total nitrogens. see, e-g-, analytical results for streams 4, 5 and 6A.
Although not discussed in the preamble, we understand from EPA staff that the agency

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intends to require a facility to achieve the total halogen (and nitrogen) specification even if it meets the specifications for all individually listed compounds out of a concern that Appendix VIII constituents may be formed during the combustion process if unlisted, nonhazardous elements like nitrogen, bromine or chlorine are burned. These concerns are both undocumented and unfounded. Consequently, in cases where specifications for all listed Appendix VIII compounds are met, there is no legitimate reason to impose an additional limitation on total halogens or total nitrogen.

CFFS10.07(commenter 112)

A. Total Nitrogen is not a good surrogate for individual compounds containing nitrogen

EPA requested comments on "whether the total nitrogen specification level would ensure compliance with specification levels for individual compounds containing nitrogen...." 61 Fed. Reg. 17,462. EPA's apparent intention is to use total nitrogen as a surrogate for nitrogenous compounds that appear on Appendix VIII. AF&PA and NCASI conclude that the surrogate approach is inappropriate, because the mere presence of nitrogen does not imply the of nitrogenous Appendix VIII compounds. This is especially so in the case of candidate comparable fuels generated during wood pulping processes.

Nitrogen naturally is present in wood-derived candidate comparable fuels because of the biologically-derived nature of wood, mainly due to the presence of various proteins. Reported total nitrogen levels in wood range from 0.2 to 0.4%.[7] But it is unreasonable to assume that the nitrogen contained in the proteins that underlie wood is converted into Appendix VII, compounds during typical pulping processes. Discussion with several chemists familiar with protein chemistry and the kraft pulping process (which involves elevated temperatures and alkaline conditions) indicate that proteinaceous nitrogen will likely be converted to ammonia. Analysis of candidate paper industry comparable fuels (two condensate samples and five turpentine samples reported in Appendices A and B) show that ammonia is present in six of the seven samples at concentrations up to 16,900 mg/L. Notwithstanding these relatively high total nitrogen levels, no nitrogenous Appendix VIII compounds were identified in any of these materials. For these reasons, a total nitrogen specification level for comparable fuels should not be used.

[Footnote 7: Browning, B.L., "The Chemistry of Wood," John Wiley and Sons, Inc. 1963 and Rowell, R., "The Chemistry of Solid Wood," American Chemical Society, Washington, DC, 1984.]

CFFS10.09(commenter 130)

The ETC is opposed to EPA's proposal (page 17462/1) to not set specifications for halogenated Appendix VIII compounds. The total halogen specification is not sufficient to protect against emissions of halogenated Appendix VIII constituents in the waste fuels, particularly if EPA adopts a halogen specification in the CMA proposed 7200 ppm range. Certain of the Appendix VIII halogenated compounds are highly toxic at levels far below the halogen specification.

CFFS10.17(commenter 204)

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2.5 Total Halogen Limit

APS does not meet the comparable fuel specification for total halogen because it contains a significant concentration of inorganic chloride. The inorganic chloride is a residue of a catalyst. APS contains virtually no Appendix VIII compounds as demonstrated by the waste analysis discussion presented in section 2.2. As shown by the emissions testing discussed under section 2.3 above, neither does the inorganic chloride contribute to emissions of hazardous air pollutants.

In the preamble at page 17461, EPA requests comment on several issues surrounding the total halogen limit as shown below:

h. Specification Levels for Halogenated Compounds. EPA invites comment on whether it is necessary to specify limits for halogenated compounds found on Appendix VIII. Non-detect levels of halogens were found in EPA's fossil fuel analysis and the non-detect levels for total halogens were much less than those of the individual halogenated compounds. Therefore, a waste that meets the total halogen limit should, by default, meet the non-detect levels specified for halogenated compounds. EPA prefers this approach since it will simplify the comparable fuels specification and mean fewer and less costly sampling and analysis of comparable fuel streams for generators. We invite comment on this approach.

EPA also invites comment on whether this approach could be expanded to other Appendix VIII constituents as well (e.g., whether the total nitrogen specification level would ensure compliance with specification levels for individual compounds containing nitrogen).

With respect to the above discussion, Fina offers the following specific comments:

1. Control of the halogenated compounds requires specification of limit for the individual compounds and not just a blanket total halogen limit because the total halogen limits excludes candidate feed streams that otherwise meet EPA's goal for the comparable fuel exclusion (i.e., excluding wastes with risk comparable to commercial fuels).

CFFS10.18(commenter 204)

2. Surrogate limits based on total nitrogen and total halogen are not protective of human health and the environment. The proposed total halogen limit can mask a relatively high concentrations of toxic halogenated compounds. Similarly, the 1800 ppm total nitrogen limit can also mask high levels of toxic materials in the candidate feed stream.

Response:

EPA's proposed limit of 25 ppm for total organic halogens will act as the surrogate for the individual halogenated organics. EPA beleives that a total organic halogen analysis will be an effective screen for some of the more hazardous halogenated Appendix VIII constituents which could constitute a potential risk at low detection levels (e.g., tetrachlorodibenzo-p-dioxins). EPA calculated the equivalent constituent concentrations using the minimum detection limit values for these hazardous halogenated organics and determined that the 25 ppm total organic halogen limit will be an effective screen for all of the chlorinated dibenzofurans and chlorinated dibenzodioxins (i.e., the tetra- through octa- congeners). The minimum detection limits calculated for these congeners ranged from 30 to 150 ppm and the 25 ppm organic halogen specification will limit these congeners’ concentrations to below

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those minimum detection limits. Additional factors in this decision to use the 25 ppm halogen limit as a screen for dioxins include the following:

1) Wastes listed because they contain dioxins are not eligible for an exclusion from the definition of solid waste. In particular, waste codes F020, F021, F022, F023, F026 and F028 have been designated as "inherently waste-like" under 40 CFR 261.(d) and therefore are not eligible for the comparable fuel exclusion. Thus, any hazardous waste that included as constituents chlorinated dioxins and dibenzofurans would be excluded from consideration as a comparable fuel;

2) Wastes listed because they contain dioxins would also be expected to contain significant levels of other halogenated organics. (The reader should note that the compounds in question are typically formed from the breakdown and reaction of other halogenated organics.) The higher concentrations of these other halogenated organics would drive the total organic halogen content of the waste up and, thus, the contribution of any chlorinated dibenzofurans and dioxins would be significantly less than the 25 ppm limit; and

3) Waste codes expected to contain significant levels of other halogenated organics can be readily discerned from their list descriptions in 40 CFR 261 Subpart D (e.g., F001 and F002 solvent wastes are defined as halogenated solvents.) In addition, Appendix III to Part 268 lists the halogenated organics typically found in hazardous wastes and that are subject to land disposal restrictions under 40 CFR 268.32. By comparing these, a person implementing today's rule could easily determine the most likely waste codes that could contain halogenated organics in excess of the 25 ppm limit, and thus easily identify wastes not eligible for the comparable fuels exclusion.

EPA agrees with commenters' concerns that the use of a total organic halogen surrogate will possibly mask illegal PCB disposal. Since low analytical detection limits for PCBs (i.e., 1.4 ppm) in the benchmark fuel matrices have been well-demonstrated, the 25 ppm total organic halogen limit would not be a sufficient screen. Since PCBs are relatively common halogenated contaminants in fuel-like wastes and the probability of finding them is quite reasonable, EPA is keeping the limits on PCBs to ensure levels no greater than from benchmark fuels. EPA also points out that there are several relatively inexpensive analytical screening methods that have been developed specifically for the determination of total PCBs. Therefore, a comparable fuels generator would have the option of complying with a total organic halogen specification of 25 ppm plus the total PCB specification or with the individual Appendix VIII specifications for halogen compounds. In addition, the generator would have to comply with the total halogen limit (which includes both organic and inorganic halogens) of 540 ppm. The total halogen limit (both organic and inorganic) will ensure that halogenated products of incomplete combustion (PICs) generated from burning a comparable fuel will not be emitted at higher levels than from burning a benchmark fossil fuel.

EPA agrees with commenters that a total nitrogen specification would not be a good surrogate for individual nitrogen compounds. Analysis of EPA's composite data results in a total nitrogen specification of 4,300 ppm. The detection limits for EPA's analysis of individual nitrogenated compounds in its benchmark fuels ranged from 1 to 2200 ppm. Since detection limits for nitrogenated compounds in the benchmark fuels have been demonstrated well below 4,300 ppm, a total nitrogen specification would not be a sufficient screen for

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Appendix VIII nitrogenated compounds.

Therefore, for nitrogen compounds, EPA is promulgating a total nitrogen specification of 4,300 ppm with individual Appendix VIII nitrogen-containing hazardous constituent specifications. This approach ensures that levels of individual nitrogenated compounds and the total nitrogen concentration are no greater than the benchmark fuels and ensures concentrations of nitrogenated PICs from burning a comparable fuel no greater than burning a benchmark fuel.

4. Exclusion should apply to large volume wastes.

CFFS10.21(commenter 204)

5. The generator, not EPA, bears the cost of sampling and analysis. If the cost of sampling and analysis of identifying halogenated compounds is prohibitive for a candidate feed stream then either (a) the source has a high variability requiring frequent analysis or (b) the volume of waste is small. This exclusion should apply to well characterized, large volume, and low toxicity waste streams. For these streams the cost of determining the individual constituents is not prohibitive. Crafting this exclusion so it has utility to small volume waste streams is counterproductive, particularly so when these modifications exclude large volume, low hazard streams such as APS.

CFFS10.22(commenter 204)

6. If a waste stream does not qualify for the exclusion, the operator will have to sample and analyze the waste for individual constituents as part of the permit process. The BIF regulation explicitly requires Appendix VIII analysis under º266.102(b). These suggested savings in sampling and analysis costs provide weak justification for excluding candidate feed streams comparable to APS.

Response:

It is true that the generator bears the cost of sampling and analysis. However, it is not appropriate for the comparable fuel exclusion to favor large volume waste streams over small volumes. The exclusion has been crafted for both small and large generators. The exlcusion allows the use of process knowledge and surrogates (in the case of halogens) to avoid favoring large over small volume comparable fuel generators. Although EPA's surrogate approach may save sampling and analysis cost, it does not do so at the expense of excluding candidate comparable fuels. EPA has set a comparable fuel specification such that concentrations of hazardous consituents in the comparable fuel could be no greater than the concentration of hazardous consituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel.

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COMPARABLE FUELS: SAMPLING AND ANALYSIS

Sampling Issues

1. Allow non-detects up to the detection limit.

CFSA4.1(commenter 099)

6. EPA has proposed to allow pure hydrocarbons on Appendix VIII to be present up to the detection limits in EPA's analysis. For other constituents on Appendix VIII, EPA has proposed a comparable fuel specification, of "non-detect " with a specified maximum detection limit.

Dow encourages the Agency to modify its approach with respect to non detect levels, and apply its proposed policy for pure hydrocarbons to all hazardous constituents -- that is, for those hazardous constituents that have a "non-detect" level specified, that EPA allow the hazardous constituent to be present in the comparable fuel up to the detection limit.

More specifically, Dow disagrees with EPA's proposed apparent inconsistency in defining what "non-detect" means and believes that such an outcome is unfair and simply not justified. In fact, the Agency does not appear to provide its logic or rationale for distinguishing between pure and "not-so-pure" hydrocarbons regarding "non-detect" levels. Because the Agency has specified a detection limit for each hazardous constituent, why isn't that the specification limit? The Agency's position of "non-detect" levels for "not-so-pure" hydrocarbons also appears to be inconsistent with the Agency's decision on treating "non-detect" levels in other parts of the proposed hazardous waste combustion rule. See, for example, 61 FR 17379, April 19, 1996, where EPA states that they are allowing "non-detects" to be assumed to be zero.

The Agency's proposed approach regarding "non-detect" levels will most assuredly limit the usefulness of the comparable fuel specification by the regulated community and thus, be inconsistent with the Agency's goal of developing a specification which is of the highest possible utility to the regulated community. As an example of this latter point, a material that contains vinyl chloride at 5 parts per billion (ppb) would still be regulated as a hazardous waste even though this level is four orders of magnitude below the specified detection limit. Another example is a material that contains chromium (which may have contaminated the comparable fuel due to corrosion from the piping) all levels below EPA's specified maximum detection level. Does EPA really want to disqualify these types of materials from the comparable fuel specification simply because of these extremely low levels? Dow thinks not, and believes that the policy upon which this premise is based must be revised.

CFSA4.05(commenter 110)

F. EPA Must Promulgate Numerical Specifications -- Not Undefined Maximum Detection Limits -- That Will Apply Uniformly to All Candidate Clean Fuels

1. Constituents Analyzed by EPA in Benchmark Fuels

As the Coalition understands it, for each Appendix VIII compound that EPA analyzed for but did not detect in benchmark fuels, EPA proposes that a comparable fuel must meet two

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separate tests:

(a) The compound must be "non-detect" in the candidate clean fuel based on a detection limit ("DL") at least as low as EPA's maximum allowable detection limit ("MDL"). The MDL would be set at the detection limit EPA was able to achieve in its analyses of the benchmark fuel; and

(b) If the facility were able to achieve a lower detection limit than EPA's MDL, the Appendix VIII compound also must be "non-detect" based on that lower DL achieved by the facility -- whatever that DL might be.

The CCF believes that this approach is inappropriate, unjustified, unduly burdensome, and will create great inequities in the utility and implementation of the proposed exemption that have no environmental justification.

First, the sensitivity of analytical chemistry methods continues to improve, resulting in the technical ability to "see" (detect) a constituent at progressively lower concentrations over time. The practical problems created by EPA's approach in light of this technical reality are enormous, and can be illustrated by the following example. Assume that EPA determines that constituent "X" is not present in No. 2 fuel oil, and its detection limit in No. 2 fuel oil is 100 ppm. Assume that immediately after the comparable fuels exemption is promulgated, a generator establishes a "non-detect" for constituent "XI' in its fuel, with a detection limit of 50 ppm. The generator then qualifies for the exemption under the No. 2 fuel oil benchmark. The generator therefore invests substantial time, effort and dollars to reconfigure its plant to avail itself of the exemption.

However, the following year analytical methods improve to the point where the detection limit for constituent "XI' in the generator's fuels is reduced to 25 ppm, and that constituent is now detected at 30 ppm. Under EPA's approach as we understand it, the generator would now fail to qualify for the exemption using the No. 2 fuel oil benchmark -- even though constituent "X" has been detected at levels far lower than the 100 ppm benchmark detection limit and constituent "X" might well be present at 99 ppm in the benchmark fuel. The generator, having once qualified for the exemption, has been disqualified -- and wasted substantial resources -- not because the nature of its candidate clean fuel is any different, but because of an artifact of analytical test methods.

This type of moving target is not only, of questionable legality (since it fails to give the generator adequate notice of what standard it must meet); it renders the exemption unworkable and virtually useless because, as a practical matter, every generator can count on the fact that analytical detection limits will continue to decrease over time as the technology improves.

CFSA4.06(commenter 110)

Second (and equally important), at any given point in time the achievable detection limit for a given constituent will vary from material to material and facility to facility, depending on such factors as the analytical complexities of each material (I-e-, matrix interferences), the laboratory utilized and the specific analytical efforts undertaken.

As we understand it, EPA's approach could easily result in one stream with a non-detect at the maximum allowable detection limit qualifying for the comparable fuels exclusion, while a much cleaner stream with a detected concentration but having a much lower detection limit fails to qualify for the exemption. Under this very plausible scenario, the second facility might fail to qualify for the exemption because it has a more easily analyzed stream, or because it was more diligent in its efforts to achieve low detection limits. If its candidate clean fuel is easier to analyze, that hardly provides a reasonable basis to require it to remain under RCRA Subtitle C regulation. If it was more diligent in its efforts to achieve low detection limits, to deny it the exemption on that basis would be perverse; the more conscientious facility would be penalized for undertaking more extensive analytical efforts while the less diligent facility would be rewarded by qualifying for an exemption from expensive RCRA Subtitle C requirements.

Obviously, this is not a level playing field. On the other hand, if the generator were to try to qualify for the exemption by adopting less diligent analytical efforts, it might be subject to second guessing and enforcement actions on the grounds that it conducted an inadequate waste analysis. While this result might not be fair, it is hardly an idle or hypothetical concern in light of the numerous and substantial civil penalties that EPA has sought to levy against BIF operations for allegedly inadequate waste testing even when many of the targets of such enforcement actions had analyzed their waste fuels as frequently as established industry practice dictate.

If the agency's approach is to yield rational and equitable results, EPA must propose and establish a uniform numerical specification for each parameter-that is equal to the MDL that EPA determines for each constituent in the benchmark fuels. To require, in addition, that each facility must establish "non-detect" based upon its own lower detection limits fails to provide proper notice to the regulated community as to the standard that must be achieved; and introduces irrational, unjustified and inequitable results that are not related to the goals of the BIF regulations or the comparable fuels exemption.

CFSA4.09(commenter 128)

4. Detectable limits of Appendix VIII constituents.

a) CMA recommends that EPA provide an option to meet numerical specification for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent or to demonstrate non-detect at levels up to 10 times the non-detect level for the comparable fuel constituent using EPA test methodology.

EPA has proposed that for compounds in Appendix VIII which contain atoms other than hydrogen and carbon, these compounds would be limited to "non detect levels" in the hazardous waste fuel with a specified maximum allowable detection limit for each compound. EPA's proposed approach is analytically burdensome, will effectively only allow the exclusion for streams that have Appendix VIII constituent levels much lower than the "comparable" fuel (and is therefore exceptionally conservative in its approach), and will result in exclusion limits that are both "moving targets" and vary from company to company.

Different waste matrices often have different detection limits for constituents. Based on EPA's proposal, ff a sample result has a measured quantity above a very low detection limit relative to the EPA limit, the waste fails the-specification requirement and the company is penalized for having more accurate analytical results. For example, if an EPA non detect level

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is 1 mg/I, and a company has a measurement of 0.2 mg/l with a detection level of 0.1 mg/I, the company fails the comparable fuels specification test.

In addition, non detect levels can constantly change with analytical technology evolution. As a result, a company is faced with a constantly moving target on the comparable fuels exclusion, causing a continuous review of exemption bases that is independent of any change in waste characteristics.

In order to avoid the "moving target" problem, ensure consistency of specification levels across companies, and reduce the excessive conservatism, EPA should establish a numerical specification based on the EPA determined non-detect, level for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent.

However, to avoid the problem that occurs when the non-detect level for the waste matrix sampled is higher than the EPA benchmark fuel non-detect level (using the same test methodology), EPA should allow the flexibility to meet the specification by demonstrating a non-detect level at up to 10 times the benchmark fuel non-detect level. This approach has been used successfully in the LDR program, see 40 CFR §268.40(d)(3), and is crucial in this context as well.

For pure hydrocarbons on the Appendix VIII list, EPA has proposed to allow the constituents to be present up to the detection limits in EPA's analysis. Again, CMA recommends that EPA provide an option to meet a non-detect level (at 10 times the EPA non-detect level) or numerical specification for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent.

CFSA4.10(commenter 134)

E. EPA's Position Regarding "Non-Detect" Levels Is Internally Inconsistent and Not Justified

Ciba encourages the Agency to modify its position with respect to "non-detect" levels and apply its proposed policy for pure hydrocarbons to all hazardous constituents -- that is, for those hazardous constituents that have a "non-detect" level specified, EPA should allow the hazardous constituent to be present in the comparable fuel up to the detection limit.

In particular, because of analytical detection difficulties, specific quantitative limits could not be established for many of the hazardous constituents that EPA analyzed. In this case, the Agency proposed a specification of "non-detect" with a specified maximum detection limit. If the compound is a pure hydrocarbon, the Agency proposed to allow detectable levels to be present in the material up to the identified detection limit. On the other hand, if the hazardous constituent is not a pure hydrocarbon (i.e., a halogenated hazardous constituent), then no amount of the constituent can be present in the material. Thus, a material that does not contain a specific hazardous constituent at the specified detection limit, but is detected at much lower levels would itself not be eligible as a comparable fuel.

CFSA1.11(commenter 134)

EPA's apparent inconsistency in defining "non-detect" is unfair and simply not justified. In fact, the Agency does not appear to provide its logic or rationale for distinguishing between pure and "not-so-pure" hydrocarbons regarding "non-detect' levels. Because the Agency has specified a detection limit for each hazardous constituent, why isn't that the specification limit? The Agency's position of "non-detect" levels for "not-so-pure" hydrocarbons also appears to be inconsistent with the Agency's decision on treating "non-detect" levels in other parts of the hazardous waste combustion rule. See, for example, 61 FR 17379, April 19, 1996, where EPA states that they are allowing "non-detects" to be assumed to be zero. Moreover, the Agency's proposed approach regarding "non-detect" levels will most assuredly limit the usefulness of the comparable fuel specification by the regulated community and thus be inconsistent with the Agency's goal of developing a specification which is of the highest possible utility to the regulated community. As an example of this latter point, Ciba generates a methanol-based material that was analyzed as containing tetrachloroethane at 1.8 mg/I, this is more than an order of magnitude below the specified maximum detection limit. Should this material be excluded from the comparable fuel specification simply because of this extremely low level of tetrachloroethane contamination? Such an exclusion would be contrary to the policy of developing a specification that is useful to the regulated community while being protective of the environment.

CFSA4.13(commenter 134)
Moreover, the Agency should allow persons to use other data/information to demonstrate that a contaminant is not present in the material (or would be present below the specification) if the maximum detection limit achieved is above the limit specified in the final regulations. For example, the McIntosh plant produces a material that contains no brominated compounds based on Ciba's knowledge of the process, however, because of the matrix effects of the material, the detection limit was 250 ppm. It would not be fair to disqualify a material from the comparable fuel exclusion simply because of matrix effects. Therefore, we request that the Agency allow a person to use other appropriate data and documentation to support the persons demonstration that the contaminant is not expected to be present (or would be present below the specification) when, and if, a person cannot achieve the maximum detection limit specified in the regulations. Among the information to be included in the record would be the various analytical methods that were explored.

CFMISS.29(commenter 139)
FMC and FCC also objects to the use of non-detection levels for the definition of a regulatory standard. This approach serves to set a floating compliance limit, which decreases as measurement technology advances.

CFSA4.17(commenter 198)
6. ECA recommends that EPA provide an option to meet a non detect level or numerical specification for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent.
EPA has proposed that for compounds in Appendix VIII which contain atoms other than hydrogen and carbon, these compounds would be limited to "non detect levels" in the hazardous waste fuel with a specified maximum allowable detection limit for each compound. EPA's proposed approach is analytically burdensome, exceptionally restrictive and will result in exclusion limits that are both "moving targets" and vary from company to company.

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Different waste matrices often have different detection limits for constituents. Based on EPA's proposal, if a sample result has a measured quantity above a very low detection limit relative to the EPA limit, the waste fails the specification requirement and the company is penalized for having more accurate analytical results. For example, if an EPA non-detect level is 1 mg/L, and a company has a measurement of 0.2 mg/l with a detection level of 0.1 mg/l, the company fails the comparable fuels specification test.

In addition, non detect levels can constantly change with analytical technology evolution. As a result, a company is faced with a constantly moving target on the comparable fuels exclusion, causing a continuous review of exemption bases that is independent of any change in waste characteristics.

In order to avoid the "moving target" problem, ensure consistency of specification levels across companies, and address the exceptionally restrictive aspects of the proposal, EPA should establish a numerical specification based on the EPA determined non detect level for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent.

However, to avoid the problem that occurred when the non detect level for the waste matrix sampled by ECA was higher than the EPA benchmark fuel non detect level (using the same test methodology), EPA should allow the flexibility to meet the specification by demonstrating a non detect level using EPA test methodology. During ECA's sampling program there were 44 cases (compared to the 90th percentile composite fuel) where the ECA non detect level was above the EPA level, due to the characteristics of the ECA waste fuel, using the same test methodology. Again, there is no sound rationale for "failing" the ECA waste fuel at non detect levels.

For pure hydrocarbons on the Appendix VIII list, EPA has proposed to allow the constituents to be present up to the detection limits in EPA's analysis. Again, ECA recommends that EPA provide an option to meet a non detect level or numerical specification for cases in which the benchmark fossil fuel has no detectable level of a particular Appendix VIII constituent.

CFSA4.19(commenter 201)

1. The elimination of a fuel from a comparable fuel exclusion based on a sample indicating small levels of hazardous constituents above the minimum detection level for a few hazardous constituents seems unjustifiably restrictive. A more acceptable approach would be to allow low levels of hazardous components to exceed levels of the comparable fuel specification up to a conservatively set value that becomes increasingly restrictive as the number of identified hazardous compounds increases.

CFSA4.20(commenter 205)

Approach to Applying DL's (p. 17464): TCC disagrees with the application of lowest DL's to the composite fuels specifications. TCC believes the omission of high detection limits is not justified since some legitimate commercial fuels have high detection limits. A waste stream comparable to a legitimate commercial fuel which displays high detection limits should not be denied the exclusion on the basis of those high detection limits.

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CFSA4.28(commenter 242)

B. The comparable fuels specifications should be stated as numerical levels.

The Notice contains additional detection and detection limit values for possible benchmark fossil fuels. In crafting final comparable fuel specifications for compounds not detected in benchmark fossil fuels, the Agency should express each of these specifications as a numerical level no lower than the listed maximum detection limit rather than as non-detect with an associated maximum detection limit.

Response:

To limit the Part 261, Appendix VIII constituents in comparable fuels to those found in benchmark fossil fuels, the Agency calculated the composite concentration limits using the Agency's analysis of individual benchmark fuel samples. If the benchmark fossil fuel had no detectable level of a particular Appendix VIII constituent, then the comparable fuel specification is "non-detect" with an associated, specified minimum required detection limit for each compound (except in the cases of metals, hydrocarbons, and oxygenates). The detection limit is a statistically-derived level based on the quantification limit determined for each sample. While these constituents should not be present, the Agency will allow non-detects lower than the detection limits that EPA was able to obtain. However, EPA will not allow measured or quantified results below the specified minimum required detection limit where “non-detect” is the comparable fuel specification.

EPA believes it would be inappropriate to change its non-detect policy. The Agency believes that allowing concentrations of constituents not found in the benchmark fuels to be present in the comparable fuel is counter to the comparable approach and could allow higher emissions of toxic compounds from burning excluded waste than from benchmark fuels. EPA has no reason to believe that most Appendix VIII constituents will be found in benchmark fuels. In the case of metals, hydrocarbons, and oxygenates, it is reasonable to assume that non-detect constituents in EPA's benchmark analysis would be present up to the detection limit (see other comment responses for further discussion).

With regard to achieving the detection limits, the Agency continues to believe that the detection limits can be met. This in part due to the fact that the detection limits are primarily based on the limits found for the No. 6 fuel oil analysis. The matrix for No. 6 fuel oil -- a thick, oily matrix -- is a more difficult matrix to analyze than what the Agency believes will be the matrix for the majority of comparable fuels--a light solvent matrix. To assist generators who may have difficult matrices to analyze, the final rule provides the latitude to use any method that will ensure an unbiased and precise analysis of the waste.

EPA also does not believe it is necessary to allow the flexibility to meet the specification by demonstrating a non-detect level at up to 10 times the benchmark fuel non-detect level. The detection limit is a statistically derived level based on the quantification limit determined for each sample. The methodology provides for a confidence interval to arrive at the minimum detection limit based on the quantitation limit. In addition, the minimum detection limit used in the final rule represent the composite of the benchmark fuels. Thus, EPA has provided flexibility by using the detection limit of the highest value of the benchmark fuels.

Furthermore, the analytical requirements for the comparable fuels exclusion are flexible. EPA

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will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste. The following cannot be determined to "not be present" in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste.

Additionally, it should be noted that the detection limit, referenced as the "maximum" detection limit, should more accurately be referred to as the "minimum" detection limit that must be achieved. The final rule requires that analysis for a constituent with a specification of non-detect must: 1) meet a detection limit at or less than the minimum detection limit listed for the constituent; and 2) not detect the constituent of concern in the waste.

2. Difficulties of laboratory analysis.

CFSA4.02(commenter 102)

B. Analytical issues in identifying comparable fuel waste streams

One of NACR's member companies has conducted testing on various hazardous waste streams for identification of a comparable fuel. Testing to document compliance with the proposed sampling and analysis plan has many shortcomings that need to be addressed. One issue is the difficulty in finding a laboratory that can analyze for all of the constituents identified in the proposal. A second issue is that the constituents identified in the comparable fuel table are not routinely tested for. Therefore, a laboratory that specializes in using diverse analytical methods will need to be located. In addition, some states have an approval program for laboratories used in analyzing hazardous waste. In addition to finding a specialty laboratory, a generator may need to find one that is state approved. It is possible that some generators may not have an approved laboratory within their geographical location.

Response:

The Agency beleives that a sufficiently large laboratory population currently exists that conducts the analyses required for the analytes specified to handle the initial influx of analytical requests. The Agency further beleives that the analytical laboratory business is market-driven, and increasing lab capacity will be created in response to increasing market demand. The Agency will encourage authorized States to expand and speed-up their approval processes to accommodate demand from laboratories and generators.

Furthermore, the analytical requirements for the comparable fuels exclusion are flexible. EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste. The following cannot be determined to “not be present” in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste.

3. Analysis costs.

CFSA4.03(commenter 102)
In addition, the minimum cost to analyze one sample for all of the proposed constituents and physical properties is approximately $1800 if all of the analysis is to be conducted by one laboratory. For many small businesses that generate minimal amounts of hazardous waste, the $1800 dollar analytical fee is more than their total annual hazardous waste management costs.

Response:
EPA agrees that full Appendix VIII analytical costs can be expensive for a small generator. EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste. The following cannot be determined to “not be present” in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste.

4. Support non-detect policy.

CFSA4.04(commenter 102)
D. Constituent Limits for the Comparable Fuel Specifications
NACR supports the agency's proposal to use the lowest possible quantification limit for all Appendix VIII constituents as a "non-detect" limits for the comparable fuel specification. We oppose the use of any other method to set specification limits for all Appendix VIII constituents.

Response:
EPA agrees with commenter.

5. Should not substitute fuel oil detection limits for gasoline detection limits.

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CFSA4.08(commenter 112)

B. EPA should not substitute fuel oil detection limits for gasoline detection limits.

The gasoline-based specification in Table 1 of the proposed rule incorporates fuel oil detection limits, which EPA substituted for measured gasoline detection limits. 61 Fed. Reg. 17464. The result is a more stringent gasoline specification. EPA said it did so because gasoline contains more volatile organic compounds (such as benzene and toluene) than the other benchmark fuels (fuel oils), which yields VOC detection limits in gasoline significantly higher than the detection limits for these same compounds in fuel oil. EPA further stated that the analysis of comparable fuels would more likely result in detection limits much lower than gasoline and similar to those associated with the analysis of fuel oils. Id.

There is no technical basis for such a substitution. This procedure is non-scientific slight-of-hand that simply ignores the presence of volatile organic compounds (many of which are not on Appendix VIII), that make gasoline a valuable fuel. Furthermore, contrary to EPA's preamble statement, the Agency cannot predict the composition of other comparable fuels, and therefore, cannot assume that detection limits for other comparable fuels would be significantly lower than those resulting from the analysis of gasoline.

EPA should honor the facts as it found them and use the measured gasoline detection limits for the gasoline specification.

CFSA4.14(commenter 174)

Therefore we also object to EPA substituting fuel oil - only volatile organic nondetect values for gasoline values. We feel this is not appropriate and as explained earlier would in effect require and cause Comparable Waste Fuels to be cleaner than a true composite of all Virgin Liquid Fuels.

CFMISS.17(commenter 110)

A. The Proposed Elimination of VOC Data for Gasoline is Irrational, Arbitrary and Capricious, and Substantially Undermines the Utility of the Proposed Exemption

The underlying and explicit premise of the agency's approach is that a waste-derived fuel that has Appendix VIII constituents in concentrations o greater than at least one "benchmark" fuel will pose no greater risk when burned than would the benchmark fuel. The agency logically identifies gasoline as a benchmark fuel. Yet, when it comes to establishing the benchmark specifications for Appendix VII constituents, EPA proposes to completely discard gasoline as a benchmark for determining the detection limits for volatile organic compounds ("VOCs"). This is particularly significant since, according to EPA's data, the great majority of parameters are reported at the detection limits for gasoline. EPA's approach is reflected in two ways in the benchmark proposal:

(1) If a facility chooses to use gasoline as its benchmark for comparison, it would not be permitted to demonstrate the absence of VOCs in its fuel by reference to the detection limits obtained by EPA for gasoline. Rather, EPA would require the facility to use much lower VOC detection limits that have been obtained for a "fuel oil-only composite (one which does not include gasoline in the composite) at the 90th percentile ... as a surrogate for the volatile organic gasoline non-detect values.... " 61 Fed. Reg. at 17464.

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(2) EPA has proposed alternative benchmarks that are described as 50% and 90% "composites" of the specific benchmark fuels -- gasoline, and # 2, #4 and #6 fuel oil. However, if a facility chooses to use either composite as its benchmark, the nondetect values for VOCs are not based upon a composite of all of the benchmark fuels; instead, as above, the composite benchmarks would exclude all gasoline data for purposes of establishing VOC detection limits.

On its face, it is inherently inconsistent for EPA to advocate a "benchmark" approach which discards key data derived from one of the primary benchmark fuels. EPA's entire justification is as follows:

As stated above, gasoline contains more volatile organic compounds (such as benzene and toluene) than other fuels. This results in detection limits for volatile organic compounds an order of magnitude higher than the other fuel specifications. EPA believes analysis of comparable fuels will more likely result in detection limits much lower than gasoline and similar to those associated with analysis of fuel oils. To address this issue, EPA has performed an analysis of a fuel oil-only composite (one which does not include gasoline in the composite) at the 90th percentile to use as a surrogate for the volatile organic gasoline non-detect values.

61 Fed. Reg. at 17464. See also id. at 17465 (with respect to composite fuel benchmark specifications EPA says: "As was the case with the gasoline specification, volatile organic detection limits for gasoline are quite large. For this reason, EPA is relying on surrogate values for volatile organic detection limits, one based on the detection limits from a fuel oil-only composite.")

In other words, EPA does not like the detection limits obtained for VOCs in gasoline. But the mere fact that those detection limits may be higher than EPA would like, and that fuel oil yields lower detection limits, provides no scientific or other principled basis for EPA to discard the gasoline data and prevent the regulated community from using them. It is a fact of life that gasoline matrices present interferences that will raise VOC detection limits. But it is also true, for example, that #6 fuel oil typically has higher levels of many metals than gasoline. Having staked out a benchmark approach, it would clearly be inappropriate for EPA to say that metals levels in #6 fuel oil cannot be used as benchmarks because they are too high for the agency's taste. It is no more principled or appropriate for EPA to forbid the regulated community from relying on gasoline VOC detection limits simply because they are too high for the agency's taste.

EPA assumes away the impact of it approach by surmising that comparable fuels will "more likely result in detection limits much lower than gasoline an similar to those associated with fuel oils." Id. This is wishful thinking for which EPA cites no supporting data. In fact, many candidate fuels generated by chemical manufacturing processes are likely to have a variety of volatile organic constituents, interferences from which can only raise their detection limits just as they do in the case gasoline.

Response:

EPA believes that substituting fuel oil-only volatile organic nondetect values in lieu of those values for gasoline is appropriate. Gasoline contains more volatile organic compounds than other fuels. This results in detection limits for volatile organic compounds an order of magnitude higher than the other fuel specifications. EPA believes analysis of comparable fuels will more likely result in detection limits much lower than gasoline and similar to those associated with fuel oils. In addition, EPA believes that the fuel oil detection limits can be met. This in part due to the fact that the detection limits are primarily based on the limits found for the No. 6 fuel oil analysis. EPA believes that the matrix for No. 6 fuel oil is a more difficult matrix to analyze than what the Agency believes will be the matrix for the majority of comparable fuels--a light solvent matrix.

It should also be noted, that essentially, the regulatory level for non-detect constituents is zero. The Agency will allow non-detects at the detection limits up to what EPA was able to obtain, since reading zero is impossible as an analytical matter. Therefore, substituting the gasoline non-detect limits should not make the comparable fuels specification more stringent. EPA has no reason to believe that most Appendix VIII constituents will be found in benchmark fuels. EPA has made an exception in the case of metals, hydrocarbons, and oxygenates, where it is reasonable to assume that non-detect metals in EPA's benchmark analysis would be present up to the detection limit.

6. Clarification of non-detects.

CFSA4.16(commenter 191)

105. Page 488 There appears to be some confusion concerning detection limits. The Agency requests comments on whether certain compounds should be allowed up to detection limits. Earlier in the document the Agency equated non-detects with zero values. Here it appears that the Agency is assigning a value to non-detects.

Response:

EPA is allowing non-detects constituents up to the detection limit in the case of metals, hydrocarbons, and oxygenates. In the case of metals, hydrocarbons, and oxygenates, it is reasonable to assume that non-detect metals in EPA's benchmark analysis would be present up to the detection limit (see other comment responses for further discussion). In all other cases, if the benchmark fossil fuel had no detectable level of a particular Appendix VIII constituent, then the comparable fuel specification is "non-detect" with an associated, specified minimum allowable detection limit for each compound (except in the cases of metals, hydrocarbons, and oxygenates). The detection limit is a statistically-derived level based on the quantification limit determined for each sample. While these constituents should not be present, the Agency will allow non-detects lower than the detection limits that EPA was able to obtain. However, EPA will not allow measured or quantified results below the specifed minimum required detection limit where “non-detect” is the comparable fuel specification.

Sampling and Analytical Methods

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1. Record does not support additional Appendix VIII compounds.

CFSA4.22(commenter 226)

1. The Record Does Not Support the Proposed Specifications for The Additional "Appendix VIII" Compounds

EPA says that it has now "been able to identify methods for analyzing some additional Appendix VIII compounds and is presenting a proposed specification level or maximum detection limit for these compounds-" 61 Fed. Reg. at 435O2. EPA further says that the analytical methods for these compounds are contained in an August 1996 Addendum to Volume VI of the Draft Technical Support Document accompanying this rulemaking. EPA has invited comments on the new individual specifications for these (approximately 135) new compounds "and the analytical methods used in EPA's new analysis." -1-d. The Coalition has reviewed the August 1996 Addendum to Volume VI of the Technical Support Document. Unfortunately, this Addendum does not contain sufficient information for the Coalition or the regulated community generally to comment meaningfully on EPA's proposed specifications for the additional compounds. Nor does it provide sufficient information to sustain EPA's own burden to justify its proposal.

CFSA4.23(commenter 226)

a. Failure to Describe Non-Standard Methods, Unpublished Methods and Adjustments to Approved Methods

The agency states that in some cases it has made adjustments to the approved methods. For other compounds, the agency says that non-approved methods (and in the case of dioxin/furans, unpublished methods) were used. Yet the Addendum does not describe or identify those adjustments and alternative methods. Absent such basic and critical information, the Coalition and the regulated community at large cannot possibly comment on EPA's proposed benchmark specifications for these additional compounds.

In this regard, EPA must establish that any non-approved methods or adjustments to standard methods it uses for its own purposes in this rulemaking will be reasonably available to the regulated community when it comes time to implement and enforce the regulations. The fact that over the course of many months EPA has been able to prevail upon its laboratories to perfect adjustments to standard methods or employ non-approved methods, does not mean that those methods and adjustments will be available at commercial laboratories around the country at a cost or within a time frame that will be useful to the regulated community. The hazardous waste combustor regulations generally,.and the comparable fuels exclusion specifically, will contain tight time frames for data submission by regulated entities. It is unreasonable for EPA to establish any benchmark specifications that would require laboratory analyses that cannot be routinely undertaken at commercial laboratories nationwide within those time frames or at a reasonable cost.

To take one example, EPA may not establish benchmark specifications that the regulated community will be able to meet only by retaining college chemistry departments to undertake research projects for individual waste streams. Another concern arises from the fact that commercial laboratories are typically very reluctant to issue reports that are based on any

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deviations from approved methods. Even when they do so, they usually will charge a hefty premium, and their written reports typically will contain significant caveats about the validity of the analytical results in light of the deviations employed -- thus casting doubt on the utility of those reports for regulatory and enforcement purposes.

In a related vein, there is no indication that EPA has considered whether (much less established that) the various adjustments to standard methods it has performed on benchmark fuels can even be used on the range of fuel matrices that are generated by the regulated community. The fact that a particular alternative method or adjustment to standard method may achieve certain detection limits for a gasoline matrix says nothing about whether those alternative methods can achieve equivalent (or even similar) results when applied to any of the Coalition members, candidate clean fuel matrices.

The present record does not indicate whether EPA has considered and addressed these important issues; it surely does not enable the public to assess and comment on whether EPA's alternative methods are reasonably available to the regulated community.

Response:

EPA has revised it technical support document to explain the analytical methods used on the benchmark fuels. EPA believes that the technical support document for the final rule properly documents the methods used on the benchmark fuels. Analytical laboratories should be capable of performing the same analytical analysis as EPA performed on its benchmark fuels. In addition, the final rule allows the use of alternate methods that meet the performance based criteria in §261.38(c)(8). The Agency will consider that the exclusion level was achieved in the waste matrix if an analysis in which the constituent is spiked at the exclusion level indicates that the analyte is present at that level within analytical method performance limits (e.g., bias and precision). In order to determine the performance limits for a method, EPA recommends following the quality control (QC) guidance provided in Chapters One and Two of SW-846, and the additional QC guidance provided in the individual methods. The Office of Solid Waste's (OSW) standing policy on the Appropriate Selection and Performance of Analytical Methods for Waste Matrices Considered to be "Difficult-to-Analyze" was stated in a January 31, 1996 Memorandum from Barnes Johnson to James Berlow.

Furthermore, EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. The final rule requires testing for all constituents except those the initial generator of the hazardous waste determines should not be present in the waste. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste.

2. Allow flexibility in analytical methods.

CFSA4.24(commenter 226)

C. Failure to Ensure Equivalent Flexibility for the Regulated Community The Coalition is also concerned that whatever flexibility in analytical methods EPA has allowed itself may not be accorded to the regulated community in the implementation and enforcement of the hazardous waste combustor regulations. In the CCF's collective experience, there would be a substantial risk that federal/state permit writers and enforcement personnel would reflexively insist that a generator must document its entitlement to the comparable fuels exemption strictly according to EPA standard methods. Therefore, any final regulation established by the agency should make crystal clear that regulated facilities. are entitled to the same level of flexibility in qualifying for the exemption as EPA used to establish the benchmark specifications. Moreover, this must be specified in the regulation itself and should not merely be contained in preamble language or documents that are part of the administrative record. In short, it would be a clear violation of the Administrative Procedure Act for EPA to promulgate benchmark specifications for the additional list of compounds unless and until it has done the following:

A. EPA must specifically describe and identify the analytical method used for each compound along with any modifications to the method EPA finds necessary to complete the analysis.

B. EPA must establish a technical justification for the use of each such method, especially including any modifications to the method EPA finds necessary to complete the analysis.

C. EPA must establish that each such method is reasonably available to the regulated community -- i.e., in terms of cost, time needed to perform the methods and whether they can be used for non-benchmark candidate clean fuels.

D. EPA must articulate and provide the basis for all of the foregoing in the administrative record.

E. EPA must provide the regulated community with an adequate opportunity to review and comment on the foregoing.

F. EPA must ensure in the language of the regulation that the regulated community will be accorded flexibility to use the same or similar analytical methods (and modifications to standard methods) to demonstrate compliance with the benchmarks as the agency has used to establish the benchmark specifications.

Response:

EPA has followed the Administrative Procedure Act with regard to the additional Appendix VIII list of benchmark specifications. On August 23, 1996, EPA took notice and comment on these additional Appendix VIII compounds (see 61 FR 43501). During that notice and comment period, EPA provided an Addendum to the technical support document describing the analytical methods used (see Draft Technical Support Document for HWC MACT Standards, Addendum to Volume VI: Development of Comparable Fuels Specifications, August 1996, docket number F-96-RSCP-FFFFF). Thus, EPA has provided the regulated community with adequate opportunity to review and comment.

At the time of proposal and for the final rule in the technical support, EPA has identified the analytical method used for each compound. The analytical methods used by EPA are available to the regulated community, as evidenced by the fact that EPA used a contract laboratory that is available for use by the regulated community. Methods are available for all the comparable fuel specifications. In fact, EPA has not established specifications for some Appendix VIII compounds because analysis methods did not currently exist for these

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compounds.

Furthermore, the final rule allows the use of alternate methods that meet the performance based criteria and is specified in the regulatory language, see §261.38(c)(8). (The proposal specified the use of SW-846 methods.) The Agency will consider that the exclusion level was achieved in the waste matrix if an analysis in which the constituent is spiked at the exclusion level indicates that the analyte is present at that level within analytical method performance limits (e.g., bias and precision). In order to determine the performance limits for a method, EPA recommends following the quality control (QC) guidance provided in Chapters One and Two of SW-846, and the additional QC guidance provided in the individual methods. The Office of Solid Waste's (OSW) standing policy on the Appropriate Selection and Performance of Analytical Methods for Waste Matrices Considered to be "Difficult-to-Analyze" was stated in a January 31, 1996 Memorandum from Barnes Johnson to James Berlow.

In addition, the final rule allows the use of process knowledge, which reduces the number of compounds that need to be analyzed, as well as the cost of analysis. EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. The final rule requires testing for all constituents except those the initial generator of the hazardous waste determines should not be present in the waste. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste.

3. Methods for CDD/CDF

CFSA4.27(commenter 240)

B. Use of unpublished methods for CDD/CDF

EPA admits to not following a published method in evaluating for CDD/CDF. The Agency states that "Due to the large number of individual isomers, analyte toxicity, and the high costs of standards, the dioxins (PCDD) and dibenzofurans (PCDF) were not analyzed by a published method." (Addendum to Volume VI, page 2-8) We are unclear as to why the published methods are appropriate and required for the regulated community, but are not appropriate and too costly for EPA to use when developing a regulation? Either EPA should use the same testing requirements as the regulated community, or it should revise the testing requirements to address the issues it raises.

Response:

EPA is allowing the use of alternative methods in the final rule, unlike the proposal which required SW-846 methods. See comment response above for further discussion of the use of alternative methods. EPA believes the use of an alternative CDD/CDF method is appropriate as long as it meets performance based criteria in §261.38(c)(8).

4. Problems with the waste matrix.

CFSA4.28(commenter 102)
Also, the waste matrix itself poses a tremendous problem in trying to accurately identify whether targeted constituents are present at the proposed levels. It is NACR's understanding that the data generated cannot definitively identify whether the waste stream meets any of the proposals. Specifically, the SW846 8000 series of methods are designed for low or trace level determinations of constituents in soil, solids, wastewaters, and ground water. When these methods (i.e., 8240, 8260, 8270, etc.) are used on organic matrices such as the materials that will be potentially used as a waste derived fuel, the sample preparation requires dilution. This dilution is a necessary step which enables the test methods to identify organic analyses from the organic matrices (i.e., soil, wastewaters, etc.). The dilution factor usually ranges between 100 and 1000. Such dilution causes the reporting limits for each constituent to rise proportionately by the same factor. The end result is that analytical data cannot demonstrate without a doubt that a waste stream qualifies as a comparable fuel because the reporting limits are greater than the maximum regulatory limits. This is a serious flaw in the EPA's proposal to allow hazardous waste to exit the regulatory program of Subtitle C.

Response:
SW-846 provides the guidance to perform from trace analysis through macro analysis from a variety of matrices. The comparable fuel specification was derived from the analysis of four petroleum-based products using the methodology from SW-846. Analyzing a facilities waste stream for comparison to the benchmark standard should be no more complex than analyzing the petroleum products on which the standard was derived. The detection limits for the benchmark fuel have taken into account the sample preparation, including dilutions, required for the analysis of the fuels on which the benchmark is based.

5. Low bias on sampling results.

CFSA3.29(commenter 112)
VIII. Critical Elements of the Laboratory Work Underlying the Fuel Benchmarks are Flawed. For Example, the Sampling and Analytical Procedures Used by EPA's Contract Laboratory Introduce a Low Bias to the Benchmark Fuel Data.

NCASI reviewed the November, 1995 draft of EPA's Technical Support Document. NCASI concluded, among other things, that the sampling and analytical procedures employed by EPA's contract laboratory introduce a low bias to the results and, consequently, to the fuel benchmarks. AF&PA urges EPA to correct the low bias in the fuel benchmark numbers before issuing a final comparable fuel regulation. We summarize this aspect of NCASI's critique below. A more detailed discussion of this issue and other elements of NCASI's critique of the TSD are attached as Appendix C to these comments in a document entitled "NCASI Review of the EPA Technical Support Document for MACT Standards, Volume VI: Development of Comparable Fuels Specifications."

Response:

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MDL studies were performed according to 40 CFR Part 136 Appendix B, “Definition and Procedure for the Determination of the Method Detection Limit - Revision 1.11.” MDL is defined as “the minimum concentration of substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.” In general, the MDL determination is a test of precision, not a measure of accuracy. The MDL value is statistically derived from the standard deviation of seven replicate analyses. The standard deviation between the seven replicates is multiplied by the students’ t-test factor. Accuracy of the determination (percent recovery of each analyte) is not evaluated in the MDL calculation.
The MDL study was performed on randomly selected gasoline, #2 fuel oil, and #6 fuel oil. The chosen samples were selected from the samples received for analysis. Seven replicates for each parameter were performed on each of the four samples. The data submitted in Appendix C tabulates the results for each fuel, for each parameter, the seven replicate results, and the calculated MDL. Though several of the calculated MDL values exceeded the 10 fold range criteria, the MDL procedure was not repeated because the calculated MDL results were not used in the statistical analysis for setting limits for the benchmark fuel specification.
The Quantitation Limit used for the reporting of the sample results in Appendix A is based on the calibration range of the instrument, the initial weight of sample, the final volume of the sample, any applicable dilutions, and sample injection volume. The MDL was not used in establishing the Quantitation Limit.

6. Dilution of samples.

CFSA3.30(commenter 112)

Section 2.3 of the TSD reports that volatile organic compounds were tested by diluting them with methanol and injecting a methanolic dilution of samples into test apparatus. TSD at 2-15. The efficacy of this approach depends, however, on the miscibility of the tested fuel samples in methanol. If a sample is not 100% miscible, the sample/methanol mixture will exhibit two distinct phases. This creates a situation in which both spiked surrogates and native analytes will partition between the two phases, requiring analysis of both phases to produce correct results.

But Section 2.3.1 of the TSD states that "surrogate compounds were added to the methanol portion of the sample extracts, not to the sample/methanol extract mixture." TSD at 2-16. This statement shows that the samples are not miscible in methanol and, therefore, separated into two phases. It also states clearly that spikes were added only to the methanol extract, not both phases. Thus, the recovery data developed using this technique (i.e., surrogate recoveries or method detection limits) cannot be used to characterize method performance for native analytes.

SW-846 Method 3585 (Waste Dilution for Volatile Organics) requires the analysis of both phases of two-phase mixtures resulting from dilution of a sample in any solvent. This guidance should have been followed here, because matrix spike data generated from spikes added to the sample, prior to any further handling, would have provided direct evidence about the efficacy of the waste dilution procedure for samples that are not 100% miscible in methanol. Without such data, concentrations reported from samples not 100% miscible in methanol must be considered biased low, and should be deleted from the data set.

Response:
To clarify the sentence in Section 2.3.1 of the TSD, surrogate spiking standards are added to the methanolic preparation, not the methanol layer. Gasoline and #2 fuel oil were miscible with the methanol, thereby only a single phase was present requiring analysis. For the #6 fuel oil volatile determination, the higher molecular weight paraffinic hydrocarbons were not soluble in methanol. But based on the recovery of the matrix spiking compounds for the seven MDL study replicates, it is apparent that the volatile components have an affinity for methanol. If there is a bias, the bias is high, not low.

7. Concentration estimates for SVOCs.

CFSA3.31(commenter 112)
Similarly, the concentration estimates for semi-volatile organic compounds ("SVOC") reported for gasoline are biased low. According to Section 2.3.2 of the TSD, gasoline samples were spiked and then reduced to a constant volume via nitrogen blowdown prior to analysis. Although the TSD states that recoveries of surrogates 1616 sugges[t] that the procedure was effective and did not remove any of the constituents of concern," the method detection limit data in Appendix C of the TSD show that this is not the case. The Appendix C data show that recoveries of the 100 mg/Kg spikes are uniformly in the range of 20 to 30% for the gasoline SVOCs. This suggests that the gasoline "blow down" results in losses on the order of 70 to 80%. This means that the analytical instrument "sees" only 20 to 30% of the spiked level added to each sample. Thus, the resulting method detection limits understate concentrations -- and the corresponding benchmarks -- by 70 to 80%.

CFSA4.40(commenter 112)
B. GC/MS SVOC Methodology
Analyses for semi-volatile organic compounds (SVOC) are cited as EPA 8270 in association with GPC cleanup under 3640 (fuel oils only). For gasoline samples only, 1 mL of sample was concentrated to a "constant" volume using nitrogen blowdown, made up to 1 mL in DCM, and 1 IL injected under 8270.
The document states that the gasoline blowdown procedure "did not remove any of the constituents of concern", and cites the surrogate recovery data in Appendix D as evidence for this. Although NCASI cannot identify which samples are which in Appendix D, the SVOC surrogate recoveries from samples 2011-2018 all reflect poor recoveries of the more volatile surrogates. If these eight samples are in fact the gasoline samples, these recovery data are evidence for volatilization loss associated with this blowdown. This interpretation of the Appendix D data is consistent with the Appendix C SVOC method detection limits (MDLs) for gasoline, which show uniformly poor recoveries reflecting losses on the order of 70-80% for all analytes. Again, matrix spike data would have been invaluable in assessing this type

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of bias, and without these supporting data, any gasoline concentrations reported from this analysis must be considered biased low by at least a factor of 2 (based on the MDL spike recoveries). Note also that the quantitation levels listed are thus also equally invalid (see below).

CFSA4.45(commenter 112)

(2) SVOCs-8270: Unlike the Appendix C MDLs for method 8240\8260, the MDLs given for 8270-semi-volatile organic compounds (SVOC) show an obvious dependence on matrix type; i.e., almost without exception, the values given as MDLs from gasoline are significantly lower than those listed for the two fuel oils. In addition, the recoveries from gasoline are likewise considerably poorer than those obtained from the two fuel oils. Although these observations at first glance appear inconsistent, there is perhaps a logical explanation.

According to the text, samples of gasoline were spiked and then reduced to a constant volume via nitrogen blowdown prior to GC/MS analysis. Although it is claimed that surrogate recoveries "suggest" that this process "did not remove any of the constituents of concern," the values listed for the SVOCs in Appendix C contradict this statement. The Appendix C data show that recoveries of the 100 mg/Kg spikes are uniformly in the range of 20-30% for the gasoline SVOCs. This observation suggests that the gasoline "blowdown" results in losses on the order of 70-80%. This loss means that on analysis the instrument is seeing only 20-30% of the spike level added to the sample. Thus, the instrumental contribution to the calculated detection limits represent 20-30 mg/Kg, not 100 mg/Kg, and the resulting MDLs are correspondingly low due to the dependence of variance on concentration (or, more correctly in this case, mass "on-column").

As previously noted, there is no indication within the document indicating which gasoline sample was used for the MDL experiment. Considering the obviously matrix specific "quantitation levels" listed in Appendix A, which sample was used and how it was selected is an important consideration. From Appendix A, one gasoline sample was analyzed at a nominal "quantitation level" of 130 mg/kg, four samples at nominally 270 mg/kg, and two at nominally 670 mg/kg. Thus, all gasoline analyses for native SVOC analytes were done on samples diluted to the point that a compound present in the sample at 100 mg/kg would, theoretically, not be quantifiable.

This same anomaly is also apparent in the fuel oil SVOC data. According to Appendix C, the fuel oil MDL studies were also performed at 100 mg/kg. However, only one out of 19 fuel oil analyses as listed in Appendix A was performed at a dilution level allowing quantitation of a compound present at 100 mg/kg. Was this the sample used in the MDL study?

Overall, there appears to be no relationship between the MDL data given in Appendix C and the sample analyses as reported in Appendix A. Thus, the SVOC MDL data have no relevance to method performance for the determination of native analytes.

Response:

The Nitrogen Blowdown Technique is a step in several of the sample preparation methods for organics analysis prior to chromatographic analysis. In SW-846 Method 3510C,

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Paragraph 7.12.2; Method 3520C, Paragraph 7.11.2; Method 3535, Paragraph 7.14.2; and Method 3540C, Paragraph 7.12.2; the Nitrogen Blowdown Technique is applied as a final step in adjusting the final volume of a sample extract after concentration using a Kuderna-Danish evaporation flask. The low MDL recoveries are not attributed to this concentration technique but can be attributed to sample matrix interferences. Integration of the spiking constituents in the gasoline samples was performed manually in an attempt to minimize integration errors caused by coelution of non-target sample constituents.

8. Documentation of method detection limits.

CFSA4.32(commenter 220)

Method Detection Limits for Gasoline and Fuel Oils

EPA has not properly documented or justified the analytical method detection limits (MDL) for volatile and semivolatile organics in gasoline and fuel oil that form the basis of the comparable fuel specification. The information given in the proposed rule and Technical Support Document{1}(TSD) is insufficient, and what information is given, is contradictory. EPA must explain how these MDLs were derived.

In particular, EPA must address the following issues concerning the MDLs specified in the proposed rule:

- The MDLs developed from EPA's MDL study have not been properly adjusted to account for laboratory dilution of the sample.
- In setting MDLS, EPA must take the sample matrix into account. MDLs for constituents of gasoline must be determined through analysis of these constituents in a matrix similar to gasoline. EPA has provided no documentation that would allow it to reduce the MDLs for volatile organics in gasoline to the levels achievable in fuel oil.

Accounting for Laboratory Dilution

EPA presents analytical method detection limits for gasoline and fuel oils both in the preamble to the proposed rule and the TSD. These two sets of detection limits are inconsistent and EPA has not provided enough description to understand these differences nor to determine how either set of numbers was developed. EPA states in the preamble that method detection limits were developed using the procedures in 40 CFR 136, Appendix B, "Definition and Procedure for Determination of Method Detection Limits, Revision 1.1." EPA states that the only modification to this method involved spiking for each of the samples being analyzed instead of spiking once for all the samples, as stated by the method.

EPA does not describe how the samples were prepared or if they were diluted. The MDLs calculated from analytical data provided in Appendix C of the TSD are much lower than TSD Appendix A quantitation limits for actual gasoline and fuel oil samples analyzed by EPA. For example, derived MDLs for benzene and toluene in gasoline are 2 and 10 mg/kg, respectively, whereas measured quantitation limits (EPA uses the terms detection limit and quantitation limit interchangeably) for both benzene and toluene ranged from 1,600 to 3,400 mg/kg.

Based on the dilution factors EPA provides in Appendix A, it appears that EPA assumed a diluted sample detection limit of 10 mg/kg for all volatile organics except m-and o-xylene. It is not clear how EPA derived its MDLs; what is clear, however, is that NMLs must be much higher in fuel samples or similar materials, because these samples must be diluted for analysis. The actual MDL must be the nominal MDL in the diluted sample multiplied by the dilution factor.

Response:
The MDL study was performed according to 40 CFR Part 136 Appendix B, “Definition and Procedure for the Determination of the Method Detection Limit - Revision 1.11.” Laboratory dilution of the samples was taken into account. Randomly selected gasoline, #2 fuel oil, and #6 fuel oil samples were spiked in replicate for the MDL Study. Per the method, only one fuel type would be required to be spiked instead of one sample of each type. All three fuels can be characterized as petroleum hydrocarbon based.

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9. Proper sample matrix.

CFSA4.33(commenter 220)
Using the Proper Sample Matrix
Also, EPA must have used alternative matrices for its MDL study, because the sample concentrations are much less for actual fuel samples. For example, sample concentrations for benzene in the MDL study are approximately 80 mg/kg, which is much less than the 4,500 to 8,000 mg/kg concentrations measured in the gasoline samples. Another example is toluene. Sample concentrations in the MDL study are approximately 260 mg/kg, but range from 29,000 to 69,000 mg/kg in the gasoline samples.

EPA must explain in greater detail how it derived the MDLs for the fuel samples and for its MDL study. EPA cannot use the MDLs from the MDL study as performance levels for the analytical method for fuel-type materials because the diluted sample matrices in the study are not similar to actual samples which typically contain high levels of volatile organics.

Further, EPA has provided no documentation that would allow it to reduce the MDLs for volatile organics in gasoline to the levels achieved in fuel oil. Fuel oil MDLs will not be achievable in materials similar to gasoline. Setting such unachievable MDLs will make compliance with the limits in the proposed rule impossible. EPA must establish reasonable volatile organic MDLs by using materials similar to gasoline.

EPA states in the preamble to the proposed rule that analytical method detection limits for organics can be extremely high for fossil fuels, particularly so for volatile organic compounds in gasoline. EPA states that because gasoline contains more volatile organics such as benzene and toluene, these relatively high concentrations increase the detection limit for all volatile organics in gasoline (61 FR 17464). Because fuel oils contain lower concentrations of volatile organics, the samples do not have to be diluted as much and the detection limits for these volatiles are lower.

EPA further states:

"there is no feasible analytical way to address this issue, so it is addressed when deriving the

comparable fuel specification." (61 FR 17463)
EPA addressed the issue when deriving the comparable fuel specification by substituting the MDLs for volatile organics in gasoline with the MDLs for fuel oil. EPA's only justification for doing this is that it believes analysis of comparable fuels will result in low detection limits, similar to those associated with analysis of fuel oils (61 FR 17464). Yet EPA provides no data to support this assumption.

Assuming fuel oil MDLs for volatile organics in gasoline will lead to regulatory compliance problems. Materials containing relatively high levels of volatile organics may be able to meet the comparable fuel specification for such constituents (e.g., benzene or toluene), but will not be able to meet limits for other "nondetectable" volatile organics. This compliance problem is the result of applying fuel oil-based MDLs, derived using the low dilution factors associated with the analysis of fuel oil.

EPA must establish achievable MDLs for materials that require higher levels of dilution for proper analysis. In addition, EPA must include a provision in the regulations that would allow development of alternate MDLs for materials whose matrices are not similar to gasoline or fuel oil whose MDLs may be higher as a result of matrix effects on the analysis.

Response:

Alternative matrices were not used for the MDL Study. As stated previously, a gasoline sample, a #2 fuel oil sample, and a #6 fuel oil sample were spiked in replicate for the MDL Study.

The MDL values are statistically derived from the standard deviation of seven replicates × the students’ t-test factor. For this reason, the MDL value of a compound is less than the concentration of the component.

10. Concentration estimates for volatile compounds.

CFSA4.33(commenter 224)

2. The Agency's -Contractor used flawed laboratory techniques to analyze benchmark fuels.

AF&PA asked the National Council of the Paper Industry for Air and Stream Improvement ("NCASI") to review the Addendum. NCASI reports that many of the same flaws they identified in the November 1995 TSD are repeated in the Addendum.

   a. The analytical procedures used for volatile compounds result in benchmark concentrations that are biased low.

Section 2.1.2 of the Addendum states that for GC/MS analysis of volatiles, surrogate compounds were added to the methanol portion of the sample extracts, AF&PA Comparable Fuels Comments September 23, 1996 Page 3 not to the sample/methanol extract mixture." Section 2.1.5 of the Addendum acknowledges that the "oily matrix of these samples posed ... problem[s] ... [such as] [i]t's limited solubility in the required solvent, [and] its affinity for the analytes versus methanol." Addendum at 2-3 to 2-4. These statements reveal that although the samples separated into two phases, surrogates were added only to the methanol

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phase. Thus the recovery data developed using this technique cannot be used to characterize method performance for the analytes in the sample fuels.
EPA should have followed the procedure specified in SW-846 Method 3585 (Waste Dilution for Volatile Organics), which requires the analysis of both phases of two-phase mixtures resulting from dilution of a sample in any solvent. Under that procedure, matrix spike data generated from spikes added to the sample, prior to any further handling, would have provided direct evidence about the efficacy of the waste dilution procedure for samples that are not 100% miscible in methanol. Without such data, concentrations reported from such samples (like the ones described in the Addendum) must be considered biased low, and should not be used to establish regulatory standards. See AF&PA's August 19, 1996 Comments, Appendix C at 2-3.

<u>Response:</u>
To clarify the sentence in Section 2.1.2 of the November 1995 TSD, surrogate spiking standards are added to the methanolic preparation, not the methanol layer. Gasoline and #2 fuel oil were miscible with the methanol, thereby only a single phase was present requiring analysis. For the #6 fuel oil volatile determination, the higher molecular weight paraffinic hydrocarbons were not soluble in methanol. But based on the recovery of the matrix spiking compounds for the seven MDL study replicates, it is apparent that the volatile components have an affinity for methanol. If there is a bias, the bias is high, not low.

11. Matrix spike recovery data.

CFSA4.34(commenter 224)

b. The absence of matrix spike recovery data renders the reported results for volatile compounds unusable for regulatory purposes.

Section 2.1.4 of the Addendum, which covers quality control techniques for the GC/MS volatiles analysis, does not report matrix spike/surrogate recovery data. (Nor are such data reported anywhere else in the Addendum or in other docket materials.) Although the Addendum states that "[t]he oily matrix of these samples posed the largest problem," the absence of recovery data precludes the Agency from assessing the extent to which the waste matrix affected the analyses for these constituents. Consequently, the reported data are of unknown quality and should not be used for regulatory purposes.

CFSA4.41(commenter 112)

C. <u>Appendix A</u>

Appendix A lists sample specific results from the analyses of multiple samples of each matrix type. In the cases where compounds were detected, the corresponding concentration is given. In all cases, Appendix A lists sample/compound specific "quantitation levels", which were derived by multiplying the concentration of the lowest calibration standard for the analysis (e.g., 10 mg/Kg for 8270-SVOCs) by sample specific dilution factors.
Since the quantitation levels are simply multiples of a lower calibration level, a "non-detect"

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is not definitive evidence that a compound is not present in a sample at concentrations equal to, or even greater than, the listed quantitation level. As an example, if only 25% of a native analyte is recovered and measured by a specific analytical method, then that compound would have to be present in a sample at four times the "quantitation level" in order to be "reportable". Without matrix-spike data to document the ability to recover an analyte present at "quantifiable" levels, the quantitation level is arbitrary and has no merit. Thus, NCASI reiterates the absolute necessity of matrix-spike experiments.
Within each matrix type (e.g., gasoline), the sample specific dilution factors as listed in Appendix A vary significantly. This reflects the effect of each matrix on method performance. Although the dilution factors given in Appendix A may be reasonable for the specific samples tested, they cannot form the basis for defining method performance in any other single sample of the same matrix type, and certainly not for samples of a different matrix.

Response:
Matrix Spike experiments, per se, were not performed for the organic parameters. The matrix spike procedure in SW-846 8000 series methodology includes a limited number of compounds (5 Compounds for VOC analysis; 11 compounds for SVOC analysis). Since a MDL Study was performed by spiking all of the compounds listed in Appendix C into each type of fuel oil and gasoline, performing matrix spiking experiments would provide limited and redundant data.

12. HPLC data.

CFSA4.35(commenter 224)
c. The HPLC data for fuel oils are unreliable.
Section 2.3.5 of the Addendum states "[t]he analytes spiked into the fuels are not readily soluble in a non-polar matrix" and that "[u]nder these conditions, the spiked compounds probably did not dissolve into the fuel oils matrix prior to AF&PA Comparable Fuels Comments September 23, 1996 Page 4 extraction." Addendum at 2-7 to 2-8.' Thus, the Agency does not have a good measure of method performance. Put another way, the Agency cannot be sure of recoveries and, therefore, matrix effects. Consequently, the quality of the reported data are unknown and the data should not be used for regulatory purposes.

Response:
The compounds analyzed by HPLC were not included in the Final Rule.

13. Metallic compound data.

CFSA4.36(commenter 224)
d. Metallic compounds data should be discarded because the test method used is capable of identifying only elemental metals.

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Section 2.6.1 of the Addendum states that "[a]ll dissolved samples were... analyzed by the appropriate flame method." Addendum at 2-11. The term "flame method" denotes atomic absorption, which is capable of identifying only total elemental quantities of metals, not metallic compounds. But the data tables appended to the Addendum report concentrations of metallic compounds. For example, Table I of the Addendum reports analytical results and detection limits for arsenic pentoxide, arsenic trioxide, copper cyanide, zinc cyanide, and zinc phosphide. Addendum at 3-6, 3-8.

It is physically impossible for the atomic absorption test method to identify metallic compounds. The reported data about such compounds should, therefore, be discarded.

Response:

Analysis of the metals was performed by the appropriate atomic absorption spectroscopy technique following the dissolution of the sample with Xylene. A total concentration of each metal was then calculated based on the sample absorption, the initial weight of the sample, and the final volume. Metallic compound concentrations were then stoichiometrically calculated based on the elemental concentration of the metal in the sample.

However, in the final rule, EPA is establishing specifications for total metals only.

14. Test method for each compound.

CFSA4.37(commenter 226)

b. General Failure To Specify Which Method Was Used for Each Compound

The proposed Addendum to Volume VI of the Technical Support Document does not adequately identify and describe the method used for every compound at issue. Rather, in most cases the Addendum identifies a method used for a broad class of compounds. And in many cases the summary tables merely identify "GC" as the method used for a given, constituent, without any further specification.[2] The agency thus does not explicitly say, and the regulated community is left to infer, what method applies to which compound. Even if the regulated community can make educated guesses about this issue for many of the parameters in question, it should not be and is not required to guess about such a fundamental issue; the agency must undertake the minimal effort of specifically identifying and adequately describing what method was used for each specific compound it proposes to include in the benchmark specifications. Anything short of that fails to provide the regulated community with adequate opportunity to attempt to replicate and assess the methods used, and denies the regulated community adequate notice and opportunity to comment.

[Footnote 2: By way of contrast, the earlier version of Addendum VI clearly identified the method--e.g., SW 846 Method 8270-- for each constituent discus sed in the April 19, 1996 proposal]

Response:

Each of the methods in SW-846 contains a list of those compounds which are applicable to the methodology. The is also a cross reference table listing analytes and the corresponding

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methods. The analytical methods used to quantify the organic analytes for the benchmark fuel standard were SW-846 Method 8270 for Semivolatile Organic Compounds and SW-846 Method 8240 for Volatile Organic Compounds. These methods are referenced in Section 2 of the TSD. The associated compounds for the methods can be found in Appendix A and Appendix C by associating the compound list to the analysis category.

The purpose of this document was not to specify methodology for every analyte. The methodologies provided in SW-846 provide guidance for the preparation and analysis of numerous analytes from various matrices. Depending on the waste stream of the alternative fuel, different methodology may be preferred.

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15. Clarification of technical support document.

CFSA4.38(commenter 112)

NCASI REVIEW OF THE EPA TECHNICAL SUPPORT DOCUMENT FOR HWC MACT

STANDARDS, VOLUME VI: DEVELOPMENT OF COMPARABLE FUELS SPECIFICATIONS

I EXECUTIVE SUMMARY

NCASI has reviewed the November 1995 Draft of Volume VI of EPA's Technical Support Document (TSD) entitled Development of Comparable Fuels Specifications. This review was performed to assess the efficacy of the analytical methodologies used to develop proposed numerical criteria and, thus, the utility of these criteria as "benchmarks" for defining comparable fuels. The review of the analytical procedures was conducted by Dr. Jeffrey Louch, NCASI West Coast Regional Center. The review of the statistical procedures was conducted by Kevin A. Kahmark, NCASI Central-Lakes States Regional Center.

An adequate review of the procedures contained in the TSD was hampered by the lack of availability of complete documentation, and by ambiguity in several critical aspects of the analytical procedures. For the volatiles analyses specifically, it is necessary to know which samples were not 100% miscible in methanol in order to effectively evaluate the resulting analytical data. In addition, conversations with EPA's contractor(s) conflict with the TSD's description of the surrogate spiking scheme used in the volatiles analyses (1). This is critical as the exact point (in the analytical procedure) of addition directly affects the validity of the resulting surrogate recoveries and method detection limits as metrics for analytical accuracy and, thus, directly impacts the validity of the proposed specifications.

A number of points affecting all the reported analyses also need clarification. It is not clear what criteria were used to determine sample specific dilution factors, and thus quantitation levels, for each analysis. This is an especially critical information gap since the majority of the numerical criteria proposed are based on these quantitation levels. In addition, it is not clear which samples were used in the method detection limit (MDL) determinations, or how these specific samples were selected. This is important because the analytical results presented are highly sample dependent, and the utility of the MDLs as metrics for accuracy is dependent on which samples were used in the test. Also, conversations with EPA's

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contractor(s) conflict with the TSD's notation of the actual concentrations of analytes added for the MDL determinations (1). The accuracy of this information is critical as these concentrations directly affect the validity of the resulting MDLs.

Finally, the document should provide a sample identification cross-index so that the QA/QC results listed in Appendix D can be related to the analytical results presented in Appendix A and the Method Detection Limit (MDL) data presented in Appendix C.

The information gaps in the Draft document are significant. In addition, conversations with EPA contractors (1) suggest that the document may not accurately describe all the analytical procedures as they were performed in the lab. EPA should review this document for completeness and accuracy. If the document proves to be incomplete or inaccurate it should be revised.

Detailed comments based on review of the document are provided in the following sections, and are summarized below:

1. Matrix spike experiments performed at or near any proposed numerical criteria should be the central component of QA/QC when performing this type of exploratory work on "difficult" matrices; the lack of these data severely limit any discussion of accuracy and, thus, the use of the reported concentrations as "benchmarks" cannot be supported.
2. The "quantitation levels" listed in Appendix A are essentially arbitrary and, thus, are not acceptable as the basis for any rigid numerical criteria.
3. Most of the method detection limits (MDLs) listed in Appendix C appear to have no relationship to the associated sample specific quantitation limits listed in Appendix A, and are thus inappropriate metrics for characterizing method performance and are unacceptable as the basis for any rigid numerical criteria.
4. The concentration estimates for semi-volatile organic compounds (SVOC) reported for gasoline are biased low.
5. Concentrations of volatile organics determined in samples not 100% miscible in methanol should be considered as biased low.
6. Given the impacts of matrix effects on method performance, a fact that EPA acknowledges, there is no reason to assume that any numeric detection limit or "quantitation level" criteria derived from one matrix (i.e., an EPA benchmark fuel) will be achievable when testing subsequent candidate matrices.
7. Incomplete or inaccurate documentation prevented an adequate review of the statistical procedures used to calculate percentiles.

Overall, NCASI has determined as a result of this review that the majority of the numerical criteria proposed by EPA in this document are based on estimates of quantitation levels, and not on measured concentrations. Thus, the proposed specifications are, to a significant degree, operationally defined by the limitations of the analytical methods employed when applied to the specific "benchmark" fuels tested. This means that matrix effects associated solely with the specific fuels tested by EPA are driving the numerical criteria. If these proposed specifications are eventually accepted, EPA should incorporate some allowance for matrix effects impacting petitioner's data as well.

<u>Response:</u>

A cross reference table for comparing the surrogate recoveries listed in Appendix D has been provided by the laboratory. The Laboratory ID was inadvertently used in Appendix D (in the draft TSD for the proposed rule) in place of the Client Sample ID used throughout the other appendices. Appendix D (in the TSD for the final rule) will be revised so all sample ID's are uniform.

1) Matrix Spike experiments, per se, were not performed for the organic parameters. The matrix spike procedure in SW-846 8000 series methodology includes a limited number of compounds (5 Compounds for VOC analysis; 11 compounds for SVOC analysis). Since a MDL Study was performed by spiking all of the compounds listed in Appendix C into each type of fuel oil and gasoline, performing matrix spiking experiments would provide limited and redundant data.
2) The Quantitation Limit used for the reporting of the sample results in Appendix A is based on the calibration range of the instrument, the initial weight of sample, the final volume of the sample, any applicable dilutions, and sample injection volume. The MDL was not used in establishing the Quantitation Limit.
3) There is no relationship between the MDL values and the sample specific quantitation limits. The Quantitation Limit used for the reporting of the sample results in Appendix A is based on the calibration range of the instrument, the initial weight of sample, the final volume of the sample, any applicable dilutions, and sample injection volume. The MDL was not used in establishing the Quantitation Limit.
4) The low MDL recoveries can be attributed to sample matrix interferences. Integration of the spiking constituents in the gasoline samples was performed manually in an attempt to minimize integration errors caused by coelution of non-target sample constituents.
5) Only #6 fuel oil samples were not 100% miscible with Methanol. However, based on the recovery of the matrix spiking compounds for the seven MDL study replicates, in it apparent that the volatile components have an affinity for methanol. If there is a bias, the bias is high, not low.
6) This statement is true. However the methodology in SW-846 provides the flexibility and guidance to perform alternative techniques which may be more applicable to testing subsequent candidate fuels.
7) Documentation of the statistical procedures used to calculate the various percentiles is present in Section 3 of the TSD.

16. Analyses for volatile organic compounds.

CFSA4.39(commenter 112)

II SPECIFIC COMMENTS

A. GC/MS Volatiles Methodology

Analyses for volatile organic compounds (VOA) are cited as direct injection of methanolic dilutions of samples under EPA 8240/8260. A significant question concerning the efficacy of this approach is the miscibility of the various fuel samples in methanol (MeOH). This is

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important. If a sample is not 100% miscible, the sample/MeOH mixture will exhibit two distinct phases, with the potential for partitioning of both spiked surrogates and native analytes between the two phases (requiring analysis of both phases).

Section 2.3.1 of the document contains the following description of the surrogate spiking scheme: "Surrogate compounds were added to the methanol portion of the sample extracts, not to the sample/methanol extract mixture." This statement not only implies that samples were not miscible in methanol, but also clearly states that spikes were added to the methanol extract. If this is true, any recovery data developed using spike compounds (i.e., surrogate recoveries or method detection limits) cannot be used to characterize method performance for native analytes.

In conversations with NCASI staff (1), EPA contractor(s) stated that the document misrepresents the spiking scheme and that surrogates were, in fact, spiked into the sample/MeOH mixtures. However, the contractor(s) also acknowledged that some (unidentified) fuel oils gave mixtures exhibiting two phases.

On review of the Appendix D volatiles surrogate recoveries and the Appendix C method detection limit (MDL) data, there is no observable difference in recoveries from gasoline, diesel or fuel oil. (Although NCASI cannot identify any individual samples, recoveries are uniformly good.) These observations are equally supportive of two distinctly different scenarios. Either surrogate and analyte spikes (for the MDL experiments) were added to the MeOH "extract" when there were two phases, or spikes were added to the sample/MeOH mixtures and there was 100% extraction of all analytes into the MeOH (when there were two phases). Perhaps a third interpretation is simply that spikes made using a methanolic solution are retained in methanol when methanol is not miscible with a sample.

SW-846 Method 3585 (Waste Dilution for Volatile Organics) requires the analysis of both phases of two-phase mixtures resulting from dilution of a sample in any solvent. Although NCASI fully appreciates the impact of time constraints when performing difficult analyses, this guidance should have been followed in this case. Note that matrix spike data generated from spikes added to the samples, prior to any manipulations, would have provided direct evidence of the efficacy of the waste dilution procedure for those samples not 100% miscible in methanol. Without these matrix-spike data, any sample concentrations reported from samples not 100% miscible in methanol must be considered biased low, and should be deleted from the data set.

The spiking scheme is a critical factor in assessing the validity of the data, and any reviewer not talking directly with the contractor may not have an accurate description of how these samples were fortified. If the analytical procedures are not accurately represented, EPA should revise the document.

Response:

Gasoline and #2 fuel oil were miscible with the methanol, thereby only a single phase was present requiring analysis. Surrogate spiking compounds were added to the methanolic sample preparation prior to analysis. For the #6 fuel oil volatile determination, the higher molecular weight paraffinic hydrocarbons were not soluble in methanol. But based on the recovery of the matrix spiking compounds for the seven MDL study replicates, it is apparent

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that the volatile components have an affinity for methanol. If there is a bias, the bias is high, not low.

17. Percentile estimates.

CFSA4.42(commenter 112)

D. Appendix B

Estimated percentiles of the distribution of concentrations for the chemical compounds from each of the fuel types are presented in Appendix B. Statistical analyses were performed by Science Applications International Corporation (SAIC). Both 90th and 50th percentiles were determined. An adequate review of the statistical procedures was hampered due to incomplete and inaccurate documentation. While the nonparametric statistical procedure is outlined in the documentation, the subsequent example calculation is inconsistent with the method outlined. Furthermore, several attempts were made to reproduce the "concentration limits" in Tables 1-4 of Appendix B using both the method stated in the documentation as well other methods published elsewhere. NCASI was unable to consistently reproduce the "concentration limits" presented in the TSD. It is possible, therefore, that the percentiles presented in the TSD are either inaccurate, or were determined using data other than those described.

Response:

The estimated percentiles presented in the TSD for the proposed rule are accurate. EPA has made corrections to the description of the statistical methodology in the TSD. In particular, the TSD for the proposed rule incorrectly reported that the 50th (or 90th) percentile is an average of the two reported concentrations surrounding the 50th (or 90th) percentile point. In fact, the 50th (or 90th) percentile is the interpolated value between the two reported concentrations. The Agency will provide a corrected description of the statistical procedures in the TSD for the final rule.

18. Calculation of the method detection limit.

CFSA4.43(commenter 112)

E. Appendix C

Appendix C lists experimentally determined, matrix-specific, method detection limits for a range of compounds determined using EPA methodologies. In all cases, the procedure used to develop the reported values is cited as the EPA procedure at 40 CFR, Part 136, Appendix B (2). According to this procedure, if the concentration used in the experiment is less than the resulting calculated method detection limit (MDL), the MDL is not reportable. In addition, if the concentration used in the experiment is greater than 10 times the resulting calculated MDL, the MDL is again not reportable. This second criterion is an acknowledgment on EPA's part that "the variance of the analytical method changes as the

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analyte concentration increases from the MDL.." (2).

It is not clear exactly which samples were used in the experiment(s) to determine the method detection limits listed in Appendix C. On page 2-25, it is stated that for SVOCs "seven aliquots of each sample were processed through the entire analytical method and used to calculate the MDL". Having said this, Appendix C lists single values as the SVOC MDLs for specific compounds in each matrix even though experiments were apparently performed on multiple samples of each matrix type (e.g., data from 8 gasoline samples presented in Appendix A). Were the data from the multiple samples of each matrix pooled to give mean values? If so, how? If the Appendix C values are derived from a single sample from each matrix type, which sample was used, and how was this sample selected? What was the range in MDLs across matrix type (e.g., for the eight gasoline samples)? Considering the range of quantitation levels listed in Appendix A, it is apparent that a single determination of an MDL from one sample of a given matrix (e.g., gasoline) cannot be considered representative of the matrix as a class. Thus, valid MDLs must be developed for a number of samples of each benchmark fuel if MDLs are to be considered as criteria defining comparable fuels.

A final general comment pertains to the apparently inconsistent spike levels used to determine SVOC and VOC MDLs. The footnotes to the Appendix C SVOC and VOC MDL tables indicate that these experiments were performed at 100 mg/Kg and 50 mg/Kg, respectively. As discussed below, these levels are consistently less than the Appendix A quantitation levels. A likely explanation for this inconsistency is that the Appendix C footnotes reflect extract concentration and not sample concentration. If this is the case, it should be clearly stated and the sample used in the MDL experiment should be specified so that these data can be compared to the sample specific quantitation levels. If it turns out that the MDL experiments were performed at sample concentrations significantly greater (i.e., five times greater) than the sample specific quantitation levels, the MDL data do not support the quantitation levels as being achievable, and the quantitation levels are not supported as criteria for defining clean or comparable fuels.

Response:

The MDL study was performed on randomly selected gasoline, #2 fuel oil, and #6 fuel oil. The chosen samples were selected from the samples received for analysis. Seven replicates for each parameter were performed on each of the four samples. The data submitted in Appendix C tabulates the results for each fuel, for each parameter, the seven replicate results, and the calculated MDL. Though several of the calculated MDL values exceeded the 10 fold range criteria, the MDL procedure was not repeated because the calculated MDL results were not used in the statistical analysis for setting limits for the benchmark fuel specification. Per the MDL procedure, a MDL study should be performed for each matrix type to be analyzed. All of the fuel types can be categorized as petroleum hydrocarbon based. Therefore, only one sample would have been required to be analyzed.

19. Analytical spiking scheme.

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CFSA4.44(commenter 112)

(1) VOAs-8240\8260: As previously noted, surrogate compounds may have been added to the methanol extracts of some samples, not to the sample/methanol mix as specified by Section 7.4.3.2.9 of Method 8260. This spiking scheme results in surrogate recovery data which have no relationship to method performance for native analytes. If this is true, and spikes for determining MDLs were also added to the methanol extracts, the detection limits for 8240\8260 listed in Appendix C are likewise meaningless with respect to native analytes. Note that even if all spikes (surrogate and MDL) were added to the sample/MeOH mixtures, this spike scheme would be valid only for those samples which were 100% miscible in the MeOH. Otherwise, spikes would have to be added to the samples directly, prior to dilution in MeOH, in order to give valid measures of method performance. Again, how these samples were fortified is a critical factor impacting the utility of these data.

Regardless of the exact spiking scheme employed (or which samples were 100% miscible in methanol), the gasoline MDLs listed in Appendix C appear inconsistent with the dilution factors employed in the sample analyses as listed in Appendix A. From Appendix A, five gasoline samples were analyzed at a nominal "quantitation level" (Q.L.) of 3000 mg/Kg, while the remaining three were analyzed at a nominal Q.L. of 1500 mg/Kg. Thus, all gasoline analyses for native VOC analytes were done on samples diluted to the point that a compound present in the sample at 50 mg/Kg would not be quantifiable. Considering this disparity, how could these (50 mg/Kg) MDL measurements even be made? Certainly, if analyses for native analytes cannot be performed at levels below 1000 mg/Kg, MDLs determined at 50 mg/Kg have absolutely no relevance as performance metrics.

This inconsistency is not apparent in the fuel oil data. From Appendix A, all 19 fuel oil samples were analyzed at quantitation levels ranging from nominally 15-40 mg/Kg. Thus, the MDL spike level of 50 mg/Kg appears appropriate for the VOC analyses in these matrices. Thus, from a procedural view, the validity of these MDLs as performance metrics depends on the miscibility of the fuel oils in MeOH and the spike scheme employed (see above), and neither factor was discussed clearly in the document.

In addition, the "correctness" of the numerical values determined can also be assessed according to EPA's own guidelines (2). The EPA recommends that MDL experiments be performed at between 1 and 5 times the estimated detection limit, and specifies that the concentration level cannot exceed 10 times the resulting MDL. Since these experiments were performed at a uniform concentration of 50 mg/Kg, MDLs less than 5 mg/Kg are invalid and call for a reduced spike level. On review of the 8240/8260 MDLs for the two fuel oils, fully 75% of the reported values are in this category. Of the remaining values, approximately 5% are inappropriate because either the spike level is less than the calculated MDL, or the background concentration is significantly greater than the spike level. Thus, at best, only 20% of the reported MDLs might meet EPA criteria (depending on the spike scheme), and therefore be valid metrics characterizing method performance.

Response:

The procedure of adding surrogate spiking compounds to the sample preparation is an accepted procedure within EPA methodology. In the Statement of Work (SOW) for the

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Contract Laboratory Program (CLP), for the preparation of solids for medium level volatile analysis and for semi-volatile extraction, the surrogate spiking compounds are added to the organic phase of the preparation, not to the sample matrix prior to preparation. In SW-846 Method 5021 (Volatile Organic Compounds in Soils and Other Solid Matrices using Equilibrium Headspace Analysis) and Method 5035 (Closed System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples, the surrogate spiking compounds, internal spiking compounds, and matrix spiking compounds are added to either the matrix modifier or methanolic phase of the sample. The issue of miscibility is not addressed.

For the MDL determination, the spiking was performed at a concentration to yield 50 mg/kg "on-column". For gasoline, the sample concentration is 10,000 mg/kg; for #2 fuel oil, the sample concentration is 200 mg/kg; and for #6 fuel oil, the sample concentration is 100 mg/kg. As noted in the opening paragraph of this response, the MDL is a statistically derived value based on the standard deviation of seven replicate analyses multiplied by the student t-test factor.

20. MDLS for metals.

CFSA4.46(commenter 112)

(3) Metals: The spike levels used for determining the MDLs for metals as listed in Appendix C are nominally 1/10th the quantitation levels for the sample analyses listed in Appendix A. In addition, the footnote to the Appendix C MDL table for metals indicates that these MDL experiments were performed in 100% xylene. Thus, not only are the spike levels inappropriate, but the experiments were not performed using a test matrix. Overall, the reported MDLs have no relevance to method performance for the determination of native analytes in the benchmark fuels, and do not support any numerical criteria for defining a clean or comparable fuel.

Response:

Analysis of the metals was performed by the appropriate atomic absorption spectroscopy technique following the dissolution of the sample with Xylene. The MDL determination was performed using only the dissolute, Xylene. Since the various fuel oils required up to a 25-fold weight/weight dissolution using Xylene for the preparation for the samples, the decision to not prepare 28 additional samples (4 fuels × 7 replicates) was made.

21. Inclusion of surrogate recoveries and matrix spike data.

CFSA4.47(commenter 112)

F. Appendix D

As has been mentioned, there is no means of comparing the surrogate recoveries listed in this appendix to any of the data presented elsewhere in this document because the sample ID numbers do not match. Regardless, the recoveries of a small set of surrogates from difficult to analyze matrices provide minimal information on method performance. For the volatiles analysis only 3 surrogates are employed, while the analyte list contains 61 target compounds. For the semi-volatiles analysis, 6 surrogates are employed while the analyte list contains over 100 compounds.

Considering that matrix spike experiments are a central component of SW-846 QA/QC, the lack of matrix spike data is puzzling, and reflects a serious gap in QA/QC. Without these data, it is essentially impossible to assess the accuracy of most of the analyses and, thus, the data do not support any rigid numerical "benchmark" criteria. Although this appendix does list matrix-spike recoveries for a sub-set of the metals analyses only, there is no indication in the document at what concentration levels these experiments were performed. Thus, these recoveries cannot be used to assess the accuracy of the associated sample-specific concentrations and quantitation levels, and the utility of these numbers as numeric criteria is therefore limited.

Response:

A cross reference table for comparing the surrogate recoveries listed in Appendix D has been provided by the laboratory. The Laboratory ID was inadvertently used in Appendix D in place of the Client Sample ID used throughout the other appendices. Appendix D will be revised so all sample ID’s are uniform.

Per the methodology, for SW-846 Method 8240, three (3) surrogate spiking compounds are added to every sample, standard, and blank prior to analysis. For SW-846 Method 8270, six (6) surrogate spiking compounds are added to every sample, standard, and blank prior to extraction. Matrix spiking data if performed would have added an additional five (5) volatile compounds and eleven (11) semivolatile compounds to the recovery data. The MDL study provided recovery data for all of the target analytes.

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COMPARABLE FUELS: SYNTHESIS GAS

Exclusion of Syngas

1. Support of Syngas Exclusion

CFSYN.01(commenter 086)
H. USWAG Supports the Proposed Exclusion for Syngas.
USWAG supports the Agency's proposal to exclude synthetic natural gas ("syngas") from the definition of solid and hazardous waste. Id. at 17465-66. As with the comparable fuels exclusion, we believe that the proposed exclusion for syngas represents a step forward by the Agency in recognizing that secondary materials with legitimate value as fuel should be regulated as products rather than as wastes. Because syngas is a product with legitimate value, it should be regulated as such.

Response:
EPA agrees with commenter.

2. Inappropriate to Link Syngas with Combustion

CFSYN.17.a(commenter 150)
Shell contends that it is inappropriate to link the production of synthesis gas with hazardous waste combustion in the same rulemaking. The two industries are only mildly related yet have several distinct differences. Hazardous waste combustors, by their very nature, are designed and constructed to economically destroy otherwise unuseful or economically non-viable products. Conversely, sources which engage in synthesis gas production manufacture a useful fuel or chemical feedstock through the partial oxidation of carbon-containing materials. Their basic commonality is that some synthesis gas production technologies can use as raw material feedstock which would otherwise be characterized and disposed of as hazardous.

CFSYN.18(commenter 152)
II. APPLICABILITY
As a general principle, Shell objects to the inclusion of hazardous waste combustors and synthesis gas production in the same rulemaking. While we acknowledge the hazardous waste destruction capabilities of some syngas production technologies, we fail to see the relevant connection from a regulatory perspective in their grouping, since one is decidedly a hazardous waste destruction operation and the other is a fuel/chemical feedstock production operation. Under separate cover Shell is submitting separate comments on the synthetic gas portion of the rule. However, we suggest that EPA decouple these two vastly different technologies and consider them separately.

CFSYN.28.c(commenter 225)

3. Syngas is not a "comparable fuel". Therefore, its use as a fuel cannot be regulated under RCRA.
Syngas is a commercial product manufactured and used worldwide. It has a wide range of potential uses, including use as a fuel. It is intentionally manufactured, not a by-product or "left-over" from some other activity.

CFSYN.31(commenter 225)
2. Syngas Is Not A Comparable Fuel
In the proposed rule, syngas is considered a type of comparable fuel and in order to be exempt from the RCRA definition of "solid waste" has to meet certain proposed specifications similarly to the other comparable fuels listed. Under this proposal, syngas would remain subject to cumbersome and unwarranted regulatory burdens.
Syngas is not a comparable fuel. It is not a byproduct of some activity which has some incidental combustion value and so could be used as a fuel with certain safeguards such as a specification to insure protection of health and the environment. Syngas is a commercial product that has a wide range of potential uses, including as a fuel. It is intentionally manufactured, not a by-product or "left-over" from some other activity.
The rule also fails to recognize other differences from comparable fuels. For example, a gasification unit may be used to produce syngas for use as a raw material in chemical manufacturing. However, depending upon production demands, or process scheduling the syngas may also be used to produce power. Additionally, a syngas supply may be divided and used concurrently for chemical manufacturing and power production. The proposal provides no guidance as to how or when the requirements of the rule would be implemented for syngas that was used for both power production and chemical manufacturing.
Clearly, syngas is not a comparable fuel. Thus, regulatory requirements intended for comparable fuels would be unnecessary and unreasonably burdensome for the syngas industry.

CFSYN.39(commenter 234)
d. Syngas is not a "Comparable Fuel".
In the April Rule, EPA proposes to create a class of fuels known as "comparable fuels." This classification applies to materials that are essentially hazardous wastes which EPA recognizes may have some beneficial, albeit incidental, fuel value. However, due to variations in production processes, composition and heating value, EPA perceives a need to continue to regulate these materials and their production and use. Syngas, however, is not a waste material with incidental fuel value. Syngas is a commercial-grade fuel product that is manufactured in an industrial process designed to produce a refined, commercially valuable fuel. Therefore, syngas should not be categorized with or otherwise regulated as a "comparable fuel."

<u>Response:</u>
EPA believes it is appropriate to include the syngas exclusion with the comparable fuels exclusion. The type of syngas excluded from the definition of solid waste results from thermal reaction of hazardous wastes, which reaction is optimized to break organic bonds and

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reformulate the organics into hydrogen gas and carbon monoxide. This resulting gas can be used as a fuel at manufacturing facilities. EPA has broad statutory authority to regulate fuels produced from hazardous wastes. RCRA section 3004 (q) (1); see also Horsehead Resource Development Co. v. Browner, 16 F. 3d 1246, 1262 (D.C. Cir. 1994) (broadly construing this authority).

EPA has linked comparable fuels and syngas in a rulemaking together because both are being excluded from the definition of solid waste. EPA has the authority to grant an exclusion to both of these hazardous wastes because of their product-like nature. Since both syngas and comparable fuels are being excluded from the definition of solid waste and since both will be used as a fuel in a combustion device, it is appropriate to use the same implementation scheme for the exclusion. Thus, EPA believes it is appropriate to link syngas and comparable fuels in the same rulemaking.

3. Legal Foundation Not Discussed

CFSYN.06.b(commenter 128)

CMA also finds it highly troublesome that the legal foundation for this dramatic extension of the definition of solid waste is never discussed in the proposal. In EPA's discussion of the proposed syngas exclusion, at several other places in the preamble,[18] and in the recent reproposal of the Pulp and Paper cluster rule,[19] the Agency has been effecting a major expansion of its RCRA jurisdiction without ever noting that fact. Instead, it proceeds as ff this ambitious gambit were well established and unremarkable. EPA drops the syngas exclusion into the "Miscellaneous" section of the preamble, and cites no statutory or regulatory language supporting its implied assumptions that uncontained gases derived from the treatment of hazardous waste are solid wastes, or that feedstocks used to manufacture commercial syngas are solid wastes. The lack of cited authority makes commenting on the proposal difficult, and raises serious questions about the sufficiency of the notice under the Administrative Procedure Act.

[Footnote 18: E.g., 17460/3 (discussing applicability of comparable fuels specifications to gases), 17461/2 (same), 17469/3(asking if CMA's clean fuels exclusion should apply to gaseous fuels).] [Footnote 19: E.g., 61 Fed. Reg. 9397 (March 8, 1996) ("the combustion of steam stripper vent gas does not trigger the BIF regulations because the methanol-laden vent gas is not a RCRA hazardous waste - it is not listed as a hazardous waste, nor does it exhibit a hazardous waste characteristic"; no recognition that it is not a hazardous waste because it is not a contained gaseous material (and is a process gas stream to boot)).]

CFSYN.16.a.ii(commenter 141)

It is highly troublesome that the legal foundation for this dramatic extension of the definition of solid waste is never discussed in the proposal. In its discussion of the proposed syngas exclusion, at several other places in the preamble,[47] and in the recent reproposal of the Pulp and Paper cluster rule,[48] the Agency has been effecting a major expansion of its RCRA jurisdiction without ever noting that fact. Instead, it proceeds as if this ambitious gambit were

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well established and unremarkable. EPA drops the syngas exclusion in the "Miscellaneous" section of the preamble, and cites no statutory or regulatory language supporting its implied assumption that uncontained gases derived from the treatment of hazardous waste are solid wastes. The lack of cited authority makes commenting on the proposal difficult, and raises serious questions about the sufficiency of the notice under the Administrative Procedure Act.

CFSYN.17.d(i)(commenter 150)
It is difficult for us to understand the Agency's basis for regulating syngas; the Preamble gives no hint as to EPA's intent, and, in fact, relegates any discussion to the "Miscellaneous" section. We strongly suggest that the Agency reexamine its authority under RCRA and revisit its decision to include synthesis gas production in this rulemaking.

CFSYN.30.c(commenter 225)
Under the Administrative Procedures Act, when an Agency undertakes rulemaking activity, it must be able to state the basis and purpose of the rule. This enables the public to determine the actual basis and objectives of the rule and facilitates meaningful judicial review. A statement must be sufficiently detailed and informative to permit a reviewing court to determine how and why the rules were adopted. This is generally lacking in the EPA syngas proposal of April 19, 1996. In addition, there is no explanation in the proposed rule for why syngas produced from one process was used as the model for an entire industry. EPA must evaluate the whole syngas industry, and not just a small segment of the industry which may have been brought to its attention. To do otherwise would be arbitrary and might even create an unfair economic advantage for the commercial entity EPA used.

CFSYN.46(commenter 234)
B. No concise general statement of basis and purpose.
When an Agency promulgates a rule it must be able to state how and why the rule was developed. The Administrative Procedure Act requires an Agency to "incorporate in the rule adopted a concise general statement of their basis and purpose." APA, 5 U.S.C. § 553(c). Thus, the Agency has a duty to discuss the factual basis for a rule and provide a reasoned and rational explanation linking the factual predicates to the statutory goal. See Davis, K.C., Administrative Law Treatise, (1994) Vol 1, § 7.4, p. 310; Sen. Doc. No. 248, 79th Cong., 2d Sess. 201, 259 (1946) (the Agency must analyze and consider all relevant data; the required statement of the basis and purpose of the rule should also explain the actual basis and objectives of the rule "with reasonable fullness.") Such a statement enables the public to determine the actual basis and objectives of the rule and facilitates meaningful judicial review. A statement must be sufficiently detailed and informative to permit a reviewing court to determine how and why the rules were adopted.[31]
In order for EPA to provide the required concise general statement of basis and purpose, EPA should evaluate the entire syngas industry, not just a small and unique segment which may have been brought to the Agency's attention. Such an evaluation should encompass research and information gathering on a wide range of topics including:
the types of secondary and non-secondary material used to produce syngas;

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the nature of the processes currently in use and under development to produce syngas;
the chemical composition and the physical characteristics of syngas and the relationship of such characteristics to the gasification process;
the environmental benefits from the production and use of syngas;
the economic, social and environmental incentives that have led to the current and ongoing advances in syngas technologies; and
the potential future uses of syngas and resulting commercial, social and environmental implications.

Unless these and other topics are thoroughly assessed, EPA simply lacks sufficient understanding of the subject to concisely explain how a proposed rule would be technically sound, workable for industry, and consistent With appropriate policies that underlie the regulation of materials under RCRA.

[Footnote 31: Failure to fulfill the requirements of a "concise and general statement of basis and purpose" has become one of the most frequent basis for judicial reversal of Agency rules. Davis, K.C., Administrative Law Treatise, (1 994) Vol 1, §7.4, p.311 citing Pierce, The Role of the Judiciary in Implementing an Agency Theory of Govemment, 64 N.Y.U. L. Rev. 1239, 1263-65 (1989) (additional citations emitted).]

<u>Response:</u>

EPA believes that the proposed exclusion from the definition of solid waste for hazardous waste-derived synthesis gas is a statement of EPA's statutory authority to regulate syngas. If EPA already had no authority over hazardous waste-derived syngas, then the exclusion would be unnecessary. Furthermore, EPA does not believe that this rulemaking is an expansion of RCRA jurisdiction. The type of syngas discussed in the proposal results from thermal reaction of hazardous wastes, which reaction is optimized to break organic bonds and reformulate the organics into hydrogen gas and carbon monoxide. This resulting gas can be used as a fuel at manufacturing facilities. EPA has broad statutory authority to regulate fuels produced from hazardous wastes. RCRA section 3004 (q) (1); see also <u>Horsehead Resource Development Co.v. Browner,</u> 16 F. 3d 1246, 1262 (D.C. Cir. 1994) (broadly construing this authority). The fact that syngas (by definition) is a gas, rather than a solid or liquid, does not appear to raise jurisdictional issues. It is still produced from the hazardous wastes that are being processed thermally. See section 261. 2 (c) (2) (A) and (B) (defining such materials as solid wastes). EPA believes its authority to be clear under these provisions. See also 50 FR 49164, 49171 (Nov. 25, 1985); 52 FR 16982, 17021 (May 6, 1987); and 56 FR 7134, 7203-04 (Feb. 21, 1991) which discuss this question, although inconclusively. EPA also indicated that burning of gasified fuels produced by pyrolising hazardous waste came under Subtitle C jurisdiction in the interpretive ruling regarding Giant Cement. See September memorandum in record addressing this issue.

With regard to synthetic gasification processes within the petroleum industry, the Agency has in fact adjudicated the status under existing regulations of such a unit, indicating that while both the process and the fuel output are within RCRA subtitle C jurisdiction, the process is a type of exempt recycling unit under 40 CFR 261.6(c)(1) and the fuel is also exempt under 261.6(a)(3). Letter of Michael Shapiro (Director of Office of Solid Waste) to William

Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).
Upon reflection, it appears that these petroleum gasification operations may be similar to other within-petroleum industry recycling activities that EPA has proposed to exclude from Subtitle C jurisdiction in the petroleum listing rule proposed on November 20, 1995. 60 FR 57747. It therefore appears more appropriate to consider this overall jurisdictional issue in the context of that rulemaking. However, EPA is not at this time limiting the synthetic gas fuel exclusion insofar as it potentially applies to the output of gasification operations conducted as part of normal petroleum refining (SIC Code 2911). Thus, these syngas fuels can also be eligible for the exclusion in today's rule.

4. Statutory Definition of Hazardous Waste Does Not Include Uncontained Gases

CFSYN.06.a(commenter 128)

E. Synthetic gases are not hazardous wastes and therefore an exclusion is unnecessary.

1. Introduction

EPA has proposed to exclude from the definition of solid waste synthesis gas "syngas") "produced from hazardous waste," when it (i) is used as a commercial feedstock or fuel and (ii) meets certain physical parameters. 17465. Implicit in this proposal is the premise that gases derived from the treatment of hazardous waste are themselves hazardous wastes. As discussed below, EPA itself has declared that "the Agency views gaseous material to be solid waste only when it is containerized." In re BP Chemicals America, Inc., RCRA Appeal No. 89-4,1991 WL 208971, at *2 (Admin., Aug. 20, 1991). Hence, EPA's proposal is unnecessary. EPA's proposal also fails to recognize that secondary materials used in an industrial process to make a product are not solid wastes, either before or after use. 40 CFR § 261.2(e)(1)(I). Thus, the feedstocks used to make syngas are not solid wastes, and the syngas is thus not "produced from hazardous waste."
In the final rule, EPA should merely clarify that uncontained syngas, or any other gas not confined to a container, is not subject to RCRA regulation. CMA supports EPA's confirming that syngas manufacturing projects are not subject to RCRA - some of CMA's members are participants in Molten Metals Technology's and other syngas projects. However, for EPA to finalize the exclusion as proposed would be to codify implicitly an unprecedented expansion of its RCRA jurisdiction.

CFSYN.07.a(commenter 128)

2. The statutory definition of hazardous waste does not include uncontained gases.
Even assuming that the feedstocks used to produce syngas are hazardous waste, EPA is without authority to define as hazardous waste uncontained gases derived from the treatment, storage, or disposal of hazardous waste. Before a waste may be classified as hazardous, it must first be classifiable as a solid waste.[20] The statutory definition of "solid waste" specifically includes only "contained gaseous material." See 42 U.S.C. § 1004(27). Over the years, EPA has consistently adhered to the principle that uncontained gases are excluded from the definition of solid waste. For example, in the preamble to 1982 subpart 0 regulations for

hazardous waste incinerators, EPA stated:

Fume incinerators which are used to destroy gaseous emissions from various industrial processes, for example, are not subject to regulation under RCRA. In general, the RCRA standards do not apply to fume incinerators since the input is not identifiable as a solid waste, according to the definition set forth in [40 CFR] § 261.2. 47 Fed. Reg. 27530 (June 24,1982) (emphasis added).

Similarly, in its decision not to list uncondensed light end hydrocarbons as hazardous waste, EPA stated: "[O]ur authority to identify or list a waste as hazardous under RCRA is limited to containerized or condensed gases [i.e., section 1004(27) of RCRA excludes all other gases from the definition of solid wastes and thus cannot be considered hazardous wastes]." 54 Fed. Reg. 50973 (Dec. 11, 1989) (bracketed material in original; emphasis added). The notice continued by declaring that "EPA's previously issued guidance concerning fume incinerators [quoted above] remains in effect." Id. n. 5.

Again, in the BIF rule, EPA noted that "activated carbon units used as air emission control devices of gaseous industrial process emissions will not necessarily be regulated because trapped organics in such columns are not hazardous wastes because the gas originally being treated is not a hazardous waste (it is an uncontained gas), and therefore any condensed organics do not derive from the treatment of a hazardous waste." 56 Fed. Reg. 7200 (Feb. 21, 1991) (citing the above-quoted passages).

Finally, quoting the 1982 and 1989 statements above and citing RCRA regulations,[21] the Administrator has concluded that "[t]hese authorities show that the Agency views gaseous material to be solid waste only when it is containerized." In re BP Chemicals America, Inc., RCRA Appeal No. 89-4,1991 WL 208971, at *2 (Admin., Aug. 20, 1991). The Administrator specifically rejected Region V's argument that gaseous emissions were "contained" by the process units they passed through, associated piping or the facility itself, holding that the Agency's definition of the term "contained" has consistently been confined "in the narrower sense of being in an individual container such that the gas is amenable to shipment." Id. The BP Chemicals decision was quoted with approval less than a year ago by the Environmental Appeals Board In re: Chemical Waste Management of Indiana, Inc., RCRA Appeal No. 95-4 (EAB, Aug. 23,1995).

[Footnote 20: In pertinent part, "the term 'hazardous waste' means a solid waste, or combination of solid wastes...." RCRA § 1004(5) (emphasis added).] [Footnote 21: See 40 CFR § 261.7(a)(1) & (b)(2) (providing that gases in a container are not "contained," and become exempt from Subtitle C, when the pressure in the container becomes atmospheric).]

CFSYN.07.b(commenter 128)

As noted earlier, it is difficult to understand the Agency's basis for regulating syngas in the first place, since the preamble fails to explain that basis. Conceivably, the Agency may be operating on the theory that while uncontained gaseous byproducts of industrial processes are unregulatable under the BP decision, gases emitted from the treatment of hazardous waste are regulatable. The Chemical Waste Management decision vitiates this reasoning, however. CWM involved the treatment of hazardous waste, specifically the microencapsulation of hazardous debris. Even so, the EAB easily concluded that air emissions from the

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microencapsulation process are excluded from Subtitle C "[b]ecause the air emissions that the Region seeks to regulate are not containerized .... " Id. at *12. Moreover, EPA itself has declared otherwise: "The organic vapors emitted from hazardous waste are not hazardous waste. Therefore, the control devices installed specifically to comply with subpart CC organic vapor control requirements are not hazardous waste management units and are not required to be permitted under RCRA." Background Information Document for Promulgated Organic Emission Standards for Tanks, Surface Impoundments, and Containers (Nov 1994) at 6-107 (emphasis added).

The foregoing authorities make it amply clear that syngas produced from MA's catalytic extraction process -or any other process - cannot be regulated by Subtitle C unless it is containerized. The processes discussed in the preamble do not involve containerization, and thus the proposed exclusion is unnecessary because it already exists as a matter of statute.

CFSYN.15.a(commenter 132)

Quantum is a member of the Chemical Manufacturers Association (CMA) and agrees with the comments submitted by CMA on this subject. Quantum requests that USEPA withdraw this action in the final rulemaking and explain that synthesis gas and all other uncontained gases are not subject to RCRA regulation. CMA's comments concerning the absence of a statutory basis for regulating a contained gas, the absence of any supporting basis of authority in the preamble to the proposed rule, the misapplication of the derived-from rule, and the exclusion of synthesis gas operations from the existing regulations are very well explained and will not be further discussed in these comments.

The synthesis gas facility at Quantum's La Porte Complex was constructed during the energy crisis of the 1970's. It was designed to use residuum, a product of petroleum refining, as the primary raw material. Residuum is not suitable for most combustion applications due to its high viscosity. Quantum's synthesis gas operation, however, is able to convert it almost completely to carbon monoxide, hydrogen and elemental sulfur.

The design of this facility also allows Quantum to utilize as feedstock secondary materials that meet certain specifications. Quantum has reviewed this use of alternate feedstocks with the Texas Natural Resource Conservation Commission (TNRCC), the RCRA-authorized agency in Texas, to determine its RCRA regulatory status. In letters dated April 28, 1995, TNRCC informed Quantum and USEPA, Region VI, of its position that the operation is not subject to RCRA regulation. There is no indication that Region VI personnel disagreed with TNRCC's position. In light of this, the action of exempting synthesis gas under 40 CFR 261.4 seems superfluous, and it could create confusion as to the regulatory status of a synthesis gas operation due to the implication that synthesis gas could be subject to RCRA in the absence of the proposed exemption.

CFSYN.16.a.i(commenter 141)

F. Synthetic gases are not hazardous wastes and therefore an exclusion is unnecessary.

EPA has proposed to exclude from the definition of solid waste synthesis gas ("syngas") generated from the treatment of hazardous waste, when it (i) is used as a commercial feedstock or fuel and (ii) meets certain physical parameters. Implicit in this proposal is the premise that gases derived from the treatment of hazardous waste are themselves hazardous wastes. As discussed below, EPA has no authority under RCRA to regulate as hazardous waste uncontained gases derived from hazardous wastes. Hence, EPA's proposal is unnecessary. In the final rule, EPA should merely clarify that uncontained syngas, or any other gas not confined to a container, is not subject to RCRA regulation. For EPA to finalize the exclusion as proposed would be to codify implicitly an unprecedented expansion of its RCRA jurisdiction.

CFSYN.16.b(commenter 141)

EPA is without authority to define as hazardous waste uncontained gases derived from the treatment, storage, or disposal of hazardous waste. Before a waste may be classified as hazardous, it must first be classifiable as a solid waste.[49] The statutory definition of "solid waste" specifically includes only "contained gaseous material." See 42 U.S.C. (1004(27). Over the years, EPA has consistently adhered to the principle that uncontained gases are excluded from the definition of solid waste. For example, in the preamble to 1982 Subpart 0 regulations for hazardous waste incinerators, EPA stated:

Fume incinerators which are used to destroy gaseous emissions from various industrial processes, for example, are not subject to regulation under RCRA. In general, the RCRA standards do not apply to fume incinerators since the input is not identifiable as a solid waste, according to the definition set forth in [40 CFR] Section 261.2. 47 Fed, Reg. 27530 (June 24, 1982) (emphasis added).

Similarly, in its decision not to list uncondensed light end hydrocarbons as hazardous waste, EPA stated: "[0]ur authority to identify or list a waste as hazardous under RCRA is limited to containerized or condensed gases [i.e., section 1004(27) of RCRA excludes all other gases from the definition of solid wastes and thus cannot be considered hazardous wastes]." 54 Fed, Reg.. 50973 (Dec. 11, 1989) (bracketed material in original; emphasis added). The decision continued by declaring that "EPA's previously issued guidance concerning fume incinerators [quoted above] remains in effect." Id. n. 5.

Again, in the BIF rule, EPA noted that "[a]ctivated carbon units used as air emission control devices of gaseous industrial process emissions will not necessarily be regulated because trapped organics in such [columns?] are not hazardous wastes because the gas originally being treated is not a hazardous waste (it is an uncontained gas), and therefore any condensed organics do not derive from the treatment of a hazardous waste. 56 Fed. Reg. 7200 (citing the above-quoted passages).

Finally, quoting the 1982 and 1989 statements above and citing RCRA regulations,[50] the Administrator has concluded that "[t]hese authorities show that the Agency views gaseous material to be solid waste only when it is containerized." In re BP Chemicals America, Inc., RCRA Appeal No. 89-4, 1991 WL 208971, at *2 (Admin., Aug. 20, 1991) The Administrator specifically rejected Region V's argument that gaseous emissions were "contained" by the process units they passed through, associated piping or the facility itself, holding that the Agency's definition of the term "contained" has consistently been confined "In the narrower sense of being in an individual container such that the gas is amenable to shipment." Id. The BP Chemicals decision was quoted with approval less than a year ago by the Environmental

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As noted earlier, it is difficult to understand the Agency's basis for regulating syngas in the first place, since the preamble fails to explain that basis. Conceivably, the gaseous byproducts of industrial processes are unregulatable, gases emitted from the treatment of hazardous waste are regulatable. The Chemical Waste Management decision vitiates this reasoning, however. CWM involved the treatment of hazardous waste, specifically the macroencapsulation of hazardous debris. Even so; the EAB easily concluded that air emissions from the macroencapsulation process are excluded from Subtitle C "[blecause the air emissions that the Region seeks to regulate are not containerized . . . ." Id. at *12.

The foregoing authorities make it amply clear that gases cannot be regulated by Subtitle C unless they are containerized.

[Footnote 47: E.g., 17460/3 (discussing applicability of comparable fuels specifications to gases), 17461/2 (same), 17469/3 (asking if CMA's clean fuels exclusion should apply to gaseous fuels).] [Footnote 48: Eg., 61 Fed, Reg.-. (Feb. 29, 1996) ("the combustion of steam stripper vent gas does not trigger the BIF regulations because the methanol-laden vent gas is not a RCRA hazardous waste -- it is not listed as a hazardous waste, nor does it exhibit a hazardous waste characteristic"; no recognition that it is not a hazardous waste because it is not a contained gaseous material (and a process gas stream to boot)).] [Footnote 49: In pertinent part, "the term "hazardous waste" means a solid waste, or combination of solid wastes ...." RCRA Section 1004(5) (emphasis added).] [Footnote 50: See 40 CFR (26i.7(a)(1) & (b)(2) (providing that gases in a container are not "contained," and become exempt from Subtitle C, when the pressure in the container becomes atmospheric).]

CFSYN.17.b(commenter 150)

Not only are the processes so different as to defy their logical grouping, but we strongly object to EPA's apparent defiance of Congressional constraints in RCRA which preclude the regulation of gases as solid wastes unless containerized. Before a waste may be classified as hazardous, it must first be classified as a solid waste. The statutory definition of "solid waste" specifically includes only "contained gaseous material." Historically, EPA has adhered consistently to the principle that uncontained gases are excluded from the definition of solid waste. In fact, The Agency has consistently held that the definition of "contained has been confined in the narrower sense of being in an individual container such that the gas is amenable to shipment." EPA in this rulemaking has ignored Congressional constraints and its own precedents and boldly determined that it can regulate non-containerized gas as a solid waste.

CFSYN.19.a(commenter 155)

Hoechst Celanese Corp. ("HCC") is pleased to submit an original and two copies of these comments on the proposed Exclusion of Synthesis Fuel in the Revised Standards for Hazardous Waste Combustors ("MACT Rulemaking"). See 61 Fed. Reg. 17465-69 (April 19, 1996). In the MACT Rulemaking, EPA has proposed to exclude from the definition of solid and hazardous waste certain synthesis gas or "syngas" fuel (,a combination of H2 ind

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CO) manufactured from secondary materials. The exclusion would require the syngas to meet specification levels for concentrations of toxic constituents and physical properties that affect burning. First, as a matter of jurisdiction, HCC has always taken the position that EPA does not have authority under RCRA to directly regulate gaseous products. This is so because the statute defines "solid waste" to include only contained gases. Thus we believe syngas may not be regulated as a solid waste and this proposed exemption for syngas Is unnecessary. Without waiving this jurisdictional position, and to the extent that EPA intends to try to assert RCRA jurisdiction over syngas produced from secondary materials, HCC believes that in principle syngases that meet commercial specifications for their intended use (i.e., fuel) should be excluded from regulation.

CFSYN.19.c(commenter 155)
In conclusion, HCC believes that RCRA jurisdiction does not include uncontained gases, such as syngas. However, to the extent that EPA intends to try to assert jurisdiction over syngas produced from secondary materials, legitimate syngas fuels that meet commercial specifications for fuel use pose minimal threat to human health and the environment, have energy values that should be utilized, and can be safely excluded from regulation.

CFSYN.26.a(commenter 198)
20. Synthesis Gas (Syngas), the Syngas Manufacturing Unit and the Feedstocks to the Syngas Process are not subject to RCRA
EPA has proposed to exclude from the definition of solid waste synthesis gas (syngas) manufactured from feedstocks that were formerly hazardous waste, when the syngas: (1) is used as a commercial feedstock or fuel, and (2) meets certain physical parameters (61 FR 17465 and 17529). Exxon Chemical agrees that commercial syngas is not a waste, but, for the reasons stated below, disagrees that any exclusion is required for this product syngas material, the syngas manufacturing units or the feedstocks to the syngas process.
By the clear wording of the statute, only "contained gases" are included within the definition of solid waste (42 U.S.C. Section 6903(27)). EPA's statutory authority is limited to containerized or condensed gases; RCRA excludes all other gases from the definition of solid waste. In fact, the Agency's own interpretation of the term "contained" has consistently been that the gas must be confined in an individual container amenable to shipment. Gases are not contained simply by being in a process unit or passing through piping. Furthermore, whether contained or not, only waste can be subject to RCRA; and commercial syngas is not a waste material. For all these reason, commercial product syngas from gasification units is not a solid waste.

CFSYN.27(commenter 205)
Exclusion of Syngas from the Definition of Solid Waste (p. 17564): TCC disagrees with EPA's proposed exclusion from the definition of solid waste for synthesis fuel gas (syngas) or any other pipeline or vent gas on the grounds that non-contained gas such as syngas is not a solid waste under current regulations.

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CFSYN.28.a(commenter 225)

Summary of Comments

1. Syngas is not a solid waste. Therefore, its use cannot be regulated under RCRA.

Under RCRA, the Agency's regulatory authority is limited to materials defined to include "contained gaseous material" from industrial operations, but not any other gaseous materials. Syngas is not containerized. It is generally piped to end usage. Thus, syngas is not a solid waste and cannot be a hazardous waste subject to EPA Subtitle C regulatory authority.

CFSYN.30.a.i.(225)

Moreover, under RCRA, the Agency's regulatory authority is limited to materials defined to include "contained gaseous material" from industrial operations (emphasis added), but not any other gaseous materials. Syngas is not containerized. It is handled in the same fashion as natural gas, generally piped to the end usage. Thus, syngas is not a solid waste, and, therefore, cannot be a hazardous waste subject to EPA Subtitle C regulatory authority. Thus, the Agency does not have the authority to issue regulations that would apply to the handling or use of syngas.

CFSYN.45(commenter 234)

IV. OTHER COMMENTS.

A. Non-Containerized Gas Is not a "Solid Waste".

Under RCRA, the Agency's Subtitle C regulatory authority is limited to materials that are solid wastes.[30] The term solid waste is defined to include "contained gaseous material" from industrial operations (emphasis added), but not any other gaseous materials (42 U.S.C.A. §6903(27)). Relevant administrative decisions and case law, relying in part on the Agency's own interpretations, have consistently held that gaseous materials that are not "containerized in the narrower sense of being in an individual container such that the gas is amenable to shipment" do not meet the RCRA definition of solid waste (emphasis added). See in the Matter of: BP Chemicals America Inc., 1991 RCRA Lexis 60; 3 E.A.D. 667, August 20, 1991. Syngas is not containerized in the sense that it is produced or packaged in individual containers amenable to shipment. Instead, it is directly fed into a manufacturing process to produce products or into a turbine to produce electricity or steam, or both. As a result, syngas is not a solid waste, and, therefore, not a hazardous waste.

[Footnote 30: RCRA provides EPA with the authority to regulate hazardous waste (42 U.S.C.A. §6921). Hazardous waste is defined as a solid waste that exhibits certain characteristics.]

Response:

Syngas fuel produced from hazardous wastes is within the Agency's regulatory authority per Section 3004(q)(1). The express language of Section 3004(q)(1)(A) extends authority to fuels produced from hazardous waste wastes and that exact language is that EPA can regulate "facilities which produce a fuel from any hazardous waste identified or listed...", as well as persons who burn such fuels. Syngas is produced when identified or listed hazardous wastes are treated by a process designed to generate hydrogen gas and carbon monoxide as usable

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fuel. The Agency believes that this is clearly producing a fuel from hazardous waste and therefore within EPA's authority.

The 3004(q)(1) provision makes no distinctions among gaseous, liquid or solid fuels. The critical fact is whether the fuel is produced from a hazardous waste. If so, the Agency is specifically directed to regulate facilities which generate, market, distribute, or burn it (as may be necessary to protect human health and the environment). The Agency frankly believes that the failure to regulate fuels produced from hazardous wastes would disregard and express Congressional command (albeit the Agency retains the discretion to classify such fuels as products under appropriate circumstances as it is doing in this proceeding).

The commenters cite several examples with regard to EPA's regulating contained gases (fume incinerators, light end hydrocarbons, and activated carbon units). None of these examples address the point of the issue in this rule: the regulatory status of fuels indisputably produced from hazardous wastes. The fume incinerator example does not include combustion of fuels produced from hazardous wastes, but rather of gaseous industrial process emissions. Indeed, the example does not even involve gases generated in the course of waste management.

In the light end hydrocarbon example, the commenter again misses the distinction between fuels produced from hazardous wastes, the subject of this rule, and the combustion of gaseous process emissions. The activated carbon units example again involves gaseous emissions from an industrial process rather than from hazardous waste management, and certainly does not address the status of fuels produced from identified and listed hazardous wastes.

With regard to the Matter of BP Chemicals America Inc., this decision does not address the regulatory status of fuels produced from hazardous wastes. The opinion does not stand for the proposition that gaseous releases from hazardous waste management are not within EPA's authority -- a proposition directly contradicted by RCRA Section 3004(n). Nor does the decision address the status of fuels produced from hazardous wastes, an issue directly addressed by Section 3004(q)(1).

With regard to synthetic gasification processes within the petroleum industry, the Agency has in fact adjudicated the status under existing regulations of such a unit, indicating that while both the process and the fuel output are within RCRA subtitle C jurisdiction, the process is a type of exempt recycling unit under 40 CFR 261.6(c)(1) and the fuel is also exempt under 261.6(a)(3). Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).

Upon reflection, it appears that these petroleum gasification operations may be similar to other within-petroleum industry recycling activities that EPA has proposed to exclude from Subtitle C jurisdiction in the petroleum listing rule proposed on November 20, 1995. 60 FR 57747. It therefore appears more appropriate to consider this overall jurisdictional issue in the context of that rulemaking. However, EPA is not at this time limiting the synthetic gas fuel exclusion insofar as it potentially applies to the output of gasification operations conducted as part of normal petroleum refining (SIC Code 2911). Thus, these syngas fuels can also be eligible for the exclusion in today's rule.

5. Air Emissions, BIF Or Omnibus Provisions of RCRA May Not Be Used To Regulate Syngas

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CFSYN.09(commenter 128)

4. Neither the air emissions, BIF or omnibus provisions of RCRA may be used to regulate syngas.

EPA also cannot regulate syngas as hazardous waste on the basis of RCRA sections 3004(q) (regarding boilers and industrial furnaces), 3004(n) (regarding air emissions from TSDS) or 3005(c)(3) (the "omnibus" provision). Each of these provisions gives EPA power under certain circumstances to regulate air emissions regardless of whether they are solid waste, but none is applicable here. Both sections 3004(n) and (q) require regulations to implement them, and EPA has done so through the subpart AA, BB and CC rules and Part 266, respectively. Even if these statutory provisions provided potential authority to regulate syngas, which CMA doubts,[22] the proposal rule does not contemplate any amendments to the subpart AA, BB, or CC rules or to Part 266. Since the proposed rule does not reference these rules, any attempt to justify the regulation of uncontained gases under those statutory provisions is invalid. Section 3005(c)(3) gives EPA and authorized states the power to impose permit terms regulating air emissions that are not solid waste when there is "an adequate nexus between the air emissions and the hazardous waste management activities being carried out at the facility" and the regulation is "necessary to protect human health and the environment." CWM at *12. The omnibus clause does not give EPA general rulemaking authority, however, and so cannot support regulation of syngas other than on a case by case basis, where these two conditions are documented and the omnibus procedural requirements followed. Id.

[Footnote 22: Syngas, being a combination of hydrogen and carbon monoxide, is not a 'VO" subject to Section 3004(n). See 40 CFR §264/265.1084. The process is also not a "boiler' or an "industrial furnace" subject to Section 3004(q). See 40 CFR §§ 260. 10 (defining these terms).]

Response:

It should be noted that the commenter misquotes Section 3004(q), not mentioning language stating that EPA is authorized to regulate fuels from hazardous wates, as well as facilities which generate, market, distribute, or burn such fuels.

The unqualified authority in RCRA section 3004 (a) to establish performance standards for all hazardous waste treatment, storage, and disposal facilities (as may be necessary to protect human health and the environment) likewise is sufficiently ample to apply to uncontained gaseous emissions from hazardous waste management. **See** 45 FR 33066, 33216 (May 19, 1980) (authority under section 3004 (a) to establish standards for hazardous waste incinerators); 46 FR 7666, 7672 (Jan. 23, 1981) (same). The unqualified authority provided in RCRA section 3004 (u) to control “releases” of hazardous constituents from solid waste management units at a facility seeking a RCRA permit encompasses gaseous releases (where the gases are hazardous constituents). In addition, the omnibus permitting authority set out in RCRA section 3005 (c) (3) allows permit writers to impose permit conditions on uncontained gases from hazardous waste management activities, provided there is sufficient nexus with hazardous waste management activities at the facility and the conditions are necessary to protect human health and the environment. In re Chemical Waste Management of Indiana, Inc., RCRA Appeal No. 95-4, 1995 WL 523542 (Environmental Appeals Board,

1995) at 12-13; cf. Horsehead Resource Development Co. V. Browner, 16 F. 3d 1246, 1264 (D.C. Cir. 1994), cert. den. 115 S. Ct. 72 (1994) (EPA's authority to develop standards for facilities burning hazardous waste fuels includes authority to regulate uncontained air emissions from non-waste fuels if there is sufficient nexus to the hazardous waste management activities). (This list of authorities is not intended to be inclusive, but rather illustrative.)

6. Derived-From Rule Does Not Apply To Syngas

CFSYN.10.a(commenter 128)

5. Syngas is not subject to the derived-from rule.

The derived-from rule at 40 CFR §261.3(c)(2)(i) states that "any solid waste generated from the treatment, storage, or disposal of a hazardous waste ... is a hazardous waste." Before a substance generated from the treatment, storage, or disposal of a hazardous waste may become subject to the derived-from rule, it must first be classifiable as a solid waste. Since syngas may not be defined as a solid waste, as demonstrated above, the derived-from rule cannot apply to it. This is precisely the conclusion reached by EPA in the BIF rule preamble section quoted above ("the gas originally being treated is not a solid waste (it is an uncontained gas), and therefore any condensed organics do not derive from treatment of a hazardous waste.") 56 Fed. Reg. 7200 (emphasis added).[23]

[Footnote 23: The February 1996 Subpart CC final rule arguably can be read to suggest that spent carbon from carbon adsorption units used to comply with Subpart AA, BB and CC standards is hazardous waste by virtue of the derived-from rule. 61 Fed. Reg. 4910 (Feb. 9,1996). CMA is confident that this was not the Agency's intent, since the air emissions that intervene between the listed waste and the carbon are not wastes, thus breaking the derived-from train, as explained in the BIF preamble quoted above. Consistently, the November 1994 Background Information Document for the Subpart CC rule states that "[t]he organic vapors emitted from hazardous waste are not hazardous wastes." Id. at 6-107 Indeed, the February 1996 Subpart CC final rule cites this same BIF preamble passage with approval. The BIF passage continued: "nongas residues from fair pollution control] devices could be hazardous wastes if they are abated," but this passage clearly referred to APC residues that are themselves listed; i.e., if they meet a listing description like K061 ("Emission control dust/ sludge from the primary production of steel in electric furnaces."). Accordingly, carbon used in treating those vapors cannot become hazardous by virtue of the derived-from rule. CMA acknowledges that EPA might alternatively argue that it can assert RCRA jurisdiction over this spent carbon by operation of Section 3004(n) directly. This argument would be an analogy to Section 3004(q)'s grant of authority over non-waste fuels deriving from its reference to "standards applicable to owners of facilities" burning hazardous waste in boilers and industrial furnaces. See Horsehead Resource Development Co. v. Browner, 16 F.3d 1246, 1264 (D.C. Cir. 1994). Importantly, this basis for jurisdiction over spent carbon from treatment of VOC emissions from TSDs would only give EPA the authority to regulate such carbon as necessary to protect human health and the environment. It would not give it

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independent authority to deem the carbon to be hazardous waste, or to apply land disposal restrictions to it, any more than the BIF rule authorizes EPA to deem non-waste fuels hazardous o to apply LDRs to them.]

CFSYN.10.b(commenter 128)
CMA also strongly rejects the notion that the discredited "continuing jurisdiction" theory may somehow make syngas hazardous to the extent it is generated from hazardous wastes. The Agency has several times advanced this theory in enforcement actions to fill the temporary gap left by the Shell decision's invalidation of the mixture and derived-from rules before those rules were reinstated.24 Each time the theory has been rejected, however. See United States v. Bethlehem Steel Corp., 38 F.3d 862 (7th Cir. 1995); in re Hardin County, OH, RCRA Appeal No. 93-1,1994 WL 157572 (E.P.A.) (E.A.B. April 12,1994). The continuing jurisdiction theory is premised on the notion that a hazardous waste remains a hazardous waste unless delisted. 40 CFR § 261.3(c)(1). As with the derived-from rule, however, when that waste ceases to be a solid waste at all, EPA's jurisdiction likewise ceases, in the absence of some more specific statutory authority such as the provisions discussed in the previous section. The language of the CFR, no matter how plain, cannot be read to contradict statutory language.

Finally, EPA cannot argue that the syngas somehow "contains" the hazardous waste from which it is generated. As the Agency seems to recognize, the MMT process decomposes organics to their atomic constituents, thus utterly annihilating them. 17465. No waste remains to be "contained" in the resulting syngas.

[Footnote 24: The mixture and derived-from rules were invalidated on procedural grounds by Shell Oil Co. v. EPA, 950 F.2d 741 (D.C. Cir. 1991). The Agency reinstated them on March 3,1992 (57 Fed. Reg. 7628).]

Response:
EPA believes that the authority to regulate fuels produced from hazardous waste -- unqualified by any reference to the physical composition of the fuel -- extends authority to all such fuels. It is also EPA's express understanding that CMA is not pursuing arguments regarding application of the derived from rule in this processing. EPA therefore is not responding at this time.

7. Regulation of fuel products under §261.2(e)(2)(ii)

CFSYN.11.b(commenter 128)
The second reason that syngas burned as a fuel does not become regulated pursuant to 40 CFR § 261.2(e)(2)(ii) derives from the purpose of that provision and the very different set of circumstances involved in commercial syngas production. Section 261.2(e)(2)(ii) provides that secondary materials used as an ingredient in an industrial process are still solid wastes if they are used to produce a fuel. This provision historically has been directed toward hazardous wastes burned directly as fuels or used to produce hazardous waste-derived fuels.

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It has never been directed at the production or use of legitimate commercial chemical products that are themselves fuels. EPA has not regulated legitimate fuel products where there is a documented history of use as a fuel. See, e.g., July 31 1989 letter to J. Haake from D. Bames ("The Agency considers the material's original purpose where commercial chemical products are involved. [C]ommercial chemical products [that are themselves fuels] are not solid waste.").

<u>Response:</u>
The commenter cites no basis for this distinction which is not apparent in the language of the provision. The commenter's statement is true only of unused commercial chemical products which are themselevs fuels. See Section 261.33. It does not apply to fuels produced from hazardous wastes. 40 CFR §261.2(e)(2)(ii), the provision cited in the comment, in fact states expressly that fuels produced from hazardous waste are <u>not</u> excluded from being solid wastes.

<u>8. Distinction between fuels and products</u>

CFSYN.11.b(i)(commenter 128)
EPA's concern has always been directed toward the burning of hazardous waste-derived fuels and non-fuel commercial chemical products where those practices have not been a historical or intended use of those products. The Agency's underlying policy motivations for regulating burning of hazardous waste and hazardous-waste derived fuels was explained in the preamble to the 1985 redefinition of solid waste. "[T]he Agency emphasizes ... that co-products --materials intentionally produced for a commercial market and suitable for use as-is - are not considered to be by-products [subject to regulation]." 50 Fed. Reg. 630. On the other hand, "by-products that are unlike commercial fuels -because they are residual materials not intentionally produced, and are significantly different in composition from fossil fuels -are wastes when burned as fuels." Id. at 629.
When it promulgated the "fuels" exception, EPA specifically identified the use/reuse practices with which it was concerned: those that constitute waste management because "the nature of the material or the nature of the recycling activity indicates RCRA jurisdiction exists, [including] where the material is used by being incorporated into a fuel or being burned directly as a fuel. Id. at 638. In contrast, when secondary materials are used or reused to manufacture a commercial chemical product --one with established specifications, identified markets and documented historic and ongoing uses - they are not being "incorporated" into a suspect hazardous waste-derived fuel. Rather, they are being used as ingredients to produce a legitimate product. If such a product is normally used as a fuel and meets established commercial specifications, it is a commercial chemical product that has legitimate commercial uses as a fuel; it is not the kind of fuel that must be regulated pursuant to 40 CFR §261.2(e)(2)(ii).

CFSYN.28.d(commenter 225)
4. EPA exempts syngas made from secondary materials from RCRA regulation when the gas

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is used as a product. It is inconsistent to propose regulating syngas when used as a fuel. Syngas from a gasification unit may be used as a raw material in chemical manufacturing. Depending upon production demands, or process scheduling, the syngas may also be used to produce power. Syngas supply may also be divided and used concurrently to produce both chemicals and power. The proposed rule does not address this commercial situation, and is unnecessary insofar as emissions from combustion of synthesis gas are already regulated under the Clean Air Act.

CFSYN.38(commenter 234)
c. Syngas Cannot Be Both a Product and a Hazardous Waste Fuel.
As stated earlier, in the April Rule EPA makes a significant distinction between "products" and "fuels." Hazardous secondary materials used to produce products are not regulated; hazardous secondary materials used to produce fuels - and combustion of those fuels -are heavily regulated. In the April Rule, EPA stated its determination that syngas is more appropriately classified and managed as a "product." 61 Fed. Reg.17465 Yet EPA proceeded to state that, with respect to syngas, handling of the feedstocks would be regulated, as would handling of the syngas product fuel. EPA should not attempt to classify syngas used as a fuel generated from hazardous secondary materials in one category for one purpose (i.e., as a "product" for purposes of the production process, thereby exempting the production process itself from requirements applicable to hazardous waste treatment facilities), and in another category for another purpose (i.e., as a hazardous-waste derived fuel, whereby the Agency seeks to retain regulatory jurisdiction over the feedstocks and over the combustion of the fuel).

Response:
Indeed, the specification for syngas in today's rule is premised on this type of distinction. The commenter's argument, however, is that commercial syngas fuel made from hazardous wastes (for example, the listed chlorinated organic wastes (for example, F024) which are composed chiefly of potent human carcinogens) is not subject to RCRA regulation, even if those syngas fuels contain high concentrations of the most dangerous components of the hazardous wastes. EPA knows of no reason in law or policy that justifies such wholesale exclusion. This same distinction is drawn section 3004(q) which singles out hazardous waste-derived fuels for control because the end disposition is like a classic form of waste management -- incineration. EPA has jurisdiction under Subtitle C over such fuels, notwithstanding that the fuels are products. See RCRA §3004(q)(1)(B) and (C) referring to "facilities which produce a fuel", and "person(s) who distribut(e) and market(t) any fuel", language indicating that the fuel is a product.

9. Exclusion of syngas used as a commercial feedstock

CFSYN.11.a.i(commenter 128)
6. Syngas -and the feedstocks used to produce it are excluded by the existing RCRA

regulations, regardless of whether uncontained gases may be regulated under RCRA.

Regardless of EPA's ability to regulate uncontained gases under RCRA, syngas itself is excluded from the regulatory definition of solid waste, as are the secondary material feedstocks used to produce it. The primary use of syngas is as a commercial feedstock in chemical manufacturing processes. Syngas also may be used as a fuel, and in many syngas manufacturing projects the syngas is diverted for use as a fuel (rather than simply vented to the atmosphere) when production fluctuations or other operating considerations prevent its use as a feedstock.

To the extent syngas is used as a commercial product, it is excluded from the definition of solid waste by 40 CFR §§ 261.2(e)(1)(i) & (ii). Those sections state: "Materials are not solid wastes when they can be shown to be recycled by being: (i) Used or reused as ingredients in an industrial process to make a product ... or (ii) Used or reused as effective substitutes for commercial products." (The Agency appears to agree; see 17465/3.) See also 54 Fed. Reg. 50973 (condensed light ends used to make new products or as effective substitutes for commercial products are not solid wastes). Therefore, regardless of whether uncontained gases are regulatable under RCRA, to the extent syngas is used as a commercial feedstock, it is specifically excluded from the regulatory definition of solid waste. The secondary materials used to produce it also are exempt from RCRA, under the same regulations.

CFSYN.34.b.i(commenter 225)

However, in determining whether and how to regulate syngas and its production, the Agency's focus should be on syngas as a product that may or may not be used as a fuel, not solely on syngas as a fuel. Hazardous secondary materials used to produce syngas are not regulated under RCRA when the syngas is used for any commercial purpose other than as a fuel. Texaco believes that the Agency should follow this same approach even when the syngas is used as a fuel. From an environmental standpoint, we believe this approach is superior. From an economic, social, technical, operational and legal standpoint, this approach truly makes common sense.

CFSYN.08.a(commenter 128)

3. The status or function of the process generating gaseous emissions cannot subject them to subtitle C regulation.

Another conceivable basis for the Agency's attempt to regulate syngas is the regulatory status of the syngas production process itself. The preamble does not discuss whether EPA regards the syngas process as treatment of hazardous waste requiring a permit. CMA believes it is does not, on two bases. First, the feedstocks used to manufacture the syngas are not solid wastes under 40 CFR § 261.2(e)(1)(I), as discussed in Part 6 below, and so the manufacturing process is not treatment of a hazardous waste. Second, even if the feedstocks were regarded as hazardous wastes, the syngas manufacturing process would be exempt from regulation under 40 CFR § 261.6(c)(1) ("The recycling process itself is exempt....").

<u>Response:</u>

Although any exact answer is fact specific, syngas used as a commercial product could

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potentially be excluded under 261.2(e)(1).

10. Syngas status as a commercial chemical product fuel

CFSYN.11.a.ii(commenter 128)
To the extent syngas is burned as a fuel, the proposal errs in presuming that it would fall outside the various Part 261 exclusions, for two reasons. First, the RCRA rules have long exempted commercial products (e.g., toluene) that are produced to be used as fuels. 40 CFR §261.2(c)(2)(ii) states: "commercial chemical products listed in § 261.33 are not solid wastes if they are themselves fuels." While syngas is not specifically listed as a chemical product under section 261.33, the Agency has clarified that this exclusion implicitly includes all commercial chemical products, regardless of whether they are specifically listed in section 261.33. See 50 Fed. Reg. 14216/1 (April 11, 1985); Memorandum from S. Lowrance to K. Bremer entitled "Application of the BIF Rule to Heritage Environmental Services, Inc., Lemont, Illinois" (Dec. 30,1992). The logic of this position is compelling: if substances listed in section 261.33 (and thus by definition hazardous) can be unregulated as fuels, surely the combination of hydrogen and carbon monoxide should be unregulated as well. Therefore, regardless of whether uncontained gases are regulatable under RCRA, to the extent syngas is itself a commercial chemical product fuel, both it and the feedstock secondary materials used to produce it should be excluded from the regulatory definition of solid waste.

CFSYN.37(commenter 234)
b. Syngas Is A Commercial Product, Not a Hazardous Waste Fuel.
Syngas is not a hazardous waste fuel - it is a commercial fuel. The suitability of a substance as a feedstock is dependent upon the presence of the elemental building blocks of hydrogen and carbon, as it is these building blocks that become syngas. Coal, heavy oil, petroleum coke and many wastes can be used as feedstocks. In fact, these materials are essentially interchangeable and, for purposes of gasification, they have the same composition, i.e., hydrogen and carbon are present. The purpose of gasification of hazardous secondary materials is not waste management, but rather capture of valuable molecules to create a valuable product.
As EPA has recognized, but failed to fully effectuate in the April Rule, synthesis gas should be classified as a commercial product rather than a waste fuel. Such classification would remove syngas from the class of materials regulated by operation of the provision 40 C.F.R. §261.2(e)(2). This approach would be consistent with long-standing EPA policy regarding the regulation of fuels more properly classified as commercial products than wastes.[24]
[Footnote 24: In accordance with 40 C.F.R. §261.2(c)(2)(ii) commercial chemical products listed in §261.33 are not solid wastes if they are themselves fuels. While syngas is not listed in §261.33, EPA has stated that even though non-listed commercial products are not directly addressed in the rules, "their status would be the same as those that are listed in §261.33." 50 Fed Reg. 14216 at 14221 (April 11, 1985).]

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Response:

The commenter is not correct. The section 261.33 provision, and associated interpretive exclusion for characteristic unused commercial chemical products, applies (as 261.33 makes clear) only to unused or off-specification commercial chemical products that are otherwise fuels. It does not apply to the output of hazardous waste treatment processes. However, if only unused or off-specification commercial chemical products which are themselves fuels are used to produce syngas, then none of these materials are solid wastes. See §261.33.

11. Clarify whether syngas is excluded from Subtitle C

CFSYN.13(commenter 128)

8. Conclusion.

In summary, CMA is opposed to any attempt by EPA to expand the definition of solid waste to include uncontained gases, or to regulate commercial chemical product fuels. The clear terms of RCRA, as consistently interpreted by the Agency, mandate that uncontainerized gases be excluded from Subtitle C regulation. In any event, syngas is excluded by the regulatory definition of solid waste whether it is used a feedstock or burned as a fuel. In addition, the manufacturing process and the feedstocks used in it are excluded. CMA urges EPA, in a final rule, to reiterate these points, to clarify that syngas produced by the MMT process is excluded from Subtitle C by existing law, and to add that the proposed exclusion is therefore unnecessary.

CFSYN.17.h(commenter 150)

The proposal also implies that the exclusion applies to those processes that produce a fuel only. Some syngas is destined as chemical feedstock. The end use of the production should not preclude a source from receiving the exclusion. We believe that to be an oversight by EPA.

CFSYN.26.b(commenter 198)

In attempting to regulate syngas, EPA also raises the suggestion that the syngas manufacturing units and the feedstocks to the syngas process are somehow subject to RCRA. Again, the statute responds directly to this concern by limiting the definition of solid waste only to "discarded material" (42 U.S.C. Section 6903(27)). Just as the syngas itself is not discarded, the feedstocks used in the syngas manufacturing process are not being discarded, whatever their past disposition.

Response:

It is quite clear that hazardous waste secondary materials used to produce fuels are themselves solid and hazardous wastes. The principle was established in the 1985 rulemaking defining “solid waste” for regulatory purposes, was not challenged then, and is not open for challenge now.

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12. Application of fuels exception

CFSYN.26.c(commenter 198)
Syngas is a commercial chemical product that is normally used as a feedstock in chemical manufacturing and as a fuel. In fact, due to normal production fluctuations and design and operating conditions, it is likely there will be times when any syngas production plant will not be able to use all of the syngas produced for chemical feedstocks and will have excess syngas available. Rather than flaring this valuable product, the gasification facility will sell the syngas as a commercial fuel. This fuel use is fully established. In this regard, the use of secondary materials, which may have been disposed of as hazardous wastes in the past, to produce commercial syngas is distinct from the burning of hazardous waste directly as a fuel or the incorporation of hazardous waste directly into hazardous waste fuels. Syngas production is a legitimate manufacturing process producing product feedstocks and fuels, while hazardous waste fuel use is a form of waste management to be addressed by EPA.

CFSYN.26.d(commenter 198)
EPA's regulations recognize that the feedstocks used in a commercial manufacturing process to make a product are not solid wastes (40 CFR 261.2 (e)(1)(i), the "feedstock" exclusion). Unfortunately, there is also language that appears to negate the feedstock exclusion when the material is "burned for energy recovery, used to produce a fuel or contained in fuels" (40 CFR 261.2 (e)(2)(ii), the "fuels" exception). The difficulty with this language is the lack of specification in the use of the term "fuel," which is not defined in the regulations. To understand the allowed reach of the "fuels" exception, it is necessary to turn to other EPA guidance, read in light of the statute's clear mandate that materials that are not discarded are not subject to RCRA.

Response:
The commenter is correct that the exclusion in §261.2(e)(1) does not apply when the resulting material is a fuel. See §261.2(e)(2)(ii).

13. RCRA jurisdiction over fuels

CFSYN.26.e(commenter 198)
When it promulgated the "fuels" exception, EPA specifically identified that the practices it was addressing were those which constitute waste management because "the nature of the material or the nature of the recycling activity indicates RCRA jurisdiction exists: (including) where the material is used by being incorporated into a fuel or being burned directly as a fuel" (50 FR 614 and 638, January 4, 1985). This clearly indicates that the reason for the "fuels" exception was the Agency's concern for the direct burning of hazardous waste as a fuel or the direct incorporation of a hazardous waste into a fuel.

Response:

The commenter is not correct. Fuels that result from treatment of hazardous wastes can raise identical environmental concerns. EPA also notes that Section 3004(q) raises none of the distinctions which are critical to the commenter's argument. It applies to fuels produced in any manner from hazardous wastes. RCRA §3004(q)(1)(A).

14. Defining the gasification process

CFSYN.26.f(commenter 198)
In contrast, when secondary materials are supplied as feedstock materials to a syngas unit, there is no direct burning as a fuel or direct incorporation into fuel. The gasification process is not a destruction, e.g. burning, process or a blending, i.e. mixing process. Rather, gasification is a sophisticated disassociation/ reassociation technology, i.e. the molecules of the feeds are literally taken apart to their underlying atomic elements, e.g. carbon (C), hydrogen (H) and oxygen (O2), which then recombine to form much simpler molecules, i.e. gaseous hydrogen (H2) and carbon monoxide (CO). The H2 and CO can be separated as discrete and very valuable product streams or sold together as a very efficient syngas As a fuel, syngas is a legitimate manufactured product. It is a new product, and it does not resemble the secondary material molecules which were feedstocks to the syngas manufacturing process.

The "fuels" exception was not intended to apply to secondary materials used to produce legitimate commercial product fuels; and the "fuels" exception can not apply to the feedstocks to commercial syngas projects, even if some of the syngas product is ultimately used as a fuel, without violating the statutory prohibition against regulating non-discarded materials.

Response:
It should be noted that this process meets the definition of hazardous waste treatment, since it is designed to make the waste less hazardous and amendable to recovery. The fuel specification in the final rule would exclude those syngas fuels described here. The rule properly retains control over these fuels -- the output of a hazardous waste treatment process -- which retain the hazardous constituents from hazardous wastes from which the fuel is produced. It should be noted that no hazardous waste-derived fuel is literally thrown away. In any case, the issue of authority to control as solid wastes fuels produced from hazardous secondary materials was settled in 1985 (see 261.2(c)(2)(B) (final sentence), not challenged then, and not reopened in this proceeding. The Agency thus is not addressing this comment further.

15. Intentionally produced product

CFSYN.26.g(commenter 198)
Commercial chemical product syngas is not a hazardous waste derived fuel. It is intentionally produced as a product that is identical to other commercially produced synthesis gases.

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Production and use of syngas is in no way analogous to incineration or burning for energy recovery of hazardous wastes or hazardous waste derived fuels. Thus, when a gasification facility uses secondary materials and other co-feeds as feedstocks to manufacture syngas product meeting established specifications for both material use and use as a fuel, the feedstocks are excluded from the definition of solid waste pursuant to 40 CFR 261.2(e)(1)(i). This is the only interpretation consistent with the statutory mandate that only discarded materials are included in the definition of solid waste.

Response:
All hazardous waste-derived fuels are intentionally produced. This distinction is not relevant to a regulatory classification. EPA believes that the issue as to whether hazardous secondary materials used to produce fuels, and classification of such resulting fuels as solid wastes, was settled in 1985 and not reopened in this proceeding. The only issue potentially open here is whether if such hazardous waste-derived fuel is a gas makes a difference for jurisdictional purposes. Since such a distinction is not drawn in the language of section 3004(q)(1), EPA believes that the answer to this question is that it does not.

16. Status of gasification within petroleum industry

CFSYN.26.h(commenter 198)
In summary, Exxon Chemical is opposed to any attempt by EPA to expand the definition of solid waste to include synthesis gases, the manufacturing processes that produce commercial syngas, or the feedstocks to syngas manufacturing. In a final rule, EPA should clarify that: (1) syngas is a commercial chemical product that is excluded from Subtitle C by existing law; and (2) the "feedstock" exclusion does apply to the production of syngas from commercial gasification units.

CFSYN.34.a(commenter 225)
I. INTRODUCTION
On April 19, 1996 EPA published a rule (61 Fed. Reg. 17358, the "April Rule") proposing to regulate, under the Resource Conservation and Recovery Act ("RCRA"), a fuel product known as synthesis gas or "syngas" when made from hazardous secondary materials.1 Texaco is the world's leading licenser of gasification -the primary technology that produces syngas -and is a world leader in research, development and application of gasification technology. Texaco therefore stands to be directly impacted by the April Rule. Texaco also has adopted the following Environmental Policy: to encourage development of new technology which inherently provides improvement in the quality of the environment. We believe these comments are consistent with that commitment, and urge their earnest consideration.
Under the April Rule, EPA proposed "to exclude from the definition of 'solid waste' (and, therefore regulation as hazardous waste) a particular type of hazardous waste-derived fuel, namely a type of synthesis gas ('syngas') meeting particular, stringent specifications." 61 Fed.

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Reg. 17465. EPA explained that it is aware of "certain fuels and products produced from hazardous waste that are more appropriately classified and managed as products rather than wastes" including syngas. 61 Fed. Reg.17465.

While Texaco disagrees with EPA's overall regulatory approach proposed in the April Rule, we agree that syngas manufactured from secondary feedstock is a valuable product with many uses, only one of which is use as a fuel.

[Footnote 1: The generic term "secondary materials" is meant to encompass all materials that EPA would classify as "wastes."]

Response:

It is unclear whether the petroleum gasification is directly impacted by the final rule. The Agency already addressed the status of Texaco's syngas operations by the letter mentioned below and is doing nothing in this rule which changes the conclusion already reached by means of interpretation (except providing an exclusion for certain hazardous waste-derived syngas).

With regard to synthetic gasification processes within the petroleum industry, the Agency has in fact adjudicated the status under existing regulations of such a unit, indicating that while both the process and the fuel output are within RCRA subtitle C jurisdiction, the process is a type of exempt recycling unit under 40 CFR 261.6(c)(1) and the fuel is also exempt under 261.6(a)(3). Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).

Upon reflection, it appears that these petroleum gasification operations may be similar to other within-petroleum industry recycling activities that EPA has proposed to exclude from Subtitle C jurisdiction in the petroleum listing rule proposed on November 20, 1995. 60 FR 57747. It therefore appears more appropriate to consider this overall jurisdictional issue in the context of that rulemaking. However, EPA is not at this time limiting the synthetic gas fuel exclusion insofar as it potentially applies to the output of gasification operations conducted as part of normal petroleum refining (SIC Code 2911). Thus, these syngas fuels can also be eligible for the exclusion in today's rule.

17. Authority to promulgate final rule

CFSYN.30.a(commenter 225)

Comments Regarding the Proposed Rule

1. EPA Lacks Authority to Promulgate the Proposed Rule

The proposed rule applies to syngas fuel that was produced from feedstocks containing materials that may otherwise be considered "hazardous wastes". Syngas product used for manufacturing purposes produced from the same feedstock as above would remain unregulated under the rule, as should be since the syngas is a product. However, EPA, by this rulemaking, is attempting to differentiate between the same syngas based solely on the ultimate use of the product, without considering the syngas nature and properties and whether there is any reasonable basis to make such a distinction.

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CFSYN.28.b(commenter 225)
2. Syngas production is not an activity that should be regulated under Subtitle C of RCRA. The definition of "solid waste" states that materials are beyond the scope of Subtitle C of RCRA when they are "used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed." Ongoing manufacturing operations that employ secondary materials as feedstocks are generally not regulated under RCRA. Gasification transforms secondary materials into valuable products and intermediate feedstocks used in manufacturing and to generate energy in lieu of fossil fuels, The secondary feedstock materials do have value in that they replace, or supplement, natural gas, coal and petroleum coke feedstocks.

Response:
It is correct that syngas not used as a fuel might already be excluded under Section 261.2(e)(1)(i), depending on the particular facts. However, the commenter does not address the critical point of the status of hazardous secondary materials used to produce fuels. The statue itself draws distinctions between fuels produced from hazardous wastes, and other types of hazardous waste derived materials. The basis for the distinction is that the ultimate disposition of the fuels -- via combustion -- resembles hazardous waste incineration, which is a classic form of waste management. See HR Rep. No. 198, 98th Cong. 1st Sess. 40 (1983).

18. Secondary materials as feedstocks

CFSYN.30.b.i(commenter 225)
Syngas production is not an activity that should be regulated under Subtitle C of RCRA. Gasification transforms secondary materials containing hydrogen, carbon and other fundamental elements into valuable products and intermediate feedstocks used directly, in manufacturing such as chemical production, and when used to generate energy, in lieu of conventional fossil fuels.

Ongoing manufacturing operations that employ secondary materials as feedstocks are generally not regulated under RCRA. In this regard, the definition of "solid waste" states that materials are beyond the scope of Subtitle C of RCRA when they are "used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed." (40 C.F.R.-Section 261.2(e)(1)(i)). This supports the use of secondary materials to produce syngas -already recognized as a valuable product by the EPA.

Response:
If it is true that gasification transforms secondary materials into valuable products, the syngas should easily meet the specification in the final regulation, and so be excluded from jurisdiction. The §261.2(e)(1)(i) provision, however, does not apply when the output of the process is a fuel. See §261.2(e)(2)(ii).

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19. Syngas used as a fuel

CFSYN.30.b.ii(commenter 225)
Gasification can utilize secondary materials directly as ingredients or "effective substitutes" in lieu of virgin feedstocks such as natural gas, coal, and petroleum coke, without prior reclamation of the feedstocks required, to produce a product. The secondary feedstock material will produce a syngas product which is already in demand in the refining, chemical and power industries. The secondary feedstock materials do have value in that they replace "virgin" materials which would otherwise have to be purchased. Natural gas, coal, and petroleum coke feedstocks can be replaced or supplemented with the secondary material. Accordingly, the production of syngas from secondary materials is generally exempt from RCRA controls, and should remain so even when the syngas is used as a fuel.

Notwithstanding the above, EPA in the proposal, distinguishes between syngas made from secondary materials when the syngas is used as a fuel versus other purposes. Indeed, EPA attempts to impose regulatory controls on the fuel use of syngas when made with secondary materials. The basis for this is not clear, although it appears to involve the unsupported supposition that such fuel is "waste-derived" and may pose concerns.

EPA does agree that syngas is more "product-like" than "waste-like". However, syngas is more than "product-like". It is a product, even when made with secondary materials. Syngas fuel is often produced with virgin feedstock. Fuel usage is an intended gasification production goal in many cases. Thus, syngas fuel is a commercial product as is syngas used for other purposes and neither should be regulated under RCRA.

Response:
The Agency notes that other hazardous waste-derived fuels are likewise commercial products. The specification in today’s final rule actually quantifies this commenter’s point. If hazardous waste-derived syngas fuel meets these specifications, it is classifiable as a non-waste product precisely because it is now comparable in composition.

20. Defining gasification as treatment

CFSYN.34.b.ii(commenter 225)
Gasification is not treatment of hazardous waste. Gasification is not combustion. Gasification is an industrial process that makes a product with many valuable uses. When used as a fuel, syngas provides economical, efficient, clean energy regardless of the nature of the gasifier feedstocks. When gasification utilizes feedstocks containing materials that otherwise would be considered "hazardous wastes," the feedstocks are chemically converted into a useable product, thereby reducing the volume of hazardous materials that otherwise may be landfilled or incinerated. But, to borrow EPA's terminology, gasification is optimized for production of the syngas. Moreover, the gasification process itself generates no air emissions and only minimal liquid and solid sidestreams, all of which can be safely managed under existing applicable regulations. Furthermore, the combustion of syngas for the production of energy

is already regulated under the Clean Air Act.

Response:
There is no empirical basis for this statement presented. It appears to the Agency, for example, that the Molten Metals operation, which planned to solicit and accept most types of identified and listed hazardous wastes, is easily cognizable as a hazardous waste treatment operation, notwithstanding the syngas generated as an output of the process.

21. Provide regulatory flexibility

CFSYN.34.c(commenter 225)
Current trends in the chemical and refining sectors --the two largest industries which use gasification and syngas --indicate that gasification facilities will be used to produce syngas for multiple uses: as a building block for chemical manufacture; as a commodity; as a fuel source for on-site energy needs; and as a fuel source for sale of energy. To maximize efficiencies and economic performance, these facilities will seek the operational flexibility to quickly shift syngas supplies for these multiple uses. Moreover, these facilities are increasingly interested in utilizing secondary materials as feedstocks in an effort to reduce feedstock costs as well as to find cleaner, cheaper and smarter approaches to handling hazardous and non-hazardous secondary materials. The optimal placement of gasification in an industrial setting would allow feedstock streams and syngas use to be altered on a daily basis as dictated by the manufacturer or customer. Gasification already has the design and operational flexibility to meet these diverse and fluctuating demands. What is needed is regulatory flexibility.
Unfortunately, we believe the April Rule will impose regulatory disincentives on legitimate manufacturers of syngas and discourage the use of this environmentally beneficial process. Under the April Rule, generators, transporters, storage facilities and other handlers of hazardous secondary materials from which syngas is produced would be subject to the full panoply of regulations applicable to "hazardous waste" - but only if the syngas is used as a fuel. To the previously unregulated industry, these regulations are extremely burdensome. Moreover, the stigma associated with "hazardous waste-derived fuel" would probably be enough to discourage many manufacturers from attempting to utilize the proposed exclusion.

CFSYN.34.g(commenter 225)
The sensible solution is to apply the same regulatory approach to syngas used as a fuel (and to the secondary materials from which it may be produced) as is already applied to syngas used for any other commercial purpose (and to the feedstocks from which it is produced). Therefore, we propose that secondary materials used to produce syngas be expressly excluded from the definition of "solid waste" regardless of whether the syngas is used as a fuel or product. We believe that, armed with all the relevant information, EPA would agree that our proposal is completely consistent with RCRA, results in environmentally superior benefits, and simply makes common sense.

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Response:
EPA is examining ways to provide regulatory flexibility to the petroleum syngas operations. See comment response above for further discussion. EPA notes that today's rule does not extend additional authority over hazardous waste derived syngas. EPA notes its authority over hazardous waste derived syngas used as a fuel was already presented by interpretive letter to Texaco some years earlier. Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).

22. Rule provides barrier to syngas

CFSYN.34.d(commenter 225)
Even if these hurdles could be overcome, the ambiguity of how the proposed rule would apply to real-world commercial operations -some of which already utilize hazardous secondary materials to produce syngas for non-fuel use - is most likely fatal. EPA's proposal would allow the syngas produced from hazardous secondary materials to be used as a fuel, but such use would trigger RCRA "hazardous waste" regulations with respect to handling of the feedstocks. EPA's proposal would be particularly unworkable for multiple use units, since the ultimate use of the syngas would most likely not be known at the time the feedstocks were being generated, stored or otherwise handled. The April Rule creates a confusing and regulatory awkward class of trade that is somewhere between hazardous waste treatment and recycling. Consequently, at a time when industry is seeking to deploy cleaner, cheaper and smarter technologies, the April Rule as currently written serves as a real barrier.

Response:
The proposal would exclude syngas which already is defined as a solid and hazardous waste. EPA has already interpreted the rules to assert authority over syngas produced from hazardous secondary materials (i.e., hazardous wastes). See Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995). However, the Agency is specifically studying whether an exclusion is warranted for petroleum industry-based syngas fuel on the same logic underlying the proposed rule which would exclude other petroleum industry derived hazardous secondary materials which are processed in refining operations to produce commercial fuels. See comment responses above for further discussion.

23. Clarification of RCRA regulatory scheme

CFSYN.34.e(commenter 225)
It is worth emphasizing that when applied to syngas, the RCRA regulatory scheme (both existing and as proposed) is illogical. First the facts.

Syngas is syngas. The levels of compounds of concern to the Agency are not dependent on the materials used to produce the syngas. Similarly, syngas produced from hazardous secondary materials has a heat value comparable to syngas produced from other materials. Syngas is currently being produced from hazardous secondary materials without any EPA oversight on who generates the secondary materials or how they are handled, transported or stored. EPA calls this process "recycling" in the April Rule.

Syngas is currently being used as a clean fuel, without any EPA oversight of the composition or fuel value of the syngas, nor with any restrictions or regulations on who handles the syngas, nor even any requirement that the syngas actually be burned.

Now consider how RCRA fits in according to the April Rule:

The generation and handling of hazardous secondary material syngas production feedstocks, and the use to which the syngas is put, is heavily regulated - but only if the syngas is used as a fuel. EPA calls this process "waste treatment."

Response:

The April rule also reflects the earlier interpretive letter determination which went unchallenged for years. See Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995). The Agency notes nothing in this final rule changes the conclusion already reached by means of interpretation (except providing an exclusion for certain hazardous waste-derived syngas).

24. Not comparable to hazardous waste fuels

CFSYN.36(commenter 234)

III. REGULATION OF SYNGAS.

A. Syngas Need Not Be Regulated.

1.Syngas Is a Product.

a. Syngas is Not Comparable to "Hazardous Waste Fuels".

In accordance with existing regulations, secondary material feedstocks that are burned for energy recovery remain classified as solid wastes. This limitation, promulgated [21] by EPA in response to the Hazardous and Solid Waste Act Amendments of 1984, (Public Law 98-616) need not be applied to syngas when used as a fuel because syngas does not present the risks that were the basis for EPA's regulation.

The agency's decision to assert RCRA Subtitle C jurisdiction over hazardous waste fuel was driven by one overriding concern: the potential presence of Appendix VIII hazardous constituents in such materials.[22]

Syngas that is produced through gasification does not contain levels of Appendix VIII hazardous constituents that should be of concern to the Agency.[23] Hazardous constituents, to the extent they may originally have been contained in the secondary material feedstocks, are either converted to syngas or extracted during the gasification process and concentrated in a solid. Thus, combustion of syngas is not comparable to combustion of hazardous waste-derived fuels. Accordingly, syngas does not present the hazards which were the basis for the Agency's regulation of combustion of hazardous waste-derived fuels.

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[Footnote 21: 50 Fed. Reg. 614, January 4, 1985.] [Footnote 22: See 50 Fed. Reg. at 629 (asserting jurisdiction over waste fuels on the basis of data indicating the burning by boilers and industrial furnaces of chlorinated spent solvents and other residual by-products containing high concentrations of aniline, cyanides, dimethyl phthalates, isobutyl alcohol and/or tetrachloroethene).] [Footnote 23: U.S. EPA, Texaco Gasification Process, Innovative Technology Evaluation Report. National Risk Management Research Laboratory, Office of Research and Development, U.S. EPA, Cincinnati, Ohio, EPA/54/R-94/514, July 1995.]

Response:
The syngas specification in today's final rule would recognize these distinctions. The Agency is also specifically studying decision on whether to apply the specification to petroleum industry syngas fuel (i.e., syngas fuel produced from petroleum industry hazardous wastes). See comment responses above for further discussion.

25. Regulation of syngas production

CFSYN.44.a(commenter 234)
B. Syngas Should not Be Regulated.
The foregoing discussion demonstrates that there is no need to regulate syngas production and use when used as a fuel. We also submit that syngas production and use when used as a fuel should not be regulated.
1. The April Rule is Unworkable.
The feedstock supplier and multi-use gasifier operator would not know if hazardous secondary feedstocks would be subject to regulation until the ultimate use of the syngas is known. As a practical matter, this proposition will often be unworkable.

Response:
Although fact dependent, hazardous secondary materials used to produce syngas may potentially not be regulated under RCRA when syngas is used for any commercial purpose other than a fuel, per 261.2(e)(1). EPA notes that RCRA jurisdiction differs between gases from production activities and those from hazardous waste management. The feedstock supplier and multi-use gasifier operator would have to handle feedstocks dependent on the final use of the syngas (determination of feedstock handling would be site-specific). If the operator cannot make an up-front distinction between feedstocks, the gasifier operator could always make the conservative assumption that some or all of the syngas will be used as a fuel and handle the feedstocks according to RCRA guidelines. EPA notes this distinction between feedstock uses is reflected in the statute and is not a result of this proceeding. See RCRA §3004(q)91)(A) referring to facilities which "produce a fuel".

26. Justification of regulation

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CFSYN.44.b(commenter 234)
2. The April Rule is Not Justified.
The composition of syngas is essentially the same regardless of where it came from or where it is going. Syngas is syngas. EPA has provided no analysis that justifies imposition of any regulations on syngas fuels production or use.

CFSYN.44.c(commenter 234)
3. The April Rule is a Disincentive.
In the April Rule EPA stated that the intent was to remove needless regulatory disincentives that restrict environmentally beneficial use of secondary materials. However, the regulations EPA proposes to apply to the generator and user of syngas fuels are restrictive, burdensome and stigmatizing. In addition, no relief was provided for the generator, transporter or storer of secondary materials used to produce syngas that is used as a fuel. In fact, companies have more disincentive from the April Rule to use their hazardous secondary materials for production of syngas.

<u>Response:</u>
Hazardous secondary materials used to produce fuels have been subject to subtitle C regulation at least since 1985. EPA disagrees with the premise that the process of generating syngas -- which can resemble classic commercial hazardous waste treatment, as in the case of the Molten Metals facility -- should not be regulated, even if syngas generated is excluded from regulation. This would be like saying that a treatment process for a listed waste should not be regulated if the treatment is effective enough to result in the residue being delisted, or a spent solvent reclamation operation (another type of hazardous waste treatment operation) not being regulated because the reclaimed solvent is no longer a waste.

<u>27. Regulation of syngas used as fuel</u>

CFSYN.44.d(commenter 234)
4. The April Rule is Inconsistent with Existing Regulations.
"Hazardous" secondary materials currently being used to produce syngas for any purpose other than use as a fuel are not subject to hazardous waste regulations applicable to generation, storage, treatment or other handling. EPA's proposal with respect to production of syngas used as a fuel is, without explanation, inconsistent with the lack of regulation of recycled secondary materials, including Conversion of secondary materials into syngas.

CFSYN.48(commenter 234)
V. RELIEF REQUESTED.
Texaco proposes that EPA regulate production and use of syngas made from hazardous secondary materials the same way other products produced from these materials are regulated, even when the syngas is used as a fuel. In other words, Texaco proposes that EPA recognize that RCRA regulation is not necessary for secondary materials when used to

produce syngas, regardless of the ultimate use of the syngas. From an environmental and economic standpoint, this approach is superior. From a social, technical, operational and legal standpoint, this approach simply makes common sense.

Response:
EPA also notes that RCRA jurisdiction differs between gases from production activities and those from waste management. But releases of gases from industrial processes are not the same as releases of gases from hazardous waste treatment processes. In the former case, hazardous wastes are never being treated (and indeed, have not been generated); in the latter, hazardous wastes always are being treated.

28. Rule Is A Disincentive To Use of Syngas

CFSYN.17.d(ii)(commenter 150)
The production of synthesis gas for either fuel or as a chemical feedstock is environmentally sound and should be encouraged as a matter of public policy. Gasification provides a means of producing value-added products from very low to negative value materials that would otherwise be disposed of or combusted as hazardous waste. The regulation of such materials and products, particularly to the extent that the product is rendered economically not viable, should be discouraged, since its production is in lock-step with Administration policy on pollution prevention. Gasification also provides for the sound use of carbon-containing materials and conserves valuable resources. To compete in the global economy we must continue to be innovative; gasification technology is an innovative use of available resources.

CFSYN.19.b(commenter 155)
We believe that the specifications and implementation procedures for the proposed exclusion may not be entirely consistent with historic and common uses of syngases as fuels. As the Agency is aware there is a long and continuing history of syngas production from virgin raw materials for use as both in feedstock and a fuel. Virtually identical syngases can now be produced using secondary materials as feedstocks for innovative technologies. Thus as the Agency finalizes the exclusion, we urge EPA to consider the specific comments of affected syngas producers Such as Molten Metal Technology, Inc. (MMT). HCC is working with MMT in a project in Texas that will involve the production of syngas from secondary materials that is suitable for a variety of commercial uses, including use as feedstock and as a fuel. Syngas is typically produced in the chemical industry for material value as a feedstock, but in instances where it cannot be used for material value, it has significant energy value as a safe, efficient and clean burning fuel. EPA should not create unnecessary disincentives for such an appropriate use of a legitimate syngas that meets established specifications, regardless of the source of feedstock for production of the syngas.

CFSYN.44.e(commenter 234)
5. The April Rule is Inconsistent with EPA and Administration Policy.

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Both the Clinton Administration and the EPA under the Clinton Administration have publicly stated their intention to promote environmental technology as well as a regulatory structure which seeks to promote "cleaner, cheaper, smarter" approaches to environmental management. The April Rule seemingly ignores these policy directives. Gasification is widely considered as "environmental technology." In fact, Texaco was appointed to the federal Environmental Technologies Trade Advisory Committee by the Secretary of Commerce primarily due to Texaco's position as a world leader in gasification technology.

CFSYN.44.f(commenter 234)
6. Pollution Prevention and Resource Conservation.
Use of syngas as a fuel for power generation is environmentally equivalent or superior to combustion of "conventional" fuels. Yet we believe EPA's proposal will discourage market forces than otherwise would lead to greater utilization of syngas made from "hazardous" secondary materials for power generation. Instead, either syngas will be used as a fuel less than it otherwise would be, resulting in greater air emissions from combustion facilities, or more "virgin" feedstocks will be used, resulting in less resource conservation than otherwise would have been achieved.

CFSYN.47.a(commenter 234)
C. Illegal Discrimination.
As explained above, we believe the syngas specifications regarding the heat content and H2S Concentration included in the April Rule are arbitrary. In addition, many companies are producing and using syngas from non-hazardous secondary materials that cannot meet all of the specifications EPA proposes. Under the April Rule, those companies would be prohibited from using hazardous secondary materials to produce syngas for use as a fuel. Finally, while some or all of the proposed implementation requirements may be appropriate for some methods of syngas production, for the reasons set forth above, they are not appropriate for gasification. The effect of the April Rule, then, is to significantly ease the regulatory burden and thereby arbitrarily create an unfair economic advantage for one segment of the syngas industry (and maybe only one entity) with no examination of or justification for this impact. If the Agency wishes to discriminate under the law, the discrimination must be based on differences that are reasonably related to the purpose of the law. See Smith v. Cahoon, 283 U.S. 553 (1931) (state statute which required carriers for hire to carry insurance but excepted vehicles carrying specified products violated the Equal Protection Clause because the statutory purpose of protecting the public did not support a discrimination between the carrying of exempt products like farm produce and of regulated products like groceries). The Agency has not studied the industry and therefore does not have data or information to show, and has not shown, that the classification that would result from the April Rule is related to the purpose of the law. The Agency cannot shift its burden by requesting comments on a proposed rule.

CFSYN.47.b(commenter 234)
Moreover, the effect of the April Rule is to create a closed class by singling out one

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commercial entity. A rule which establishes a closed class violates the Equal Protection Clause where, on its face, it arbitrarily gives an economic advantage to one entity engaged in a given business. Mayflower Fatins, Inc. v. Ten Eyck, 297 U.S. 266, 274 (1936) (statute violated Equal Protection Clause where, on its face, it gave an economic advantage to those engaged in business at an arbitrary date as against those who enter the industry after that date). The Agency's proposed rule, in effect (at least so far as the Agency is aware), singles out syngas produced by a particular process and unfairly grants an economic advantage to the one commercial entity known to the Agency to utilize this process. Competing producers and sellers of syngas, with production and use operations that provide equal or greater environmental and other benefits, are excluded from a potentially large segment of the syngas market. This is not a hazard of competition, but the Agency's statutory discrimination. See Morey v. Doud, 354 U. S 457, 468-69 (1957) overruled in part by New Orleans v. Dukes, 427 U.S. 297 (1976). Thus, the April Rule would violate equal protection.

Response:

EPA does not believe that the final rulemaking is a disincentive to the syngas industry. The proposal would exclude syngas which already is defined as a solid and hazardous waste. EPA maintains that it has RCRA jurisdiction over syngas produced from a hazardous waste. RCRA section 3004 (q) (1); see also Horsehead Resource Development Co. v. Browner, 16 F. 3d 1246, 1262 (D.C. Cir. 1994) (broadly construing this authority).

See Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).

EPA does not believe that the final rule creates an unfair economic advantage among the syngas industry. The specifications in the final rule are achievable for hazardous waste-derived syngas fuels. For the final rulemaking, EPA has revised some of the individual syngas fuel specifications by examining the manufactured gas industry. These specifications include the total nitrogen, hydrogen sulfide, and minimum heating value. (See comment responses below for discussion of individual specifications.) Thus, syngas fuels from non-hazardous secondary materials and syngas from hazardous materials should be able to meet similar specifications.

Furthermore, the Agency is studying whether an exclusion is warranted for syngas fuel produced from petroleum industry hazardous waste on the same logic underlying the proposed rule which would exclude other petroleum industry derived secondary materials which are processed in refining operations to produce commercial fuels. See comment responses above for further discussion.

29. Regulatory Basis Should Be RCRA Recycling Provisions

CFSYN.49.a(commenter 236)

1.Regulatory Basis for Proposal

A. The regulation of syngas manufactured from secondary materials should be based on the RCRA recycling provisions and legitimate syngas products should be excluded from RCRA

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regulation.

EPA's authority under RCRA to regulate gaseous products is unclear and has been questioned.[2] Under RCRA, solid waste is defined as "solid, liquid, semisolid and contained gaseous materials" (emphasis added, 42 U.S.C. 6903, Sec. 1004 (27)). Thus, there is no explicit authority under RCRA to regulate uncontained gases. No definition of "contained" or "uncontained" gas is included in RCRA or the regulations. In a number of contexts, EPA has opined that gases flowing in process piping under pressure are not "contained" and so are not subject to RCRA regulation. Moreover, EPA is without jurisdiction under RCRA to regulate legitimate commercial products, i.e. materials that are not discarded. MMT is concerned that any attempt at direct regulation of syngas products under this proposal will be challenged. Such a challenge may create unnecessary confusion concerning the regulatory status of syngas products and could potentially create disincentives for beneficial uses of syngas products.

[Footnote 2: By submitting these comments, MMT does not concede jurisdiction or waive the right to raise jurisdictional issues in this or other contexts.]

CFSYN.49.b.i(commenter 236)

EPA, however, does have full authority to require that a recycling process and its products be legitimate. Thus, MMT believes that EPA should base its jurisdiction, regulation and proposed exclusion of syngases produced from secondary materials on the RCRA recycling provisions through an analysis of the legitimacy of the recycling process. MMT believes that use of a legitimate recycling analysis for syngas products manufactured from secondary materials would assure EPA that both the manufacturing process and syngas meeting commercial specifications for use as fuel are properly excluded from RCRA regulation. The Agency has previously recognized that commercial chemical products that are themselves fuels, (i.e. fuel products), should not be subject to RCRA regulation (see 40 CFR § 261.2 (c)(2)(ii)). Processes that do not produce legitimate commercial chemical products would be potentially subject to full RCRA regulations as treatment processes.

Response:

EPA notes that there is full authority to regulate hazardous waste treatment operations, including those which produce fuels, and that this authority was established in 1985. The language referred to in the comment applies only to unused or off-specification materials (see §261.33), not to outputs of waste treatment operation, where the need to examine if the resulting output is affected by the hazardous waste input is critical.

30. Production without regulation

CFSYN.49.b.ii(commenter 236)

Syngas is a commercial chemical product that has a variety of normal uses, including use as a fuel. These feedstock and fuel uses, relevant markets and specifications, and product values are fully documented (see Attachment D). Use of secondary materials as CEP feedstocks to produce commercial grade syngas which has established specifications, identified markets and documented historic and on-going legitimate uses both for its material value and as a fuel, is conceptually, technically, and regulatory distinct from use or reuse of hazardous wastes, residues, or by-products directly as fuels or to produce hazardous waste fuels with no documented indicia of legitimacy and much higher levels of contaminates. The former is a legitimate manufacturing process, while the latter is a form of waste management that the Agency has actively and appropriately regulated. Thus, if a recycling process manufactures a legitimate commercial chemical product that meets specifications and has normal legitimate uses as a fuel, EPA should allow for the production of the material and its use as either a feedstock or for energy value without Subtitle C regulation, particularly where the constituent specifications are low enough to preclude human health and environmental concerns.

Response:
The final rule essentially adopts such an approach for syngas fuels. The Agency does not accept that if what is otherwise a hazardous waste treatment operation generates a product, then the treatment process is excluded from regulation. An analogy would be reclamation of spent solvents. Failure to regulate such operations (as at the ChemDyne and Silresim facilities) resulted in some of the most costly hazardous waste remediation efforts to date, and such facilities have been regulated under subtitle C since the inception of the RCRA program.

31. Legitimate fuel products

CFSYN.49.c(commenter 236)
EPA has not traditionally sought to regulate legitimate fuel products where there is a documented history of use as a fuel (see, e.g., July 9, 1992 letter to J. Chambers from S. Lowrance, Attachment E). "[The Agency generally does not intend to regulate those secondary materials that are bona fide products . . ." (see July 1, 1985 letter to J. Quinlan from M. Strauss (emphases added),- Attachment F). "[The Agency considers the material's original intended purpose where commercial chemical products are involved. [Commercial chemical products [that are themselves fuels] ... are not solid waste even if the material is used to produce a fuel" (see July 31,1989 letter to J. Haake from D. Barns, Attachment G).
In the context of hazardous waste recycling, EPA's concern has always been directed toward the burning of residues, by-products, waste-derived fuels and non-fuel commercial chemical products where those practices have not been a historical or intended use of these products. In these situations, the Agency views the land application or burning as traditional hazardous waste disposal (i.e., landfilling or incineration). The underlying policy of the Agency's rules is to control the burning of hazardous waste-derived fuels by preventing simple purification of a waste (by settling, regeneration or blending) and subsequent unregulated burning (see [date illegible] letter to P. Murphy-Young from S. Lowrance, Attachment H). Consequently, "we [EPA] usually do not regulate the recycling process itself, except when the recycling is analogous to land disposal or incineration" (see 50 Fed Reg. 614, 643, for this and other citations to 50 Fed. Reg. 614, Attachment I).

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The proposed exclusion for syngas fuels is consistent with EPA's approach to the distinction between commercial chemical product fuels and hazardous waste and waste-derived fuels, which is clearly articulated in 40 CFR § 262.2(c)(2), the associated preamble, and guidance documents. Under the federal regulations, a variety of materials are considered solid wastes (and so may be hazardous wastes) if they are burned for energy recovery, used to produce a fuel, or otherwise are contained in fuel (40 CFR § 261.2(c)(2)(I)). Importantly, however, commercial chemical products (whether or not they are listed in § 261.33) used in these ways are not solid wastes (and hence not hazardous wastes) "if they are themselves fuels" (i.e., they are normally used as fuels) (see 40 CFR § 261.2(c)(2)(ii) and Attachment J, 50 Fed. Reg. 14216,14219).

Thus, in a variety of contexts, EPA has stated that, when burned for energy recovery, commercial chemical products are not hazardous wastes if they are themselves fuels, because this is a use that is consistent with the material's normal product use (see EPA guidance letters, s E-G and K-M). In short, EPA has consistently and clearly distinguished between normal uses of commercial chemical products with indicia of legitimacy such as established specifications, identified markets, and documented historic and current uses as commercial fuels and burning of hazardous waste and hazardous waste-derived fuels which have no such indicia of legitimacy and may contain significant levels of contaminants.

CFSYN.49.d(commenter 236)

EPA's underlying policy motivations for regulation of burning of hazardous wastes and hazardous waste-derived fuel were further explained in an extensive discussion in the preamble to the 1985 regulations on the definition of solid waste. There, EPA stated "the Agency reemphasizes ... that co-products -- materials intentionally produced for a commercial market and suitable for use as-is ---are not considered to be by-products [subject to regulation]" (see 50 Fed. Reg. at 630 (emphasis added), Attachment I). On the other hand, "by-products that are unlike commercial fuels --because they are residual materials not intentionally produced, and are significantly different in composition from fossil fuels -- are wastes when burned as fuels" (see 50 Fed. Reg. 614, 629, (emphases added), this and other citations are included in Attachment I). Further, "by-products are physically and conceptually very different from fossil fuels. They are waste-like because they are residual materials containing toxic constituents not ordinarily found in fossil fuels" (see 50 Fed. Reg. at 629, Attachment I).

Clearly, syngas meeting stringent specifications that has been purposefully manufactured from secondary materials is not a by-product or a waste derived-fuel. it is intentionally produced as a product, and it is identical to other commercially produced syngases. The proposed specifications, with the modifications urged by MMT, would ensure that combustion of excluded syngas would be much preferred to combustion of most other fossil fuels and analogous to combustion of natural gas. Furthermore, CEP's syngas is manufactured (not reclaimed or recovered) in a process that meets the highest standards for environmental integrity.

Significantly, approval of the proposed syngas exclusion would set an extraordinarily high standard for such materials. Thus, EPA should include provisions in the final rule to exclude

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other syngases that meet commercial fuel specifications, but not these proposed stringent specifications, that may also be legitimate products worthy of exclusion (see Sec. I. B. below).

Response:
The specification for hazardous waste-derived syngas in this rule is consistent with the general approach discussed by the commenter. EPA, however, fails to see the commenter's distinction between hazardous waste-derived syngas fuel and other hazardous waste treatment processes. Hazardous waste fuels are intentionally produced from listed hazardous waste spent solvents which are blended by commercial hazardous waste recyclers and marketed to industrial furnaces. Furthermore, concerns regarding proper tracking, storage and processing of hazardous wastes are not automatically addressed simply because resulting syngas meets relevant specifications.

32. Provisions to exclude other syngases

CFSYN.50(commenter 236)
B. EPA should include provisions to exclude other syngases that meet a 'legitimate recycling" test and other commercial fuel specifications.
MET recommends that EPA include provisions to exclude legitimate syngas fuels that do not meet the proposed specifications but still meet a "legitimate recycling" test and other existing commercial fuel specifications. The Agency's proposed specifications are based on commercial use of the syngas for material value, i.e. in chemical production, and thus, are more stringent than commercial specifications for syngas fuel products. MMT understands that the Agency has proposed the more stringent material use specifications to protect against "sham recycling" operations. However, legitimate syngas fuels that do not meet the proposed specifications --but meet other commercial specifications for fuel use -- have energy values that should be utilized and can be safely excluded from RCRA regulation. Based on the value of these legitimately manufactured syngases, MMT supports "fast track" implementation of this exclusion procedure.
The legitimacy of recycling can be determined by a subjective yet reproducible evaluation of relevant factors. This is the approach EPA and the states have been using for the past 15 years. The biggest problems are that the Agency has provided no coherent, widely distributed statement of the full range of factors to be considered, and the recycling determination is entirely self-implementing, i.e., there is no required oversight of legitimately exempt recycling operations. This allows illegitimate or sham recycling operations to set up shop creating a difficult enforcement and compliance situation.
No bright line test can be applied to determine the true legitimacy of the recycling process. Based on criteria and guidance contained in a host of guidance documents, MMT believes the Agency could identify broad indicia of legitimate recycling and manufacturing activities in a subjective analysis of a specific process. Six such factors include:
Materials are handled in a manner consistent with their use as a valuable feedstock;

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Materials are not received indiscriminately, nor are they used in amounts in excess of the amount necessary to make a product. Rather feed materials are selected and used based on their ability to produce high quality products;

The products of the process are legitimate, valuable products that have demonstrated markets;

The products of the process meet established specifications and contain no "toxics along for the ride;"

The economic justification for the process is not solely the revenue received from charging generators for managing their wastes;

The process is environmentally sound.

This set of indicia could be applied to determine the legitimacy of recycling as part of a required pre-operations evaluation and approval by a regulatory authority of any company that wished to claim an exclusion for syngas or other products. This would allow the responsible regulatory authority to review all recycling operations and establish suitable conditions for ensuring they are entitled to the exclusion. In addition, the facility would be required to meet a determined set of existing specifications for syngas fuel use, and identify the customers receiving the syngas product.

Response:

EPA notes that the specification in the final rule provides the very type of objective criteria the commenter wishes were present in other legitimacy determinations.

EPA maintains that it has RCRA jurisdiction over syngas fuel produced from a hazardous waste. EPA has broad statutory authority to regulate fuels produced from hazardous wastes. RCRA section 3004 (q) (1); see also Horsehead Resource Development Co.v. Browner, 16 F. 3d 1246, 1262 (D.C. Cir. 1994) (broadly construing this authority).

The scope of the final rulemaking continues to be the status of the syngas fuel generated by the hazardous waste thermal treatment process. EPA is not making a decision with regard to the status of thermal treatment unit from which the syngas is generated. That status is already established by existing rules.

EPA also does not agree with the commenter’s suggestion for an ad hoc determination of each unit’s and fuel’s regulatory status based on application of sham recycling criteria. Not only would such determinations be resource intensive and provide no advance certainty, but at most the decision would address legitimacy, not whether or not a waste is being treated and generated in the form of hazardous waste-derived fuel. EPA believes that the specification approach adopted here provides an objective answer in advance to the question of hazardous waste-derived syngas status, and is therefore far preferable.

33. Restrictions on handling syngas

CFSYN.08.b(commenter 128)

Even if the MMT process required a permit, though, that fact would not justify regulating the resulting syngas. Both CWM and BP Chemicals also involved equipment that treated

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hazardous waste all or part of the time, and yet emissions from that equipment were held to be unregulatable. In BP Chemicals, the Administrator noted that "although the oxidizers are indisputably regulated units, at least some of the contested permit terms do not address the thermal oxidizers directly, but instead relate to BP's handling of the [uncontained gases] apart from their incineration." Since the gases could not be defined as solid waste, they could not be directly regulated under the guise of regulating the equipment that destroyed them. Id. at *3. Similarly, EPA restrictions on the handling of syngas apart from the process generating it would be unsupportable.

Response:
In BP Chemicals, the gases were not the result of hazardous waste management. If they were, their destruction obviously could be regulated. See RCRA section 3004(q) and 3004(o) (standards for destruction of gases resulting from hazardous waste incineration). See also Giant Cement memorandum (August 11, 1992)

34. Catalytic Extraction Process Is Not A Thermal Treatment Process

CFSYN.60.a(commenter 236)
Attachment A
Catalytic Extraction Processing (CEP):
A Non-Combustive and Non-Pyrolytic Technology
In the proposed rulemaking, EPA mistakenly refers to the CEP unit as a technology that "generates certain gas streams from the thermal reaction of various hazardous wastes..." (emphasis added) (61 Fed. Reg. 17465). This attachment clarifies that CEP is not a thermal treatment process, such as combustion or pyrolysis.
EPA itself has acknowledged that CEP is a non-combustive process. In its recent final rulemaking for the Land Disposal Restrictions (LDR) Phase III in its discussion of the expansion of options that will meet the LDR standards, EPA stated that CEP is a non-combustive technology. The Agency notes that "Molten Metal Technology commented that the CEP is not in fact a combustion technology, and the Agency has attempted to reflect this in the definition" of combustion (61 Fed. Reg. 15588). Thus, the definition of combustion "CMBST" is defined as:

> "High temperature organic destruction technologies, such as combustion in incinerators, boilers, or industrial furnaces operated in accordance with the applicable requirements of 40 CFR part 264, subpart 0, or 40 CFR part 265, subpart 0, or 40 CFR part 266, subpart H, and in other units operated in accordance with applicable technical operating requirements; and certain non-combustive technologies such as the Catalytic Extraction Process (emphasis added) (61 Fed. Reg. 15654).

UNLIKE COMBUSTIVE AND PYROLYTIC TECHNOLOGIES, CEP UNITS DO NOT EMPLOY THERMAL TREATMENT BECAUSE THEY DO NOT USE ELEVATED TEMPERATURE AS THE PRIMARY MEANS TO CHANGE THE FEED MATERIAL

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CFSYN.60.b(commenter 236)

The term "thermal treatment" is defined as "treatment of hazardous waste in a device which uses elevated temperature as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste." 40 C.F.R. § 260.10 (emphasis added). CEP is not a thermal treatment process, e.g. combustion, pyrolysis, because it does not use elevated temperature as the primary means to change the chemical and physical composition of the feed materials.

The primary means for feed dissociation and product formation in CEP is catalytic solvation; critical to this is the composition of the reaction system including the composition of the liquid metal catalyst and solvent and the coreactants. The catalytic solvation forces of metals can only be used to drive feed dissociation when the metals are liquid. Elevated temperature, is not the primary means driving feed dissociation and reaction. A brief description of the CEP technology and the effect of system composition on product formation follows:

CFSYN.60.c(commenter 236)

Processing of materials in CEP can be conceptually divided into two stages:

Stage 1) Catalytic dissociation and dissolution: The catalytic effect of the molten metal causes complex compounds in the feed to be dissociated into their elements, which readily dissolve in the liquid metal solution, forming dissolved elemental intermediates.

Stage 2) Product synthesis: By adding select co-reactants, varying the composition of the metal catalyst and/or controlling operating conditions, the dissolved elemental intermediates can be reacted to form desired products of commercial value.

The unmistakable distinctions between CEP and all thermal treatment technologies, such as combustion and pyrolysis, are readily apparent in both (1) CEP feed dissociation and dissolution via catalytic solution, and (2) product formation.

<u>Feed dissociation</u> in CEP is driven by the catalytic and solvation effects of the liquid metal. The molecular bonds of the feed materials dissociate because solvation forces drive carbon atoms in the feed molecule into solution. The result is that all molecules in the feed material dissociate into their elemental constituents which then form unique "dissolved intermediates."

<u>Product formation</u> in CEP is also driven by the composition of the specified liquid metal catalytic solvent used, and the addition of select co-reactants. Thus, at constant temperature, product distribution can be altered significantly by variations in metal composition and co-reactant addition, indicating that the composition of the CEP system, not temperature, is the primary factor affecting product formation. For example, at constant temperature, processing of chlorinated organic material through an iron bath leads to a 50/50 yield of anhydrous hydrogen chloride and iron chloride, while processing the same material through a nickel bath leads to an almost 100% yield of anhydrous hydrogen chloride.

CFSYN.60.d(commenter 236)

All thermal treatment technologies, such as combustion and pyrolysis, share the common characteristic of utilizing thermal energy to crack complex toxic compounds in the waste stream to form a variety of free radical fragments. Reaction pathways then proceed via free radical generation and propagation. Catalysis plays no role in the free radical reaction pathways of thermal treatment processes. In the case of combustion, pyrolysis and plasma processes, cracking occurs through free radicals in the gaseous phase, while in the case of vitrification and molten salt technology, cracking occurs via free radicals in the liquid phase. CEP is distinct from thermal processes in that catalytic and solvation forces drive dissociation and dissolution to allow recovery of synthesized products.

CEP is a recycling technology based on a 'singular' dissolved elemental intermediate; thus, product quality is independent of feed complexity, composition or homogeneity. Only the elemental composition of the feed materials matters. In contrast, in combustion, pyrolysis or plasma processes, feed composition must be well characterized in order to determine the oxidizing/reducing environment necessary to achieve destruction of the waste and conversion to desired, more benign residues. Variation in feed composition can lead to a more oxidizing or more reducing environment and, hence, formation of undesired toxic or polluting compounds. In the case of vitrification, the feed must be well-defined to ensure addition of adequate glass-forming components. The composition of the vitreous phase is crucial to encapsulation of undesirable residues and the formation of a non-leachable residue; in the case of molten salt technology, waste composition must be also well-defined, as certain components can react with the molten salt. For example, high water content in the feed can lead to steam explosions.

CFSYN.60.e(commenter 236)

CEP is a source reduction and recycling technology that completely converts waste into products of commercial value. The quality of its products is another feature that distinguishes CEP from thermal treatment technologies. Consider the following comparison of CEP products with the air emissions from thermal treatment technologies:

Gaseous products: CEP produces high quality industrial gases (e.g., H2, CO, HCl). The highly reducing conditions lead to very low levels of CO2 and H2O and no potential pathways for formation of NOx, SOx, dioxins and furans. The homogeneous environment ensures complete conversion of feed material to products, which has been confirmed for high deficiency removals (DRE) greater than or equal to 99.9999 (analytically limited) over a wide range of processed feeds. Furthermore, process variables in the CEP can be manipulated to engineer desired products in the gaseous phase. For example, chlorine can be captured as HCl in the gaseous phase using a nickel bath. In contrast to CEP, thermal treatment technologies do not offer the same process control and product engineering capabilities. Syngas quality from pyrolysis and plasma processes is subject to variations in oxidizing/reducing conditions, while combustion, vitrification and molten salt produce a residual gas stream, containing primarily CO2 and H2O, which does not have commercial value.

Ceramic products: CEP ceramic phase chemistry can be engineered on-line to meet physiochemical specifications (i.e., durability, viscosity, hardness), thereby increasing its commercial value. Furthermore, in handling hazardous feeds, the operating conditions of the CEP and the formation of a dissolved elemental intermediate ensure that there is complete dissociation and elemental dissolution. In contrast, the composition of the ash or slag phase in combustion, pyrolysis and plasma technologies cannot be engineered. Furthermore, in

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handling toxic compounds, conditions must be carefully controlled to maintain the temperature above the melting point of ash to ensure that no hydrocarbon streams are formed which could result in hazardous residuals. The slag specifications in vitrification can be manipulated by addition of glass-forming compounds to ensure a non-leachable residue. However, the glass may encapsulate PICs, lowering or removing any commercial value.

Metal products: CEP conditions can be engineered to partition valuable metals either to the metallic phase as alloys or to the ceramic phase. Reducible metals can be recovered and recycled as ferrous alloys in the metal bath, while other metals can be recovered in the ceramic phase. Furthermore, CEP not only controls emissions of volatile heavy metals (VHMs) but also allows for their separation and recovery. In contrast, volatile metals cannot be easily recovered and separated from the gaseous emissions of traditional thermal treatment technologies.

Response:

EPA itself has acknowledged that CEP is a non-combustive process. Even if correct this does not mean that the operation is not a form of hazardous waste treatment. Put another way, whether or not this process is classified as a hazardous waste treatment does not turn on whether or not it is a combustion process. The definition of "treatment" encompasses operations designed to change the composition of hazardous waste to make the waste less hazardous or amendable to recovery.

The scope of the final rulemaking continues to be the status of the syngas fuel generated by the hazardous waste thermal treatment process. As this time, EPA is not making a decision with regard to the status of the thermal treatment unit from which the syngas is generated, an issued addressed by existing rules.

35. CEP Should Not Be Excluded From RCRA Regulation

CFSYN.03(commenter 101)

MISCELLANEOUS PROVISIONS AND ISSUES (Part Six)

Exclusion of Synthesis Gas Fuel

R-P opposes the proposed exclusion for synthesis gas fuel (17465) which EPA has expressly included for the catalytic extraction process (CEP) unit developed by Molten Metals Technology (MMT). The CEP "thermal reaction" process proposed by MMT is essentially hazardous waste incineration in a starved air environment (i.e., a pyrolysis reaction). To date, CEP has no proven commercial application. Also, the information contained in the docket was submitted after the April 19, 1996 proposal and is void of adequate process information or emissions test data to justify the proposed exemption.

As written, it appears that the proposal to exempt synthesis gas, whether used subsequently as a commercial feedstock or as a fuel, would operate to exempt the entire CEP process from RCRA regulation. If this is the case, R-P questions what would prevent a sham recycler from operating the following a two-step incineration process. The first step would be a rotary kiln operating under pyrolytic conditions to produce synthesis gas from hazardous waste (as in

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the CEP process, the synthesis gas would be cleaned via an air pollution control system). In the second step, the clean synthesis gas would be fed to a combustion unit operating under normal (non-pyrolytic) combustion conditions. It would appear that both units would exempt from RCRA regulation under the proposed exemption, despite the fact that the two-step process would have virtually the same type of waste feeds, air pollution control, and emissions as any hazardous waste incinerator.

Emissions from the CEP unit may contain all of the pollutants proposed for regulation in this proposal. Due to their potential for significant emissions (during normal operations and/or process upsets) all thermal treatment devices destroying hazardous wastes, regardless of their product, must be subject to the same or similar regulatory requirements (for storage, handling, and analysis of the waste, emission standards, etc.) and regulated under Subpart 0 or Subpart X. To do otherwise unfairly penalizes owners/operators who treat the same materials and must comply with substantial regulatory requirements and demonstrate significantly better environmental performance.

CFSYN.04(commenter 105)

2. Exclusion of Synthesis Gas Fuel (p. 17465)

Laidlaw does not support the proposed exclusion of a particular type of hazardous waste derived synthesis gas (syngas) from the definition of a solid waste.

CFSYN.05.a.(commenter 106)

E. Exclusion of Synthesis Gas Fuel

ENSCO also opposes the proposed exclusion for synthesis gas fuel (17465). This proposal would allow any combustion unit, disguised as a "desorber" or other alternate technology label device, to partially burn hazardous waste, producing harmful off gases loaded with toxic PICS, dioxin, furan, and metals. EPA states that it is aware of one such process proposed to be operated by Molten Metals Technology (MMT). MMT intends to operate a catalytic extraction process (CEP) unit that generates certain gas streams from the thermal reaction of various hazardous wastes. Since these devices are excluded from MACT, there would be no downstream controls on the emissions of these toxic constituents.

The CEP "thermal reaction" process proposed by MMT is essentially hazardous waste incineration in a starved air environment, since hazardous waste is thermally destroyed using pyrolysis reactions. Because hazardous waste will be thermally processed, emissions from the CEP unit will contain all of the pollutants proposed for regulation included in EPA's April 19, 1996 Proposed Rule for Hazardous Waste Combustors, including:.dioxin and furan, mercury, lead, other metals, acid gases and PICS. Pyrolysis reaction byproducts contain much higher levels of PICs than are generated by incinerators. Because of the pyrolytic conditions of the MMT CEP process, substantial quantities of HAP pollutants, PICS, metals and dioxin and furan are likely in the emissions. Therefore in order for MMT to safely produce from hazardous waste syngas, the CEP incineration process will require stringent RCRA and MACT controls, the same as any other thermal destruction device. The docket to the proposed MACT rule or April 19, 1996 is void of any emissions test data from MMT's CEP process, that documents safe levels of PICS, dioxin and furan.

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CFSYN.05.c.(commenter 106)

Finally, and most importantly, the information on the CEP process provided to EPA by MMT and made available to the public in the docket (items RCSP-SO196 and RCSP-SO199) simply do not support the proposed exemption. Although MMT's letter to EPA (to Stephen Bergman, USEPA/OSW, from Randall A. Jones, Molten Metal Technology, dated July 21, 1995) states that "dioxins are not detected in CEP product gases," there is inadequate supporting documentation. In fact, the only product gas data provided by MMT is in the form of an eleven-page paper which includes a summary of "demonstration scale" data; potential commercial applications are discussed but have never been tested. It is therefore ENSCO's position that EPA would be nothing short of irresponsible in granting an exemption based on such inadequate data.

The docket does include a Research and Development Demonstration Application prepared by MMT and submitted to the Massachusetts Dept. of Environmental Protection (RCSP-SO199). This application includes a report that summarizes D/F emission data in Table C3 on page 46. This table presents the results as ND (non-detect for each congener at a level of 0.1 ng/Nm3 . However, this detection limit is not sufficient to determine if the total D/F emissions complies with EPA's proposed standard in the MACT rule. There are 17 congeners of concern, and if each are present at just below 0.1 ng/Nm3, then the actual level present can exceed EPA's standard since the total TEQ result is actually 17 times this detection level. Test data needs to be provided by MMT that achieves at least a 20 times lower level of detection. This is reasonable given that the detection limit of EPA Method 23 is in the range of 0.002 to 0.005 ng. In addition, MMT has provided no data regarding emissions of other PICS. As discussed below, there is serious concern for PIC formation in any process, like the CEP, which operates in a pyrolytic mode.

These devices are operating in a pyrolytic mode, partially combusting organic hazardous constituents under starved air conditions. The result is even higher level of PIC and organic hazardous constituent emissions than is the case for incinerators. These higher emissions of PICs under pyrolytic conditions have been well documented in numerous EPA and academic studies.11 Other studies have shown a decline in Destruction and Removal Efficiency, DRE, under pyrolytic conditions, leading to a need to develop an additional incinerability index for hazardous waste combustors.12 This incinerability index which considers behavior of compounds under pyrolytic conditions, results in a model and ranking that is more predictive of PIC emissions as well as POHC DRE (see Dellinger article from Air & Waste Mgt. Journal from Feb. 1993 in the footnote below). One study in particular, demonstrates increased emissions of benzene as a PIC under pyrolytic conditions, and notes that pyrolytic conditions are responsible for most emissions, and most significantly impacts DRE and PIC emissions.13 These authors note on page 304 of this paper that thermal destruction of hazardous constituents proceeds 100 to 1000 times faster under oxidative conditions than under pyrolytic conditions. For this reason they conclude that most toxic organic pollutant emissions originate under oxygen starved (pyrolytic) conditions. This conclusion they note has been verified in both laboratory and full scale studies. Likewise, Taylor et al conclude that oxygen depleted pathways are responsible for most organic emissions, and that pyrolytic reaction mechanisms are associated with increased emissions of POHCs and PICs .14

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[Footnote 11: Dellinger, B. et al. PIC Formation Under Pyrolyic and Starved Air Conditions. EPA Project Report, EPA/600/2-86/006, Jan. 1986. EPA Hazardous Waste Engineering Research Laboratory, Cincinnati, OH. (see in particular pages 20 and 2 1); Dellinger, et al. Minimization and Control of Hazardous Combustion Byproducts. EPA Project Report, EPA/600/S2-90/039, August 1990. EPA Risk Reduction Engineering Laboratory, Cincinnati, OH. See in particular page 31 and 41; Midwest Research Institute Report titled "Products of Incomplete Combustion From Hazardous Waste Combustion".EPA RCRA Docket Document Number F-89-BBSP-SO014. MRI Project No. 8371-L(l).; B. Dellinger, W. Rubey, D. Hall, and J. Graham. "Incinerability of Hazardous Wastes". Hazardous Wastes Hazardous Materials, 3:139, 1986.] [Footnote 12: Dellinger, et. al. Predicting Emissions From the Thermal Processing of Hazardous Waste. EPA Docket Document Number F-89-BBSP-SO024; Taylor, P.H., Dellinger, B. and Lee, C.C. Development of a Thermal Stability Based Ranking of Hazardous Organic Compound Incinerability. Environmental Science & Technology 1990, 24, 316-328; Dellinger, B., Taylor, P.H., and Lee, C.C. Full Scale Evaluation of the Thermal Stability Based Hazardous Organic Waste Incinerability Ranking. Journal of the Air & Waste Management Assoc., 43:203-207, Feb. 1993.] [Footnote 13: " B. Dellinger, M. Graham, and D. Tirey. "Predicting Emissions from the Thermal Processing of Hazardous Wastes". Hazardous Wastes and Hazardous Materials, Vol. 3, Number 3, 1986, Mary Ann Liebert, Inc., Publishers. pp. 293-307. (Also RCRA Docket Document No. F89-BBSP-SO024.] [Footnote 14: P. Taylor, B. Dellinger, and C. Lee. Development of a Thermal Stability Based Ranking of Hazardous Organic Compound Incinerability". Environ. Sci. Technology, 1990, 24:316-328.]

CFSYN.05.d(commenter 106)
Based on this, EPA should be setting more stringent MACT standards for pyrolytic synthesis gas devices, and Molten Metal Technology, than is the case for incinerators. Instead, EPA is proposing no controls. ENSCO strongly opposes this, as substantial harm could result to the environment. If these technologies are so advanced, innovative, and effective, then there is no reason that these technologies cannot be equipped with control systems and regulated under standards like hazardous waste combustors. In addition, upset conditions and process excursions, which EPA believes can contribute to increased PIC emissions, need to be addressed. These technologies should be upgraded with the same air pollution controls as applicable to hazardous waste incinerators. They should not be labeled as "innovative" for the purpose of rationalizing exemptions from emissions standards. Pyrolysis synthesis gas devices are burning raw hazardous wastes, and must be subject to the same emission standards as incinerators.

It is also important to note that, based on the material available in the RCRA Docket, the process appears to have not been demonstrated on a full scale basis in which the offgases are used as a product. The proposed demonstration described in the docket materials involved subsequent combustion of the so called "syngas" in a incineration unit. In addition, combustion clearly is occurring in the CEP unit. On page 5 of the Docket Document RCSP-S0199, MMT states that the CEP process will be optimized to reduce the formation of carbon dioxide. The definition of combustion is the reaction of oxygen and organic matter

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to produce carbon dioxide and water. The MMT documents indicate that combustion is occurring. Combustion of hazardous waste must be regulated under the MACT rule no matter what the device is labeled as. If EPA exempts this process, then anyone can claim they have a pyrolytic device and burn hazardous waste, claiming that the off gas is a fuel. Such a loophole must not be promulgated in the MACT rule.

For all these reasons, ENSCO concludes it would be dangerous to human health and the environment to grant any exemption for pyrolytic thermal processing, including the Molten Metal Technology CEP process. These units need to be fully regulated under the same emissions standards as apply to hazardous waste combustion devices, and under Subpart 0.

CFSYN.14.a(commenter 128)

F. Exclusion of Synthesis Gas Fuel

The ETC also opposes the proposed exclusion for synthesis gas fuel (page 17465). This proposal would allow any combustion unit, whether called a "desorber" or other alternate technology-labeled device, to partially burn hazardous waste, producing harmful off gases loaded with toxic PICs, dioxin, furan, and metals. EPA states that it is aware of one syngas process proposed to be operated by Molten Metals Technology MMT intends to operate a catalytic extraction process (CEP) unit that generates certain gas streams from the thermal reaction of various hazardous wastes. Since these devices are excluded from MACT, there would be no downstream controls on emissions of toxic constituents.

The CEP "thermal reaction" process proposed by MACT is essentially hazardous waste incineration in a starved air environment, since hazardous waste is thermally destroyed using pyrolysis reactions. Because hazardous waste will be thermally processed, emissions from the CEP unit could contain any or all of the HAPS, including: dioxin and furan, mercury, lead, other metals, acid gases and PICs. Pyrolysis reaction byproducts contain much higher levels of PICs than are generated by incinerators. These higher emissions of PICs under pyrolytic conditions have been well documented in numerous EPA and academic studies[21]. Other studies have shown a decline in Destruction and Removal Efficiency, DRE, under pyrolytic conditions, leading to a need to develop an additional incinerability index for hazardous waste combustors.[22] This incinerability index which considers behavior of compounds under pyrolytic conditions, results in a model and ranking that is more predictive of PIC emissions as well as POHC DRE (see Dellinger article from Air & Waste Mgt. Journal from Feb. 1993 in the footnote below). One study, in particular, demonstrates increased emissions of benzene as a PIC under pyrolytic conditions, and notes that pyrolytic conditions are responsible for most emissions, and most significantly impacts DRE and PIC emissions.23 These authors note on page 304 of this paper that thermal destruction of hazardous constituents proceeds 100 to 1000 times faster under oxidative conditions than under pyrolytic conditions. For this reason they conclude that most toxic organic pollutant emissions originate under oxygen starved (pyrolytic) conditions. This conclusion they note has been verified in both laboratory and full scale studies. Likewise, Taylor, et al., conclude that oxygen depleted pathways are responsible for most organic emissions, and that pyrolytic reaction mechanisms are associated with increased emissions of POHCs and PICs.24

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Conditions, EPA Project Report, EPA/600/2-86/006, Jan. 1986, EPA Hazardous Waste Engineering Research Laboratory, Cincinnati, OH (see in particular pages 20 and 21); Dellinger, et al., Minimization and Control of Hazardous Combustion Byproducts, EPA Project Report, EPA/600/S2-90/039, August 1990, EPA Risk Reduction Engineering Laboratory, Cincinnati, OH (see in particular page 31 and 41); Midwest Research Report, "Products of Incomplete Combustion From Hazardous Waste Combustion", Docket No. F-89-BBSP-S0014. MRI Project No. 8371-L(1); B. Dellinger, W. Rubey, D. HalL and J. Graham, "Incinerability of Hazardous Wastes", Hazardous Wastes Hazardous Materials, 3:139, 1986.] [Footnote 22: Dellinger, et al., Predicting Emissions From the Thermal Processing of Hazardous Waste, Docket No. F-89-BBSP-S0024; Taylor, P.H., Dellinger, B. and Lee, C.C., Development of a Thermal Stability Based Ranking of Hazardous Organic Compound Incinerability, Environmental Science & Technology 1990, 24, 316-328; Dellinger, B., Taylor, P.H., and Lee, C.C., Full Scale Evaluation of the Thermal Stability Based Hazardous Organic Waste Incinerability Ranking, Journal of the Air & Waste Management Assoc., 43:203-207, Feb. 1993.] [Footnote 23: B. Dellinger, M. Graham, and D. Tirey. "Predicting Emissions from the Thermal Processing of Hazardous Wastes". Hazardous Wastes and Hazardous Materials, Vol. 3, [Footnote cont'd ....] Number 3, 1986, Mary Ann Liebert, Inc., Publishers. pp. 293-307. See also Docket No. F89-BBSP-S0024.] [Footnote 24: P. Taylor, B. Dellinger, and C. Lee, Development of a Thermal Stability Based Ranking of Hazardous Organic Compound Incinerability, Environ. Sci. Technology, 1990, 24:316-328.]

Because of the pyrolytic conditions of the MMT CEP process, substantial quantities of HAP pollutants, PICs, metals and dioxin and furan are likely in the emissions. Therefore, in order for MMT to safely produce syngas from hazardous wastes, the CEP incineration process will require RCRA and MACT controls, the same as any other thermal destruction device. As discussed further below, the docket in this rulemaking is void of any emissions test data from MMT's CEP process that documents safe levels of PICs, dioxin and furan.

CFSYN.14.c(commenter 128)

Finally, and most importantly, the information on the CEP process provided to EPA by MMT and made available to the public in the docket (RCSP-SO196 and RCSP-SO199) simply do not support the proposed exemption. Although MMT's letter to EPA dated July 21, 1995, states that "dioxins are not detected in CEP product gases," there is inadequate supporting documentation. In fact, the only product gas data provided by MMT is in the form of an eleven-page paper which includes a summary of "demonstration-scale" data; potential commercial applications are discussed but have never been tested. EPA would be nothing short of irresponsible in granting an exemption based on such inadequate data.

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congeners of concern, and if each were present at just below 0.1 ng/Nm3, then the actual level present would exceed EPA's standard since the total TEQ result is actually 17 times this detection level. Test data needs to be provided by MMT that achieves at least a 20 times lower level of detection. In addition, MMT has provided no data regarding emissions of other PICs. As discussed below, there is serious concern for PIC formation in this process.

Based on this, EPA should be setting more stringent MACT standards for pyrolytic synthesis gas devices, and Molten Metal Technology, than is the case for incinerators. Instead, EPA is proposing no controls. The ETC strongly opposes this, as substantial harm will result to the environment. There is no basis for exempting thermal technologies, however "advanced" or "innovative" they may be, from MACT emission standards. In addition, upset conditions and process excursions, which EPA believes can contribute to increased PIC emissions, need to be addressed. These technologies should be upgraded with air pollution controls as applicable to hazardous waste incinerators. They should not be labeled as "innovative" for the purpose of rationalizing exemptions from emissions standards. Pyrolysis synthesis gas devices are burning raw hazardous wastes, and must be subject to MACT emission standards just like other covered devices.

It is also important to note that, based on the material available in the RCRA Docket, the process has not been demonstrated on a full scale basis in which the offgases are used as a product. The proposed demonstration described in the docket materials involved subsequent combustion of the so called "syngas" in an incineration unit. In addition, combustion clearly is occurring in the CEP unit. On page 5 of the Docket Document RCSP-S0199, MMT states that the CEP process will be optimized to reduce the formation of carbon dioxide. The definition of combustion is the reaction of oxygen and organic matter to produce carbon dioxide and water. The MMT documents indicate that combustion is occurring. Combustion of hazardous waste must be regulated under the MACT rule no matter how the device is labeled. If EPA exempts this process, then anyone can claim they have a pyrolytic device and burn hazardous waste, claiming that the off gas is a fuel. Such a loophole must not be promulgated in the MACT rule.

The process flow diagram presented by MMT in Exhibit 1 of Docket No. RCSP-S0199 is not truly closed loop, in that "treatment" is incorporated as part of the process. Subsequent treatment is indicated for both the syngas and the scrubber blowdown residues. MMT has not demonstrated that the process is truly closed loop, and has not supported the claim that no residues are produced. The demonstration application, in fact, indicates that residues will be produced that will require subsequent management. The demonstration project on 12 drums of F024, K019 and K020 incorporates combustion of the so called "syngas", since MMT does not have an end user for this. Likewise, the scrubber blowdown may have to be handled as hazardous waste. The process is not closed loop, and is nothing short of hazardous waste combustion in two steps. EPA has finally succeeded in stopping one sham recycler, Marine Shale Processors, who claimed its ash was product. Now EPA is faced with another party claiming that its gas is a product. EPA must not exempt this MMT process based its claim that its combustion emissions are fuels or "syngas."

For all these reasons, ETC concludes it would be dangerous to human health and the environment to grant any exemption for pyrolytic thermal processing, including the Molten

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Metal Technology CEP process. These units need to be fully regulated under the same emissions standards as apply to hazardous waste combustion devices and under RCRA Subpart O.

GEN1.259(commenter 243)
With respect to the remaining portions of the NODA, the ETC is not submitting additional comments on the comparable fuel specification or the MMT data regarding the proposed synthesis gas exclusion since we fully covered these issues in our MACT Comments. The ETC obtained the MMT data from the RCRA docket prior to filing our MACT Comments. We strongly urge EPA to consider our MACT Comments on pages 76080 which oppose the proposed synthesis gas exclusion based on the inadequate supporting documentation that is the subject of the NODA.

Response:
EPA notes that the comments provide support for the proposition that hazardous waste treatment activities are not excluded from regulation even if they should generate materials which are classifiable as products. However, if resulting syngas fuel meets specifications showing that it is analogous to other commercial fuels, it can reasonably be classified as a product and no longer as a solid and hazardous waste. The treatment process itself is addressed by existing regulations regarding use of hazardous waste to produce fuels, and is not the subject of this proceeding, and EPA in this proceeding is only addressing the status of the output of syngas fuel processes.

36. Syngas Parameters Based on Limited Data

CFSYN.15.b(commenter 132)
It is apparent from the preamble of the April 19 Federal Register notice that USEPA proposed this exemption based on the operations of one company , Molten Metal Technology. There is no indication in the preamble as to why USEPA only considered the interests of this one company. The preamble references a July 21, 1995, letter from MMT to USEPA, which was issued approximately three months after the TNRCC letters concerning Quantum's operation. MMT's facility and Quantum's La Porte Complex are located in the same USEPA region.

Quantum's synthesis gas process, which was designed by Texaco, is fairly common in the industry. It is Quantum's understanding that MMT's process is a much newer technology and that its primary function is waste destruction. It is unfair to evaluate an entire industry based on review on one company's practice, especially if that one company is clearly different from the rest of the industry.

The majority of the synthesis gas operations in the United States predate RCRA. They are designed as a energy-efficient and cost-effective mechanisms for supplying raw materials to make products, not as waste handling and disposal facilities. Quantum's operation specifically is not a waste reduction process. It is a cost-effective way of producing a building block for

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many commodity chemicals. Promulgation of proposed rule will leave an unnecessary cloud over the regulatory status of the operation.

CFSYN.17.e(commenter 150)
Notwithstanding the inappropriate inclusion of gasification in this rule and its questionable legal basis, EPA has proposed to exclude certain processes from this rule if a demonstration can be made that the produced syngas meets or exceeds certain parameters. The parameters that EPA has used in this proposal are those presented to them by one synthesis gas producer which has not yet engaged in commercial operations. We object to such a narrow yardstick for rulemaking and challenge the validity of using one data point upon which to base this proposal. We contend that since the population of syngas producers is relatively small, EPA can with minor effort undertake a fact finding that will provide them with a larger sampling of reliable data upon which to base a reasonable set of parameters. As a general matter, we find the proposed parameters overly restrictive and arbitrary. With varying feedstocks and very slight process variations a source could conceivably exceed one of the parameters. We contend that the set parameters should be more flexible to allow for the greatest employment of innovative technology and conversion of waste products to useful fuel and/or chemical feedstocks.

CFSYN.17.g(commenter 150)
We are somewhat confused by the Agency's classification of processes as either using hazardous wastes wholly as a feedstock or some other carbon-containing material (e.g. coal). In fact, several processes use a combination of waste streams supplemented with a fixed composition feed such as coal, petroleum coke, oil or even natural gas. That particular type of process is not addressed in the proposal.

CFSYN.24(commenter 191)
108. Page 506
The Agency proposes to exempt synthesis gas fuel and indicates that it is aware of one (1) process that creates this fuel (Molten Metals Technology (MMT). However, it appears from the text that no actual process exists. The Agency should provide justification for the values shown for syngas specifications since it appears that these specifications were generated specifically for MMT.

CFSYN.28.f(commenter 225)
5. EPA must undertake a comprehensive analysis of the gasification industry and the production of the various syngas products prior to finalizing any regulation addressing the regulatory status of the industry.
The proposed heating value and H_2S specifications for synthesis gas reflect a lack of understanding of the syngas industry and appear to be based on data from a single technology or process not yet placed in commercial operation. The EPA should rectify this by soliciting and reviewing industry-wide information regarding commercial syngas production and use activities before proceeding with any additional rulemaking activity.

CFSYN.29(commenter 225)

We commend the EPA for the intent under which this rulemaking was initiated, but we disagree with EPA's approach to this issue. The Council believes the appropriate approach is to recognize that synthesis gas (or "syngas" as it is commonly known) and the secondary materials used to produce the syngas are not solid waste, whether or not the syngas product is used as a fuel.

The Council is concerned that (1) the proposal is inconsistent with the spirit of the Agency's Common Sense Initiative and similar efforts to promote environmental technologies; (2) the treatment of synthesis gas in the proposed rule will have the effect of discouraging commercial use of gasification in many otherwise appropriate industrial settings; (3) the proposal is based to a large extent on incomplete, narrowly defined, or inappropriate information; and (4) the Agency failed to consult with the recognized commercial syngas industry, relying instead on a single company that has yet to produce syngas on a commercial scale. The Council feels it is important that the record of this rulemaking should contain a more complete and accurate description of the gasification industry that will be affected by the rule. We also feel it is especially important that information in the record, and EPA's rulemaking, should be based on actual commercial operating experience in manufacturing and using synthesis gas.

CFSYN.33(commenter 225)

4. Conclusion

As has been discussed, syngas use and production involve various complex technical processes and are practiced commercially by a major U.S. industry which has the potential to provide a host of environmental benefits. Yet, in developing the proposed rule, EPA has reviewed only limited data and background materials, and that was for a process which does not have commercial operating experience in manufacturing and using synthesis gas. The specifications proposed by the EPA for syngas are flawed and demonstrate the Agency's inadequate understanding of the varying chemical and physical characteristics of syngas and the syngas industry.

At a minimum, therefore, EPA must undertake a comprehensive analysis of the gasification industry and the production of the various syngas products and uses prior to finalizing any regulation addressing the regulatory status of the industry.

Review of industry information and documents will enable the EPA to reevaluate the proposal, including the specifications, based on actual commercial syngas production and use activities.

GEN1.239(commenter 234)

II. COMMERCIAL SYNGAS AND GASIFICATION

It appears that the Agency proposed the April Rule with extremely limited information relevant to commercial syngas and the existing gasification industry. EPA solicited comments on whether there are other hazardous waste-derived synthesis gas fuels that may also qualify for an exclusion. See 61 Fed. Reg. 17358.

There are a number of processes that produce the generic product called syngas, many of

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which are capable of utilizing hazardous secondary materials as feedstocks. Gasification is the predominant technology used for the production of commercial syngas. Because there is a long and complex history behind what is a sizeable gasification industry, however, the production and use of syngas as a fuel (both currently and in the foreseeable future) is inextricably intertwined with other applications of syngas. We believe that familiarity with this history, with syngas, and with current and projected future syngas production and application scenarios, is essential for the Agency to understand whether and how to regulate the industry. This section provides more detailed information on these topics, including specific information concerning the TGP.

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CFSYN.34.f(commenter 225)

With today's advanced technology, gasification is an industry with tremendous potential for a variety of beneficial uses and impacts, including pollution prevention and resource conservation. Yet it appears that EPA's proposal is based on information limited to that provided by a single company specializing in hazardous waste treatment, with no commercial syngas production experience. Therefore, we urge EPA to take a closer look at the gasification industry, its manufacturing potential, and other relevant facts.

So that EPA can propose a rule that is soundly based on an analysis and application of the policies underlying RCRA to the facts of industrial gasification, we strongly urge EPA to solicit and consider the following information:

the variety of feedstocks that can be used to produce syngas for use as a nonfuel commercial product, as commercial product building blocks, or as a fuel product;

the nature of the diverse processes currently in use and under development to produce syngas;

the chemical composition and physical characteristics of syngas and its byproducts and/or wastes and whether the nature of these vary depending on the gasification feedstock mix;

the various mechanics of syngas production and supply when used as a non-fuel commercial product, as commercial product building blocks, as a fuel product, or some combination thereof;

a comparison of the environmental implications of syngas production by various feedstocks and the environmental implications of the various uses of syngas including use as a non-fuel commercial product, as a building block for commercial products, or use as a fuel product;

the economic, social and environmental incentives that led to the current and ongoing advancements in syngas production technology and syngas use; and

the assorted current and potential future uses of syngas and their commercial, social and environmental implications.

Modern production and use of syngas in an industrial setting has the potential to produce a net capital and environmental gain for U.S. industry and society. The environmental performance and economic potential of modern gasification have far surpassed the existing RCRA scheme applicable to fuels produced from secondary materials. Without the right regulatory approach, however, the environmental and other benefits of this advanced technology will likely not be realized.

CFSYN.44.g(commenter 234)

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7. EPA Has Insufficient Information.
EPA does not have sufficient information concerning the gasification industry, nor what the impact of the April Rule would be on that industry. It is not even clear that EPA was aware that there is a significant syngas industry that would be heavily impacted. Moreover, in the preparation of the April Rule EPA evidently relied upon the input of a single company which has yet to produce syngas on a commercial scale.

CFSYN.40(commenter 234)
2. The Proposed Specifications Are Arbitrary.
The April Rule would exclude from the definition of solid waste syngas product fuel made from hazardous secondary materials that meets certain specifications. Paradoxically, syngas fuel produced from non-hazardous secondary or virgin materials need not meet any compositional or heating value specifications. Moreover, the specifications proposed include a requirement that syngas contain a minimum heating value of 5,000 Btu per pound, and a maximum H2S concentration of 10 ppmv. As explained below, neither of these specifications are applicable to syngas. Finally, we respectfully note our belief that the fact that EPA has proposed these specifications as standards is compelling evidence that the Agency has not developed an adequate understanding of the uses, nor the physical and chemical properties, of syngas.

Response:
EPA agrees that it had limited data on the syngas industry at the time of the proposed rule. For the rulemaking, EPA has reviewed the data submitted by the syngas industry. Based on the review, EPA has revised some of the individual syngas specifications. These specifications include the total nitrogen, hydrogen sulfide, and minimum heating value. (See comment responses below for discussion of individual specifications.)
Furthermore, the Agency is specifically studying whether an exclusion is warranted for syngas fuel produced from petroleum industry hazardous waste based on the same logic underlying the November 1995 proposed rule which would exclude other petroleum industry-derived secondary materials which are processed in refining operations to produce commercial fuels. See comment responses above for further discussion.

37. Heating Value Should Be Lower For Syngas

CFSYN.17.f(commenter 150)
Specifically, we suggest that the heating value be lowered to 4,500 Btu/lb. to allow for the greatest flexibility and use of carbon-containing materials. Shell also recommends that EPA specify that the requisite heating value represents the higher heating value (HHV).

CFSYN.21(commenter 182)
I. Syngas Issues
Dow has the following comments relating to EPA's proposing to exclude synthetic natural gas

-when used as fuel -derived from hazardous waste from the regulations.

1. A Syngas exclusion is needed, but believes the BTU specification should on a volumetric basis, not a weight basis.

Many technologies "reform" hazardous and non-hazardous waste into carbon monoxide and hydrogen (synthetic natural gas, or syn-gas). Molten Metal Technology is one of these, but other reforming type technologies also have potential. These reforming technologies will produce syn-gas, hydrogen chloride (if the waste contains significant chlorine), and possible other valuable products. In some cases, the syn-gas may be separated into its carbon monoxide and hydrogen components. For example, a company may have need for CO to produce phosgene used in isocyanate and urethane foam manufacturing. But in some cases there may be no local need for either CO or hydrogen as chemical raw materials, but a significant need for gaseous fuel either for electrical production or steam generation.

Under the current regulation, syn-gas production from reforming of hazardous wastes is included in the RCRA statutes which acts as a disincentive to recycle those wastes through reforming. We recognize that specifications should be placed on syn-gas that is exempted as a fuel. However, the requirement that the syn-gas contain at least 5,000 BTU/lb heating value is inconsistent with the wide ranges of CO/H, mixtures that may come from a waste to fuel process, such as proposed by MMT and others.

Dow proposes that volumetric units, BTU/cuft, be used. The following examples document the basis for Dow's proposal.

Table I-1 shows the higher heating values of various mixtures of CO and Hydrogen. As can be seen in Table 1 the HHV of the mixtures remain essentially constant, when measured on a volumetric basis. However, the HHV, when measured on a weight basis, ranges from 4,340 BTU/lb for pure CO to 62,050 BTU/lb for pure H,. Thus, calculation of HHV on a weight basis distorts the true heating value of the gas, and would exclude pure CO as a potential exempted fuel, when process knowledge and engineering principles would lead to the conclusion that pure CO would make a perfectly acceptable syn-gas under the exemption.

In the specific instance of conversion of chlorinated materials to hydrogen chloride and syn-gas, the ratio of chlorine to hydrogen in the feed material will have a strong effect on the CO/H, ratio in the resultant syn-gas. For example, stoichiometric conversion of tetrachloropropane in the MMT process would result in a product gas containing CO and HCl, and no hydrogen, as seen in the following reaction equation.

(1) C3H4Cl4 + 3/2O2 to 3CO + 4HCl

When the HCl co-product is removed from this stream to recover the chlorine value, the remaining syngas would consist of essentially pure CO. Of course, real world wastes are not single component mixtures, but this example serves to illustrate the fact that H2 is not always produced in the conversion of chlorinated materials.

Table I-2 shows the results of stoichiometric calculations performed with a reforming type process feeding various chlorinated propane feedstocks. Each feedstock was reacted with enough oxygen to produce CO from the carbon present in the feed. The HCl formed was excluded, and the heating value of the resultant CO/H2 mixture was calculated.

As can be seen from Table 2, the heating value of the syn-gas falls below the proposed EPA specification on a BTU/lb basis as the feed becomes more chlorinated, but actually stays about

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the same on a volumetric basis. The use of weight units inadvertently penalizes compares that would like to use reforming type processes on highly chlorinated wastes and that this would be inconsistent with EPA's desires to promote reforming type processes to recycle hazardous wastes.

CFSYN.32.a(commenter 225)

3. Proposed Synthesis Gas Specifications

The proposal establishes specifications which include a 5,000 Btu/lb benchmark. However, the industry almost universally measures the heating value of gas in terms of volume, Btu/cubic foot the most widely used in the U.S. Therefore, the units EPA proposes to use to establish a minimum heating value are not applicable to syngas.

In addition, the Btu heating value of 5,000 is based on some liquid fuel heating value. Optimal use of gas in turbines often requires gas heating value to be considerably less than that proposed by EPA. Indeed, under the EPA proposal, industry members might be forced to produce a syngas that had to be "diluted" before it could be used in a turbine to produce electricity.

CFSYN.41.a(commenter 234)

a. The Btu Standard.

On March 8, 1983, EPA adopted the 5,000 Btu per pound guideline in a memorandum that discussed whether burning low energy hazardous wastes for energy recovery purposes could be considered a legitimate recycling activity. 48 Fed. Reg. 11157 (March 16, 1983). The memorandum dealt with liquid and solid fuels. Notably, the memorandum did not address or even mention gases.

In the memorandum EPA explained that the energy value of hazardous wastes being blended or burned was the primary factor in determining whether such blending or burning should be considered legitimate or sham recycling. The Agency indicated that 5,000 Btu per pound was a benchmark in determining which wastes had little heating value, and, therefore, could not be legitimately recycled by being burned or blended for energy recovery. The memorandum also indicated that EPA chose the 5,000 Btu per pound value because the lowest Btu value of low energy commercial fuels, such as wood, was 5,000 Btu per pound. Thus, concluded EPA, waste materials that contained less than 5,000 Btu per pound could not legitimately be recycled by being burned for energy recovery.

The Proposed Rule would use the same 5,000 Btu per pound benchmark as standard product indicia" for purposes of identifying syngas that the Agency believes should be excluded from the definition of solid waste. For several reasons, however, this benchmark is inappropriate. First, science and industry use units of Btu per pound to measure the heating value of solids and liquids. The heating value of a gas, however, is almost universally measured in units of Btu per unit volume ("scf"). The heating value of a gas can be calculated as if the gas was a solid and expressed in units of Btu per pound. It would be misleading, however, to compare the heating value of different gases expressed in units of Btu per pound, because the ratio of weight to volume differs between different gases. The table below demonstrates the problem. [See hard copy of comment RCSP-00234 for (Table of Heating Value of Syngas) not

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included here.]
Expressed in units of Btu/lb, it appears that syngas produced from natural gas has 2.13 times the heating value of syngas produced from coal. In fact, however, the true heating value of syngas made from natural gas is only 1.16 times the heating value of syngas produced from coal. Similarly, expressed in units of Btu/lb it appears that syngas produced from post-consumer mixed plastics has 0.65 the heating value of syngas produced from natural gas. In fact, however, post-consumer mixed plastics syngas has 0.92 times the heating value of syngas produced from natural gas. Thus, the units EPA proposes to use to establish a minimum heating value criteria are not applicable to syngas.

CFSYN.41.b(commenter 234)
Second, due to the efficiencies of combustion, a gas can be used as a fuel even though its heating value, when expressed in terms of Btu per pound, is less than 5,000. For some gas combustion units, a fuel with a heating value of 230 Btu per SCF is acceptable even though, depending upon the molecular weights of the components of the syngas, 230 Btu per SCF could equate to less than 4,000 Btu per pound.

CFSYN.41.c(commenter 234)
Third, using fuels with significantly higher Btu per SCF could degrade efficiency and increase air emissions. For example, the quantity of NOx produced in a combustion turbine depends on the flame temperature in the combustor. The flame temperature depends primarily on the heating value of the fuel. In general, syngas with a heating value of 5,000 Btu per pound would have to be diluted to reduce its heating value before a combustion turbine could meet NOx emission limits.

CFSYN.41.d(commenter 234)
Fourth, according to EPA's 1983 memorandum, 48 Fed. Reg. 11 157, the 5,000 Btu per pound standard applies to wastes that are being burned for energy recovery. With gasification, feedstocks are not burned. In fact, in many potential applications, syngas produced from hazardous secondary materials would not be used as a substitute for fossil fuels. It would, however, be used as a substitute for syngas produced from fossil fuels, or syngas produced from non-hazardous secondary materials. Syngas produced from coal, coke, and certain types of secondary materials, with heating values expressed in terms of Btu per pound of less than 5,000, are currently being used as fuels. Therefore, we believe it is inappropriate for the Agency to use the heating value of wood as a basis for identifying syngas that is legitimately being burned as a fuel. We further suggest that the Agency cannot determine an appropriate minimum heating value without first having assessed the heating value of syngas produced from non-hazardous waste materials.

CFSYN.51.a(commenter 236)
II. Exclusion Specification Issues
A. The 5,000 Btu/lb. threshold historically used by EPA as a bright line test to identify sham burning for liquid hazardous wastes and waste-derived fuels is inappropriate for syngas.

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MET believes that a weight-based heating value "bright line" test is inappropriate for commercial quality syngas manufactured from secondary materials:

1) The 5,000 Btu/lb. threshold, established as a surrogate test for preventing the burning of low energy hazardous waste or waste-derived liquid fuels containing hazardous constituents, is inappropriate for gaseous commercial fuel products meeting established stringent specifications;

2) A volume-based heating value threshold for (syn)gases, i.e. Btu/SCF (Btu/standard cubic foot), would be more appropriate.

It is not clear to MMT that any threshold is necessary, given the variety of other protective measures in the proposed exclusion, e.g. limits on Appendix VIII constituents, and protections inherent in syngas use, e.g. piped directly to customers for legitimate uses. If EPA does establish a threshold, MMT recommends it be no higher than 116 Btu/SCF.

CFSYN.51.b(commenter 236)

To determine whether burning low energy hazardous wastes or hazardous waste-derived fuels for energy recovery purposes can be considered to be legitimate recycling, the Agency established a "bright line" energy value of 5,000 Btu/lb. in a 1983 "Enforcement Guidance" (see 48 Fed. Reg. 11158). EPA created this energy value threshold as a quick screen for the burning of liquid fuels. In the "Enforcement Guidance," EPA writes:

A determination of what constitutes sham burning depends ultimately on weighing a number of factors presented by the circum stances of a particular case. The energy value of the hazardous wastes being blended or burned, however, is likely to be of primary significance in most cases (see 48 Fed. Reg. 11158).

EPA notes that "in determining which hazardous wastes have little or no heating value, EPA enforcement personnel should use as a benchmark wastes with a heating value less than low energy commercial fuels such as wood or low grade subituminous coal," adding in a footnote that wood has a range of heating values from 5,000 to 8,000 Btu/lb. and subbituminous C coal has a heating value of approximately 8,300 Btu/lb. (see 48 Fed. Reg. 11158). EPA stipulated the 5,000 Btu/lb. value to prevent sham burning to qualify for the exemption available prior to the promulgation of the 40 C.F.R. §266 standards for BTFs on February 21,1991. The Agency preserved the 5,000 Btu/lb. value in the BIF rule at 40 C.F.R. §266.103(a)(5)/(6) as a limit on wastes that could be burned in a BIF until certification.

CFSYN.51.c(commenter 236)

The bulk composition of syngas, i.e. H2 and CO, produced using secondary materials is a function of the composition of the feedstock secondary material (e.g. relative amounts of carbon, nitrogen, hydrogen and oxygen). As the composition of pure syngas varies, i.e. as the H2 content decreases and the CO content increases, the syngas Btu/lb. (weight) ratio decreases rapidly, due to the higher molecular weight of the CO-rich syngases, resulting in a range of energy values from 61,400 to 4,542 Btu/lb. However, the Btu/SCF (volume) ratio remains relatively unchanged. The CO and H2 composition and corresponding molecular weight do not affect the heating value, which varies little from 322 Btu/SCF. Clearly, given its energy value, syngas composed of any CO:H, ratio can be legitimately burned for its heating value. Thus, the volumetric measure provides the most appropriate and logical basis for syngas heating value. In fact, natural gas that is burned for heat value is measured on a Btu/SCF basis, i.e. consumer utility bills for gas heat.

CFSYN.51.d(commenter 236)
As noted above, the energy value of syngases is affected by the level of inerts, e.g. nitrogen, in the product stream and should be accounted for in the establishment of any volumetric Btu/SCF threshold. As depicted in Table 9-37: Typical Properties ' of Cleaned Manufactured Gases in Perry's Chemical Engineers' Handbook (see Attachment N), the Btu/SCF level is a function of the CO:H2 ratio and the (inert) composition of the gas. The energy values represented for legitimate medium-Btu (MBG) to low-Btu (LBG) gases range from 1020 Btu/SCF to 116 Btu/SCF, respectively. Consequently, NMT recommends that any Btu/SCF threshold be based on commonly recognized values for legitimate, fuel gases manufactured to specifications, i.e. 116 Btu/SCF. Legitimately manufactured, clean syngas from secondary materials is identical and equal to syngas manufactured from virgin materials -i.e. it is not "comparable" to syngas, it is syngas --and should be recognized and treated as such by the regulatory framework.

CFSYN.51.e(commenter 236)
Following is an example of how the proposed exclusion (modified based on our comments) could provide significant environmental and waste minimization benefits. CEP produces a carbon monoxide (CO)-rich product and hydrochloric acid (HCl) in many CEP applications for the recycling of hazardous chlorinated organic feedstocks. Chlorine is responsible for a large percentage of these feeds, e.g. 40 - 85 wt% chlorine. Through CEP recycling, any hydrogen in the feeds combines with the high levels of chlorine in the feeds to produce HCl. The corresponding CO syngas product that contains almost no H2 has significant heating value as a fuel gas. Combined with HCl, the manufacturing of this CO-rich syngas product allows chlorinated organic manufacturers to recycle essentially 100 percent of their chlorinated organic materials back to their manufacturing processes.
[See hardcopy of RCSP-00236 for Figure 1: Options for Hazardous Chlorinated Wastes, not included here.]
The environmental benefits resulting from CEP recycling of these hazardous chlorinated materials contrast sharply with those resulting from alternative waste management approaches for these materials, e.g. combustion. Notably, if EPA implements the proposed 5000 Btu/lb. heating value threshold for syngas, a portion of these liquid/solid hazardous chlorinated materials, potentially CEP feedstocks, could not be recycled into a syngas that would qualify for the 5000 Btu/lb. specification for the proposed syngas exclusion. These materials would likely be sent to an incinerator or other combustion devices for the primary purpose of destruction. As a result, combustion of these wastes could lead to an increase in the risk of gaseous emissions, dioxin and furan formation and correlated risks to human health and the environment. Any residues or ash would have to be handled as a hazardous waste and the environmental, resource recovery and conservation benefits available through use of secondary materials as CEP feedstocks would be lost.

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CFSYN.51.f(commenter 236)

Promulgation of rules and policies that encourage use of these secondary materials as feedstocks for syngas production would further the goals of the Agency's "Waste Minimization National Plan" to:

1) Avoid transferring hazardous constituents across environmental media; and
2) Ensure that these constituents are reduced at their source whenever possible, or when not possible, that they are recycled in an environmentally sound manner (p. 3)

CEP recycling of these wastes would also facilitate EPA's "Strategy for Hazardous Waste Minimization and Combustion," including goals to foster:

1) waste minimization; and,
2) the commercial development and use of alternative treatment and other innovative technologies that are safe and effective in reducing the toxicity, volume, and/or mobility of RCRA industrial process and remediation waste (p. 2).

CFSYN.51.g(commenter 236)

MET believes that the above example provides a case study for the prioritization and promotion of use/reuse of materials to produce syngas over combustion of a potential feedstock. In this case, using these secondary materials as feedstocks for CEP yields a commercial fuel product, syngas, and a commercial chemical product, HCl, instead of hazardous ash, and potentially harmful gaseous emissions, dioxins and furans. Commercial syngases with energy values less than 5000 Btu/lb. can meet other stringent constituent specifications and be safely and appropriately used as commercial fuels. MMT believes that these commercial syngases with lower Btu/ lb. content and the ability to meet stringent constituent specifications are valuable clean fuel commodities. Application of a more appropriate threshold established specifically for gases, i.e. on a 116 Btu/SCF basis, would remedy these discrepancies and inefficiencies.

<u>Response:</u>

EPA agrees with commenters that the heating value of a gas is more appropriately measured in units of Btu per unit volume ("scf"). In addition, due to the efficiencies of combustion, a gas can be used as a fuel even though its heating value, when expressed in terms of Btu per pound, is less than 5000.

To set an appropriate heating value, EPA investigated the heating values of syngas currently manufactured for use as a fuel (for further discussion see technical support document). For fuel usage related purposes, syngas is classified as either medium- or low-Btu gases (medium-Btu generally being produced with pure oxygen, low-Btu generally with air). Medium-Btu syngas generated from the gasification of fuels (including coal, fuel oil, biomass, municipal solid wastes, plastics, etc.) with pure oxygen typically has heating values from 200 to 400 Btu/scf. Medium-Btu syngases can typically be used as a fuel for power production in a gas turbine. Low-Btu syngas generated from the gasification of fuels with air has heating values from about 100 to 200 Btu/scf. In most cases, low-Btu syngas does not achieve temperature expansion ratios needed for thermodynamically efficient power generation. Low-Btu syngas is usually mixed with higher energy sources, and is not generally desired for most applications.

However, EPA notes that there are certain specifically designed gas turbines (with very large “silo” combustion chambers) that can handle very low-Btu (100 Btu/scf) syngases for power generation. Thus a heating value of 100 Btu/scf is a reasonable for syngas because it represents fuels used as a legitimate energy sources. Therefore, EPA is establishing a minimum Btu value of 100 Btu/scf for synthesis gas.

38. Total Nitrogen Specification Not Necessary.

CFSYN.17.i(commenter 150)
We are also puzzled over EPA's concern for sulfur and nitrogen content in the product. There appears to be no reason for these constraints other than the possible control of NOx and SO. emissions in the event the product is combusted as fuel. First, it is an irrelevant parameter for syngas produced as chemical feedstock. The quality requirements of the end user dictate the composition. Secondly, this is redundant and overlapping regulatory control and potentially interferes with the Agency's and states' strategies for criteria pollutant control and NAAQS attainment. We believe that the inclusion of these parameters is inappropriate and urge EPA to remove them.

CFSYN.20(commenter 178)
4. The proposed rule established a 1 ppmv limitation for total nitrogen without explaining why this extremely stringent limitation is necessary. If the EPA is concerned about NOx generation, then it should rely on the Clean Air Act under Title I and Title V, and the BACT review under PSD and NSR to control criteria pollutants.

CFSYN.52(commenter 236)
B. Both diatomic nitrogen and oxides of nitrogen should be excluded from the syngas specifications for nitrogen.
For the syngas exclusion, EPA has proposed a specification of "less that 1 ppmv of total nitrogen, other than diatomic nitrogen (N,)" (61 Fed. Reg. 17465). However, to the extent oxides of nitrogen are included, this limit becomes meaningless when the syngas is use as a fuel.
Regardless of whether nitrogen is present in the syngas, when syngas is burned, NO, NO2 and NOx will always form, as nitrogen present in the air combines with oxygen present in the syngas, the air or both. The Agency or authorized states regulate the emission of any NO, NO,, and NO., and other potential air pollutants resulting from the burning of syngas through the issuance of air permits.
CEP ensures complete conversion of feed material to products, which has been confirmed for high deficiency removals (DREs) greater than or equal to 99.9999 (analytically limited) over a wide range of processed feeds. As a result, products of incomplete combustion (PICS) are not formed in any significant amount in the CEP manufactured syngas and the use of CEP syngas as fuel does not result in the formation of any significant amount of nitrogenated PICS.

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Response:

EPA disagrees with the commenter that a total nitrogen specification is unnecessary and believes that the comments did not address EPA's rationale for a total nitrogen limit. EPA is establishing a total nitrogen specification to limit the formation of nitrogenated PICs (see technical support document for further discussion). Diatomic nitrogen is not included in a total nitrogen specification because only organic-bound nitrogen compounds are expected to produce PICs. However, a total nitrogen specification based on syngas used as a fuel is a more appropriate specification. EPA has looked at syngas currently manufactured for use as a fuel to establish a total nitrogen specification. Nitrogen compounds in syngas (other than N_2) are mostly in the form of HCN or NH_3. Syngas manufactured from coal can have (HCN and NH_3) levels of 100 to 300 ppmv. A total nitrogen specification of 300 ppmv would ensure that concentrations of nitrogenated PICs in waste-derived syngas will be no greater than syngas manufactured from coal. Therefor, EPA is promulgating a total nitrogen specification of 300 ppmv other than diatomic nitrogen (N_2) for synthesis gas fuel.

39. Hydrogen Sulfide Specification Not Necessary

CFSYN.32.b(commenter 225)

Finally, the H2S specification is proposed notwithstanding that the federal Clean Air Act specifically regulates the amount of sulfur that can be emitted from a combustion turbine or a boiler, whether it burns syngas or some other fuel. With the sulfur removal efficiency associated with gasification operations, the EPA has not even demonstrated why such a specification is necessary.

CFSYN.42.a(commenter 234)

b. The H2S Standard.

In the April Rule, EPA proposes a concentration limit for H2S of 10 PPMV to ensure that any excluded syngas "does not contain hazardous constituents at levels higher than those present in fossil fuels." 61 Fed. Reg. 17465 The proposed 10 ppmv standard, however, is the equivalent of approximately 0.003 percent by weight of sulfur. We note that these values are a small fraction of the sulfur content of many fossil fuels. Therefore, the proposed standard would impose emissions-based limitations far more strict than emissions associated with non-gaseous fuels. We also note that the April Rule contains no discussion or explanation of why the Agency chose the 10 ppmv specification.

CFSYN.42.b(commenter 234)

Moreover, the Agency should first determine if an H2S standard is necessary by assessing the potential of facilities that burn syngas as a fuel to emit sulfur compounds. For example, facilities that produce power by burning syngas produced from the gasification of coal emit approximately one-fifth of the level of sulfur compounds emitted by similar facilities burning coal. Thus, it is likely that an H2S standard is not necessary to ensure that emissions from facilities that burn syngas do not exceed levels of facilities burning fossil fuels.

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Even if a standard were necessary, appropriate H2S levels could not be identified until EPA had determined the level of H2S that can be present in syngas before emissions of sulfur compounds reach levels that would be emitted from facilities burning fossil fuels. Developing such a standard by merely comparing the levels present in syngas with levels present in fossil fuels, as EPA apparently attempted to do in the April Rule, fails to recognize the efficiencies and reduced emissions associated with burning syngas.

CFSYN.42.c(commenter 234)
Finally, in accordance with §1006(b)(1) of RCRA, the Agency must avoid duplication to the maximum extent possible with appropriate provisions of the Clean Air Act. Emission limits for sulfur compounds for facilities that use syngas as a fuel are currently established under the Clean Air Act. The April Rule provides no information that indicates the proposed 10 ppmv standard for H2S would not duplicate emission limits required by the Clean Air Act. Therefore, the Agency can not, consistent with §1006(b)(1) of RCRA, promulgate an H2S standard.

Response:
EPA disagrees with commenters that no hydrogen sulfide specification should be promulgated. EPA is establishing this RCRA exclusion from the definition of solid waste by limiting Part 261 Appendix VIII constituents, one of which is hydrogen sulfide. However, the proposed specification of 10 ppmv is not appropriate based on the levels currently used syngas fuel applications. (see technical support document for further discussion).
The sulfur content of the material used to produce the syngas is converted to almost entirely H_2S in the gasification process. Thus, syngas produced from low sulfur content material do not contain appreciable H_2S. The H_2S content of high sulfur coal-based syngas can be over 1000 ppmv. However, in these cases, H_2S is removed during the gasification process. The amount of H_2S removal is dependent on how the syngas will e used. In the case of syngas used for chemical feedstock, the H_2S removal can be to a level under 1 ppmv. For the case of syngas used for a fuel, H_2S removal can range from levels between 50 to 200 ppmv (above 200 ppmv may lead to corrosion of down stream gas handling equipment such as turbine blades). Thus, 200 ppmv represents the level of H_2S is gas currently used in applications where syngas is used as a fuel. Therefore, EPA is promulgating a hydrogen sulfide specification of 200 ppmv for synthesis gas fuels. EPA further notes that H_2S removal is considered as part of the gasification process and a syngas generator is required to meet the H_2S specification after this removal process.

40. Total Chlorine Specification Is Too Stringent

CFSYN.22(commenter 182)
2. The proposed specification of < l ppmv of total chlorine (HCl + chlorine) and total nitrogen in the syn-gas is too stringent.
There is not enough data to support the belief that a 1 ppmv spec is achievable. Most of the

data on HCl and chlorine absorption from syn-gas production is very preliminary. It would be premature to set a stringent standard without having data on what is technically achievable. EPA understands the difficulty of HCl and chlorine removal from gases since it is proposing 67 ppmv for incinerator stacks under this regulation.

Using syn-gas is equivalent to using purchased fuel gas. Absent some critical environmental concern, the user of the syn-gas, just as the user of the fuel gas ought to be the one setting the specification.

Response:

EPA disagrees with the commenter that a total halogen specification is too stringent. EPA is establishing a total halogen specification to limit the formation of halogenated PICs. Furthermore, EPA that its total halogen specification of 1 ppmv is comparable to synthesis gas currently used in fuel applications (see technical support document for further discussion).

41. Implementation Requirements Unwarranted

CFSYN.43.a(commenter 234)

3. The Proposed Implementation Requirements Are Unwarranted.

The April Rule provides that implementation procedures proposed for the generic comparable fuel exclusion would apply to syngas. We appreciate the Agency's apparent goal of removing unnecessary regulatory impediments to the environmentally-sound use of "comparable fuels." However, the implementation procedures as applied to the producers and users of syngas will likely not inspire the chemical, refining and utility industries to utilize syngas produced from hazardous secondary materials as a fuel, and are unwarranted, especially since syngas is not a "comparable fuel."

The implementation procedures are similar to, but in certain instances more limited than, those applicable to hazardous waste treatment facilities, and apparently were developed to address the Agency's concerns with respect to (1) handling and burning of "hazardous waste"25 and (2) "sham recycling."26 While these implementation procedures may be appropriate for hazardous wastes that are burned in boilers and industrial furnaces,[27] for all the reasons discussed above, application of the proposed procedures to syngas cannot be justified.[28] Neither the composition nor the fuel value of the syngas the Agency seeks to continue to regulate provides any basis for imposing burdensome, stigmatizing and commercially restrictive regulations. Moreover, syngas essentially identical in composition and fuel value is already being used as a fuel with absolutely no RCRA-based restrictions or oversight.

[Footnote 25: See, e.g., proposed requirements for sampling and analysis, notification and certification, and recordkeeping.] [Footnote 26: See, e.g., proposed requirements and restrictions developed "to ensure that the excluded fuel meets the specification and is burned." 61 Fed. Reg. 17466.] [Footnote 27: A fundamental understanding of the Agency, expressed in its explanation for why EPA is proposing a Comparable Fuel Exclusion, is that "Hazardous waste is burned for energy recovery in boilers and industrial furnaces in lieu of fossil fuels."

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61 Fed. Reg. 17459.] [Footnote 28: The April Rule concedes this distinction: "The Agency is proposing this exclusion [the Exclusion of Synthesis Gas fuel] to clarify the distinction between syngas products meeting these stringent specifications and hazardous wastes and other waste-derived fuels." 61 Fed. Reg. 17465.]

CFSYN.43.b(commenter 234)
Even if some or all of the proposed implementation procedures were warranted for syngas, the April Rule provides no guidance as to how or when the requirements of the rule would apply to production of syngas that was used for both power production and chemical manufacturing, nor to units that already use both hazardous secondary materials and "virgin" materials as feedstocks.

CFSYN.43.c(commenter 234)
Finally, we submit that the Agency does not have authority to promulgate implementation procedures applicable to syngas. The April Rule does not specify the statutory basis for imposing regulations on syngas. Through discussions with Agency personnel, however, it is our understanding that the Agency believes that RCRA require regulation of the producers, users and other handlers of syngas because RCRA requires that the Agency regulate hazardous waste used as a fuel.29 However, Congress did not intend to regulate commercial fuel products. Thus, this RCRA provision is not applicable to syngas. However, even if this provision were applicable, RCRA only requires that such standards be promulgated "as may be necessary to protect human health and the environment." 42 U.S.C. § 6924(q)(1). This delegation of authority also acts to restrict the Agency's authority. Yet the Agency has not demonstrated that promulgation of standards applicable to syngas are necessary to protect human health and the environment. For all the reasons explained above, we do not believe such standards are necessary. Moreover, the effect of the April Rule is to exclude syngas meeting the proposed specifications from the definition of "solid waste". Excluded syngas therefore would not be a "hazardous waste" for which the Agency is required to promulgate standards (as necessary) under 42 U.S.C. § 6924(q).
[Footnote 29: 42 U.S.C. § 6924(q)]

CFSYN.57(commenter 236)
2)The Agency should establish a distinct, preferred implementation scheme for syngas manufacturers that recognizes the product nature of syngas and creates a separate, abbreviated approach for the syngas exclusion.
MET has documented its CEP syngas quality, applicable commercial specifications and the existence of markets (see Attachments C and D). Syngas is an established, well defined, well characterized material of commerce which is used in large volumes, both for its material value as a feedstock and for its fuel value. MMT questions how any legitimate use, including use as a fuel, of a commercial product that meets specifications creates environmental concern beyond that of a non-waste obtained material. Consequently, MMT believes that extensive RCRA oversight is unwarranted for legitimate, commercial chemical products meeting stringent specifications, used by identified, legitimate consumers, and subject to prior review

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and approval. Controls are in place to protect the environment and assure syngas quality, including customer contracts, syngas specifications and air emission regulations. As a result, EPA should endorse a distinct, proportional implementation scheme for the syngas exclusion. A preferred implementation approach would recognize the status of syngas as a commercial product, and not a hazardous waste or waste-derived fuel. Such an implementation plan should require streamlined notification, identification of customers, regulatory determinations of legitimacy, i.e. a legitimate recycling test, testing with use of process knowledge, and record-keeping on-site that certifies that the manufactured syngas meets all required determined specifications.

Response:
EPA believes it is appropriate to include the syngas exclusion with the comparable fuels exclusion. The type of syngas excluded from the definition of solid waste results from thermal reaction of hazardous wastes, which reaction is optimized to break organic bonds and reformulate the organics into hydrogen gas and carbon monoxide. This resulting gas can be used as a fuel at manufacturing facilities. As defined in comments above, EPA has broad statutory authority to regulate fuels produced from hazardous wastes. The implementation requirements are necessary for syngas because the gas results from the treatment of hazardous waste. Notwithstanding commercial applications, there is a need to assure that the specification itself is being met and that the dangers posed by combustion of hazardous waste-derived fuel do not exist.

In general, the syngas and comparable fuels exclusion will be implemented in the same manner, with a few exceptions. A hazardous waste can meet the syngas fuel constituent and heating value specifications through the treatment of the hazardous waste. As with comparable fuels, it is the responsibility of the generator claiming the exclusion to demonstrate eligibility. The treatment of a hazardous waste to generate a syngas fuel can occur in either: 1) a unit subject to applicable Subtitle C treatment, storage and disposal requirements (i.e., Parts §264, §265 or §262.34); or 2) an exempt recycling unit exempt under §261.6(c).

The generator of the syngas fuel must demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituent of concern from the waste. A generator of syngas fuel from the treatment of hazardous waste must either: 1) document that the unit that will process the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents of concern from the type of waste being treated; or 2) process the hazardous waste in a unit that removes or destroys the constituents of concern, then analyze the waste in accordance with the requirements of §261.38(c)(8) to document that the exclusion specifications have been satisfied. If a hazardous waste is processed to produce a syngas fuel that meets the exclusion specifications, only the syngas fuel would be excluded from RCRA subtitle C regulation.

In addition, residuals from the treatment of a hazardous waste to generate an excluded syngas fuel remain solid waste and are subject to applicable Subtitle C regulations if they are also hazardous wastes. Residuals from the treatment of a listed hazardous waste to generate a syngas fuel remain hazardous wastes due to the mixture and derived from rule: the residuals

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are derived from treatment of listed hazardous wastes. EPA believes that the implementation for the syngas exclusion is necessary to ensure the protection of human health and the environment.

42. Restriction to Stationary Sources with Air Permits

CFSYN.02(commenter 089)
E. Exclusion of Synthesis Gas Fuel
Pg 17465 "Finally, we note that in Section F below we discuss whether the burning of hazardous waste excluded under the generic comparable fuel exclusion should be restricted only to stationary sources either with air permits or that otherwise have their air emissions regulated by a federal, State, or local entity. We specifically request comment on whether this restriction would also be appropriate for excluded syngas. Given that the Agency may undertake final rulemaking to provide an exclusion for syngas before promulgating a generic exclusion for comparable fuels, however, we request comment on whether more restrictive requirements on burning excluded syngas would be appropriate to minimize concern about burning a hazardous waste-derived gas."
The TNRCC feels that a syngas, which is produced from hazardous waste and meets the required specification, should not be treated differently than syngas manufactured from conventional raw materials such as coal or natural gas. In Texas, a facility, whether in a boiler, industrial furnace or a flare, burning syngas requires authorization pursuant to the Texas Clean Air Act. We feel that our approach results in protection of human health and the environment.

CFSYN.12(commenter 128)
7. Other issues.
EPA requests comment on whether more restrictive requirements on burning excluded syngas would be appropriate to e concern about burning a hazardous waste-derived gas. 17466/1.
Since syngas is not a hazardous waste and is adequately regulated under the Clean Air Act, no additional requirements can or should be imposed on it under RCRA.

CFSYN.23(commenter 182)
3. Waste derived syn-gas, after meeting specifications, is a product of commercial value just like natural gas or any other gaseous fuel. Restrictions on how or where this syn-gas is used are unnecessary.
Adding a restriction that the syn-gas would have to be burned in an industrial boiler, an industrial furnace, or an incinerator would limit the value of this fuel and its use in other potentially more valuable applications. These restrictions would limit potential market size for this valuable type of recycling.
For example, a company may already have enough fuels (e.g., wastes) for its industrial furnaces but not have enough for generation of electricity. Being forced to use its syn-gas in industrial furnaces would severely limit flexibility for no apparent gain in environmental

performance.

Response:
The final rule also requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, would ensure that the fuel is properly handled and combusted.
This limitation does not limit the flexibility of the exclusion. In fact, EPA is not aware of any applications were syngas is used in a unit that is not subject to Federal/State/local air emission requirements. Syngas will be allowed for use in industrial furnaces and boilers, identified in §260.10, and hazardous waste incinerators subject to regulation under Subpart O of parts 264 or 265. This would include industrial boilers located on the site of a facility engaged in a manufacturing process and utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale.

43. Process knowledge not appropriate for syngas.

CFSYN.05.b.(commenter 106)
Furthermore, EPA believes that the implementation procedures for the generic comparable fuel exclusion discussed subsequently in the proposal would also be appropriate for syngas (p. 17465/3). Section F (17466/2) proposes that the generator use current EPA guidance for developing waste analysis plans to develop their comparable fuel analysis plan.,.. to "ensure that generators sample and analysis as often as necessary, i.e., more frequently than every year, for constituents present in the fuel to ensure that excluded waste meets the specification." Current EPA guidance on developing waste analysis plans is integrally related to RCRA regulated units, and would therefore be inappropriate for a thermal process which EPA would exclude from the definition of solid waste (and therefore RCRA regulation). Given the high probability that various pollutants and PICs (including D/F) , would be present, coupled with the probability that upset conditions could cause increased emissions of pollutants and PICs (including D/F) , were EPA to exclude syngas from the definition of solid waste (and therefore RCRA regulation), it would be necessary to provide guidance for much more frequent sampling and analysis (e.g., daily and immediately following any upset condition). In addition, given the extreme thermal destruction environment that occurs in the CEP unit, the possibility of producing a multitude of unexpected PICs would require that such frequent testing include all Appendix VIII chemicals and not just those "believed to be present."

CFSYN.14.b(commenter 128)
Furthermore, EPA believes that the implementation procedures for the generic comparable fuel exclusion discussed subsequently in the proposal would also be appropriate for syngas (page 17465/3). Section F (page 17466/2) proposes that the generator use current EPA

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guidance for developing waste analysis plans to develop their comparable fuel analysis plan to "ensure that generators sample and analyze as often as necessary, i.e., more frequently than every year, for constituents present in the fuel to ensure that excluded waste meets the specification." Current EPA guidance on developing waste analysis plans is integrally related to RCRA-regulated units, and would therefore be inappropriate for a thermal process which EPA would exclude from the definition of solid waste (and therefore RCRA regulation). Given the high probability that various pollutants and PICs (including D/F) would be present, coupled with the probability that upset conditions could cause increased emissions of pollutants and PICs, were EPA to exclude syngas from the definition of solid waste (and therefore RCRA regulation), it would be necessary to provide guidance for much more frequent sampling and analysis (e.g., daily and immediately following any upset condition). In addition, given the extreme thermal destruction environment that occurs in the CEP unit, the possibility of producing a multitude of unexpected PICs would require that such frequent testing include all Appendix VIII chemicals and not just those "believed to be present."

CFSYN.25(commenter 191)
109. Page 509
One time sampling and analysis for syngas is unacceptable.

Response:
EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste.
The use of process knowledge may only be used by the original generator of the hazardous waste. If the generator of the hazardous waste and generator of the comparable/syngas fuel are different, then the generator of the syngas fuel may not use process knowledge to determine that constituents are not present in the waste. The generator of the syngas fuel, if not the original generator of the hazardous waste, must test for all of the constituents and properties in §261.38(a)(2) Table 1 of the regulations. This is because only the original generator may have intimate knowledge of the constituents in the waste.
It is the responsibility of the comparable/syngas fuel generator to document their claim that specific constituents meet the exclusion specifications based on process knowledge. Regardless of which constituents a generator uses testing versus process knowledge, the generator is responsible for ensuring that the waste meets all constituent specifications at all times. If at any time the syngas fuel fails to meet any of the specifications, that fuel is in violation of Subtitle C requirements.

44. Allow use of process knowledge.

CFSYN.56.b(commenter 236)

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Thus, MMT supports the use of process knowledge "to determine what compounds to sample and analyze for during the first analysis" (61 Fed. Reg. 17466). The use of process knowledge would eliminate the need for an initial full testing of syngas, thus, alleviating the problem created by the absence of test methods for some Appendix VIII constituents and, at the same time, reducing unnecessary costs for generators who are aware of compounds present based on composition of their feedstocks.

As noted previously, the bulk composition of syngas, i.e. H, and CO, produced using secondary materials is a function of the composition of the feedstock secondary material (i.e. relative amounts of carbon, nitrogen, hydrogen and oxygen). MMT is aware of the elemental composition of the feedstock which is indicative of the elemental composition of its products, due to comprehensive waste characteristics and the limited number of waste feeds handled in a typical CEP application; Moreover, unlike the comparable fuel proposal, which is largely self-implementing, CEP projects undergo prior review and approval allowing regulatory authorities to request constituent sampling as appropriate. In this context, a requirement for initial testing for all Appendix VIU constituents, including those that MMT is aware are not present in the feedstock, imposes unnecessary costs and is not necessary to prevent sham recycling.

Response:

EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste.

The use of process knowledge may only be used by the original generator of the hazardous waste. If the generator of the hazardous waste and generator of the comparable/syngas fuel are different, then the generator of the syngas fuel may not use process knowledge to determine that constituents are not present in the waste. The generator of the syngas fuel, if not the original generator of the hazardous waste, must test for all of the constituents and properties in §261.38(a)(2) Table 1 of the regulations. This is because only the original generator may have intimate knowledge of the constituents in the waste.

It is the responsibility of the comparable/syngas fuel generator to document their claim that specific constituents meet the exclusion specifications based on process knowledge. Regardless of which constituents a generator uses testing versus process knowledge, the generator is responsible for ensuring that the waste meets all constituent specifications at all times. If at any time the syngas fuel fails to meet any of the specifications, that fuel is in violation of Subtitle C requirements.

45. Syngas requires different sampling methods.

CFSYN.53(commenter 236)

III. Implementation Issues

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A. A different implementation approach, including test methods and analyses for gases, is required for the syngas exclusion. EPA's proposed implementation approach is specifically for liquid comparable fuels and, therefore, inappropriate for syngas.

EPA requests comment on whether implementation procedures for the generic comparable fuel exclusion would also be appropriate for syngas (61 Fed. Reg. 17465). Based on the inherent differences between (blended) liquid comparable fuels and gaseous commercial products, a different implementation approach is required for the syngas exclusion. In addition to physical form differences, syngas, unlike comparable (liquid) fuels, is manufactured to specifications. Furthermore, it must be handled on- site or via pipeline. In effect, MMT believes that syngas production and management is significantly different from that for hazardous waste and waste-derived liquid/solid fuels and the implementation scheme should reflect those differences.

Met's specific implementation concerns revolve around:

1)the application of SW-846 requirements to syngas;

2)the establishment of a preferred approach that recognizes the product nature of syngas and creates a separate, abbreviated implementation scheme for syngas; and

3)the prohibition on third party handling of syngas.

CFSYN.54(commenter 236)

1)The SW-846 requirements are not applicable to syngas. Sampling and analysis methods specific to syngas must be used.

EPA has proposed that the "analytical methods provided by SW-846 must be used, unless written approval is obtained from the Regional Administrator to use an equivalent method" (61 Fed. Reg. 17466). SW-846 methods are not directly applicable for syngas test methods because they apply most specifically to solids and liquids. Thus, this proposed requirement would result in burdensome complications for syngas manufacturers who would be required to complete a written approval process to determine the applicable methods. This approval process could result in varying, different sets of methods approved by the different EPA Regions. A more efficient and effective approach is to recognize separate sampling and analysis methods specifically for syngas.

CFSYN.55(commenter 236)

CEP Syngas Proposed Sampling and Analytical Methods

CEP syngas sampling and analytical protocols have been designed and applied by MMT to demonstrate syngas quality consistent with commercial customers' specifications. The following discussion focuses on the applicability of MMT's experience to the US EPA proposed specifications for the exclusion of syngas fuel (summarized in Table 1).

CEP technology, driven by elemental dissociation in a molten metal bath and product synthesis through thermodynamics equilibrium, allows complete conversion of feeds to targeted final products (e.g., synthesis gas, HCl). As the attached summarized syngas data (e.g., from K027 and biosludges processing, see Attachment C) demonstrates, CEP is a highly robust process which ensures a high quality syngas capable of meeting the proposed specifications over a wide range of feeds and operating conditions. To verify that syngas

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product consistently and reliably meets customers' specifications, the following sampling and analytical procedure has been carried out at the CEP commercial-scale prototype.

The product gas is typically sampled through a Ω" OD Teflon tube and is transported to the analytical laboratory. A slipstream (1 liter/min maximum) is diverted to each gas analyzer with the remainder of gas entering a vent-scrubber. The gas analyzers can include:

(1) Mass spectrometer for CO, H2, CO2, HCI, H2S, HCN, N2, S02, CH4, 02;
(2) On-line total hydrocarbon (THC) (EPA Method 25A);
(3) Gas chromatography for CO, H2, C02, N2, 02, HCI, HCN, COS, CS2, H2S, and other hydrocarbons (EPA Method 18);
(4) Infrared CO/CO2, monitoring system.

The above on-line sampling and analytical protocol has been implemented, with customers satisfaction, to process a wide range of feeds in CEP systems, and confirmed CEP syngas products reliably meet customers specifications. These past experiences have allowed MMT to develop appropriate monitoring protocols for CEP commercial facilities supplying syngas. In addition to the standard protocol, EPA methods have also been applied periodically to demonstrate compliance to specific customers' syngas specifications. Table 2 (see below) summarizes the EPA designated methods that have been adapted by MMT sampling and analytical protocol. Sampling of H, S, HCI, total chlorine, and total nitrogen are carried out based on the standard EPA gas handling train using impinger systems with modifications to allow handling of pressurized gases. The CEP gas handling train is modified with (1) direct connection pipe from the pressure source, (2) throttling valve for pressure adjustment, and (3) exit piping to the syngas vent (see Figure 1 and Figure 2). The analytical method-s for the sample matrices (i.e., impinger solutions) are complied with using standard EPA methods.

CFSYN.56.a(commenter 236)

As an alternative to analyzing the entire list of Part 261 Appendix VIII constituents, which is not typically specified in commercial fuel gas specifications, MMT proposes that EPA allow the use of EPA Method TO-14 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient EPA 600/4-84-041, U.S. Environmental Protection Agency, Research Triangle Park, NC, April 1984 and May 1988, or an equivalent EPA-approved method, as a representative analysis for Appendix VIII constituents.

EPA Method TO-14 utilizes combined gas chromatography/mass spectrometry (GC/MS) to analyze for volatile organic compounds and tentatively identified compounds. Based on mass balances and process knowledge of CEP, which has demonstrated destruction removal efficiencies (DREs) for toxic organic constituents of at least 99.9999 percent, toxic organic compounds would not be expected to be present in the syngas produced in CEP. Combined with process knowledge, EPA Method TO-14 would provide confirmation that trace organic constituents listed in Appendix VIII of Part 261 are not in syngas produced from CEP (with the exception of hydrogen sulfide and the nitrogen compound analyses which are covered by previously-discussed EPA methods).

<u>Response:</u>

EPA is concerned that tested and generally accepted methods may not exist for the sampling

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of gases from pressurized systems that will ensure an accurate representation of the hazardous constituents present in the gas. Hazardous constituents present in a gas at high pressure and high temperature may be difficult to accurately analyze due to possible physical and chemical changes in the constituents when a sample is drawn into a low pressure and temperature environment for analysis. For example, some constituents, while present as a gas under high pressure and temperature, may solubilize into liquids that have condensed or adhere to the sampling components as the pressure and temperature drops in the sampling device. If this were to occur, the analysis of the sampled gas would not accurately represent the concentrations of the constituents in the original gas.

Therefore, the final rule allows either of two approaches for sampling syngas: 1) the generator could develop or use an existing methodology to sample the syngas fuel that will ensure an accurate representation of the constituents which must be analyzed under §261.38(c)(7); or 2) the generator could work with EPA, on a case-by-case basis, to develop a methodology for sampling of the syngas fuel that will ensure an accurate representation of the constituents which must be analyzed under §261.38(c)(7).

A syngas fuel generator may use the performance-based approach (§261.38(c)(7)) to demonstrate that the performance of the methods selected is appropriate to meet the exclusion specifications. Guidance on demonstration of appropriate method performance can be found in Chapter One of SW-846 and the Quality Control sections of the individual methods.

The syngas fuel generator may determine, based on process knowledge, that they do not need to analyze for all of the constituents on the syngas target constituent list. The syngas fuel generator must test annually at a minimum for those constituents they may be present in the waste. However, it is the syngas fuel generator’s responsibility to ensure that their syngas meets all constituent specifications in §261.38(b), regardless of whether the generator used testing or process knowledge to determine that the constituent specifications were being satisfied.

46. Third Party Handling Should Be Allowed

CFSYN.58(commenter 236)

3) Third party handling of syngas, e.g. via pipeline, should be allowed.

MMT is concerned about EPA's proposal that third parties would not be allowed to manage fuels eligible for the exclusion. The Agency notes that it:

> ... Is reluctant to allow persons other than the generator and the burner to manage the comparable fuel because it would likely be too difficult to ensure that the excluded fuel meets the specification and is burned (see 61 Fed. Reg. 17466).

Thus, EPA invites comment:

> ...On how to allow third party intermediaries, such as fuel blenders, to handle an excluded comparable fuel without precipitating serious enforcement and implementation difficulties (see 61 Fed. Reg. 17466) (emphasis added).

As written, this proposal could be misapplied to regulate CEP's manufactured syngas from secondary materials. Syngas production and management is significantly different from that for hazardous waste and waste-derived liquid/solid fuels. A restriction of third party involvement with the management of syngas would handicap its production. In addition to physical form differences, syngas, unlike comparable (liquid) fuels, is manufactured to specifications for discriminating customers. Syngas must be handled on-site or via pipeline, and the pipeline operators are typically independent third-parties.

EPA indicates its concern with "sham blending" activities or other fraudulent treatment and, therefore, has recommended this control. Clearly, EPA intends to target the "sham" comparable fuel blenders and does not intend to impose burdensome regulations on manufacturing processes, such as CEP. These same "sham" concerns do not apply to third party management of manufactured syngas, i.e. via pipeline for distribution to co-located facilities. In the case of syngas, fuel is piped and confined to a limited number of third parties. Syngas pipeline operators maintain strict specifications and standards for any syngas entering the pipeline. CEP projects and its syngas products are reviewed by state regulators to ensure recycling is legitimate. Thus, while the restriction on third party involvement is appropriate for the management of hazardous waste and waste-derived comparable fuels, it would impose unnecessary limitations and burdens on a proven environmentally sound process that manufactures syngas.

Response:

EPA is allowing third party involvement in the final rule. EPA recognizes that in some cases it may be more appropriate to allow third party handling of a syngas fuel. The generator must document that the hazardous waste-derived syngas, as generated without processing, meets the hazardous constituent and heating value specifications. The generator must also document and certify that a hazardous waste is combusted. A third party generator must handle the hazardous waste-derived syngas according to proper DOT and OSHA regulations.

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COMPARABLE FUELS: IMPLEMENTATION

Blending to Meet Specifications

1. Eliminate restrictions on blending

CFI5.01(commenter 086)

L. The Agency Should Eliminate the Proposed Restrictions on Blending to Meet Comparable Fuel Specifications.

USWAG strongly disagrees with the Agency's proposed prohibition on blending to meet the comparable fuels specifications. 61 Fed. Reg. at 17466-67. This proposed restriction would limit the usefulness of the proposed exclusion while serving no compensatory environmental purpose. The environmental impact of burning comparable fuels is determined by the concentration of hazardous constituents present in the fuel when it is burned; the past history of these constituents is irrelevant. If the Agency has determined that a waste meeting certain specifications, as generated, poses minimal risk to the environment when burned as a fuel, there is no reason to believe that a material that meets these same specifications after blending poses any greater risk.

Moreover, the concerns expressed by the Agency about blending are overstated. The Agency's first concern is about the degree of oversight required. However, these materials are hazardous waste as generated and are thus already subject to regulatory oversight for any treatment, including blending to meet a comparable fuel specification. An entity that chooses to engage in blending would be subject to an existing scheme of comprehensive hazardous waste rules. Contrary to EPA's assertion, no additional regulation would be required to regulate this practice.

The differences between the used oil program and the proposed comparable fuels program are also more perceived than real. As with used oil, there are substantial practical limitations on the types and quantities of wastes that can be blended and continue to meet the fuel value and other specifications of the comparable fuels program. Thus, it is highly unlikely that large quantities of low Btu, metal-containing wastes would be blended into comparable fuels. Moreover, the operators of boilers and industrial furnaces have fuel specifications they need to meet in order to keep their units operating properly that also impose practical limits on what kind of material can be burned under the proposed exclusion. Finally, restrictions under the Clean Air Act limit the emission of hazardous constituents and, in many cases, restrict the choice of fuel as well.

EPA's concerns about the land disposal restrictions ("LDRs") are also misplaced. The purpose of the dilution prohibition in the LDRs is to ensure that hazardous constituents are properly treated prior to land disposal to reduce the total loading of hazardous constituents placed on the land. That concern does not apply to hazardous organic constituents in comparable fuel because they will be treated by combustion. With regard to metals, as discussed above, there are practical limitations on the amount of metals likely to be present in comparable fuels, and, second, the emission and ultimate disposal of metals are adequately addressed through existing Clean Air Act and solid waste management controls.

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Accordingly, USWAG does not believe that the proposed prohibition on blending will have significant environmental benefits, and, therefore, it should be eliminated. At a minimum, blending should be allowed for comparable fuels burned in units, such as electric utility boilers, that are regulated under the Clean Air Act.

CFI5.11(commenter 174)
I.F.4 Blending to Meet the Specifications:
We feel that blending should be allowed to meet the specification. If a single generator generates two waste streams and when mixed together the mixture passes the Comparable Fuel Exclusion, this should now be viewed as a single stream and should be excluded. In addition, we do not feel that a comparable fuel is unlikely to be a petroleum distillate, as EPA stated. Petroleum solvents would be a large portion of this exclusion, we feel.

Response:
The Agency continues to have a concern that wastes may be simply diluted if the proposed prohibition on blending was eliminated. Dilution also would not remove constituents of concern and therefore have no impact on the overall mass loadings of hazardous constituents. Therefore, in the final rule, the Agency allows an as-generated hazardous waste, which meets the hazardous constituent and heating value specifications, but does not meet the viscosity specification, to be blended to meet the viscosity specification. The generator must document that the hazardous waste, as generated without processing, meets the hazardous constituent and heating value specifications prior to any blending. It is also the responsibility of the generator to document that the blending does not violate the dilution prohibition of §261.38(c)(6). This provision states that the hazardous constituent and heating value specifications cannot be met through dilution; i.e. they can only be met through treatment which destroys or removes hazardous constituents, or by the waste as-generated.

2. Support proposed restrictions on blending

CFI5.2(commenter 089)
4. Blending to Meet the Specification
Pg 17466 The TNRCC agrees with the approach that EPA has taken in regard to the issue of simple blending to meet the comparable fuel specification. In particular, the TNRCC feels that simple blending of comparable fuels could be allowed for certain physical specifications, such as flash point and kinematic viscosity, but should not be allowed for the purpose of dilution.

Response:
EPA agrees with commenter.

3. Exclude blending at generator sites

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CFI5.3(commenter 102)

I. Blending to Meet Comparable Fuel Specifications

If blending to meet a comparable fuels specification is permitted, otherwise reclaimable waste streams will be combined (blended) with other waste streams that could not meet the "as generated" specification in order to produce a waste fuel suitable for burning in an unregulated combustion device. Unless the national strategy to minimize Subtitle C waste is to eliminate it by redefinition, we fail to understand how comparable fuels contributes to waste minimization.

NACR agrees with EPA's comments in the preamble that blending should be prohibited to meet a comparable fuel specification. Any comparable fuels provisions will require an extensive agency effort to ensure that all claims for the exclusion are being met on a consistent basis. As an example, the Agency will still be required to ensure that all waste streams that are being blended meet the specifications before being blended. This will also require a significant degree of oversight, another reason for NACR's general reservations about the feasibility and wisdom of any comparable fuels program.

Based upon the information provided above, NACR recommends that the EPA exclude all types of blending at generator sites (whether the pre-blended wastes meet the specifications or not) and should only allow blending to occur at RCRA permitted or interim status facilities that are subject to full RCRA controls. This prohibition would apply to generators treating in 90 day accumulation tanks or containers. This both helps ensure that blending is done properly and limits the number of facilities EPA must monitor.

CFI5.5(commenter 108)

2. Safety-.Kleen supports EPA Is decision to preclude blending at unpermitted generator sites to meet a comparable fuel specification

EPA's proposal would prohibit the blending of waste to meet a comparable fuel standard. The Agency states that:

If blending to lower the concentrations of hazardous constituents in a waste were allowed to meet the specification, EPA believes that a very extensive compliance and enforcement system would have to be instituted to ensure that blending was done properly (with any necessary storage and treatment permits) and that the resultant mixture meets the specification continually. This alternative appears to warrant a degree of oversight that may be infeasible from the industry viewpoint. (Ld. at 17466)

Safety-Kleen concurs that the potential compliance monitoring and enforcement issues are significant and supports EPA in this regard. However, we believe the same types of problems exist whether blending is allowed or not. Any comparable fuel provision will require an extensive agency effort to ensure that all claims for the exclusion are being met on a consistent basis. As an example, the Agency will still be required to ensure that all waste streams that are being blended meet the specifications being blended. This will also require a significant degree of oversight and is one reason why Safety-Kleen has general reservations regarding any comparable fuel program.

As such, we believe at a minimum EPA should exclude all types of blending at generator sites (whether the pre-blended wastes meet the specifications or not) and should only allow

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blending to occur at permitted RCRA storage or treatment facilities that are subject to full RCRA controls. This both helps ensure that blending is done properly and limits the number of facilities EPA must monitor.

Response:

In today's final rule, the Agency allows an as-generated hazardous waste, which meets the hazardous constituent and heating value specifications, but does not meet the viscosity specification, to be blended to meet the viscosity specification. The generator must document that the hazardous waste, as generated without processing, meets the hazardous constituent and heating value specifications prior to any blending. It is also the responsibility of the generator to document that the blending does not violate the dilution prohibition of §261.38(c)(6). This provision states that the hazardous constituent and heating value specifications cannot be met through dilution; i.e. they can only be met through treatment which destroys or removes hazardous constituents, or by the waste as-generated.

The Agency agrees in that blending of a hazardous waste pursuant to §261.38(c)(3) to meets the viscosity specification may be performed only in regulated units: at a permitted RCRA treatment, storage facility; a regulated interim status treatment, storage facility; or at a 90-day generator unit meeting the requirements of §262.34. EPA disagrees with the commenter regarding the prohibition extending to 90-day generator units. These requirements were developed to ensure protection of human health and the environment and are adequate for the blending activities allowed by this provision. In particular, the substantive standards for tanks and containers for a 90-day generator, and for a fully permitted TSDF, are identical. The Agency further notes that generators may already use such 90-day units to treat hazardous wastes to comply with LDR treatment standards (see 268.7 (a) (4)). EPA regards this circumstance as analogous to the circumstance in the comparable fuel rule -- generators are treating their own wastes in 90-day units to meet specifications for potentially dozens (or more) hazardous constituents, and may only do so by treatment which destroys or removes hazardous constituents. The LDR provision has worked well in practice, not raising any of the problems alluded to by the commenter. Thus, the Agency does not see a need to prevent generators from properly treating their own wastes to generate a comparable fuel.

4. Opposed to all blending to meet specification

CFI5.4(commenter 106)

ENSCO agrees with EPA's proposal on page 17466/2&3 that the comparable waste fuel exemption must not be applicable to any intermediate parties between the generator and the burner. The waste fuel must go directly to the burner and be burned, with no intermediate treatment or blending. It would be too complex to enforce the provisions if a entire additional universe of blenders had to be inspected for compliance with the clean fuel standards. Allowing blending to meet the standards would be encourage impermissible dilution, and would ultimately result in waste that is concentrated in toxic constituents to go to uncontrolled burning devices. This is counter to pollution prevention.

For these reasons the exemption must be limited to Part 266 and Subpart 0, with no allowance for blending or treatment to meet the clean fuel specification, by any third party or intermediate facility.

CFI5.4.a(commenter 106)

ENSCO is opposed to allowing the use of blending to meet the specification. The waste must meet the specification as-generated, and must go directly to the burning facility. Promulgating the comparable fuel exclusion under Subpart 0 and Part 266, and not under 261.4, would virtually eliminate the practice of blending and impermissible dilution to meet the specification. For this reason, the scope of the exclusion should be limited to Subpart 0 and Part 266. The EPA, as well as state and local agencies, cannot possibly implement and manage the complex and extensive compliance and enforcement programs that would be needed to control blending practices, if the exclusion were promulgated under 261.4. ENSCO agrees with EPA's concern expressed on page 17467/1 that blending would discourage source reduction, and is simply a form of prohibited dilution that will result in an overall increase in environmental loading of toxic constituents. It is also counter to the impermissible dilution provision under 40 CFR 268.3, and would result in dilution substituting for treatment of many prohibited hazardous wastes.

To control impermissible dilution, ENSCO agrees with EPA's proposal on page 17467/2 to require that the heat content specification be met on an as-generated basis. This is particularly critical to ensure that waste of little to no fuel value is not blended up to meet the specification. Otherwise, waste loaded with metals and concentrated toxic constituents will go to uncontrolled burning, as opposed to properly regulated and controlled treatment facilities under Subtitle C.

CFI5.9(commenter 130)

The ETC agrees with EPA's proposal (page 17466/2&3) that the comparable waste fuel exemption must not be applicable to any intermediate parties between the generator and the burner. The waste fuel must go directly to the burner and be burned, with no intermediate treatment or blending. It would be too complex to enforce the provisions if an entire additional universe of blenders had to be inspected for compliance with the clean fuel standards. Allowing commercial blending to meet the standards would encourage impermissible dilution, and would ultimately result in waste that is concentrated in toxic constituents to go to uncontrolled burning devices. This is counter to pollution prevention.

CFI5.9.a(commenter 130)

The ETC is opposed to allowing the use of blending to meet the specification. The waste must meet the specification as-generated, and must go directly to the burning facility. Promulgating the comparable fuel exclusion under Subpart O and Part 266, and not under 261.4, would prevent the practice of blending and impermissible dilution to meet the specification. For this reason, the scope of the exclusion must be limited to Subpart O and Part 266. The EPA, as well as state and local agencies, cannot possibly implement and manage the complex and extensive compliance and enforcement programs that would be

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needed to control blending practices, if the exclusion is promulgated as a blanket exemption under 261.4. The ETC agrees with EPA's concern (page 17467/1) that blending will discourage source reduction, and is simply a form of prohibited dilution that will result in an overall increase in environmental loading of toxic constituents. It is also counter to the impermissible dilution provision under 40 CFR 268.3, and would result in dilution substituting for treatment of many prohibited hazardous wastes.

Response:
The Agency has chosen not to limit the exclusion to Part 266 and Subpart O with no allowance for blending or treatment. In today's final rule, the Agency allows an as-generated hazardous waste, which meets the hazardous constituent and heating value specifications, but does not meet the viscosity specification, to be blended to meet the viscosity specification. The generator must document that the hazardous waste, as generated without processing, meets the hazardous constituent and heating value specifications prior to any blending. It is also the responsibility of the generator to document that the blending does not violate the dilution prohibition of §261.38(c)(6). This provision states that the hazardous constituent and heating value specifications cannot be met through dilution; i.e. they can only be met through treatment which destroys or removes hazardous constituents, or by the waste as-generated. The Agency agrees with the intent of the comment, by allowing treatment to generate a comparable fuel, so long as the treatment destroys or removes the haz constituents, we address the mass loading/impermissible dilution concerns mentioned by the commenter.

5. Retesting after blending should not be required

CFI5.7(commenter 110)

4. Blending Should Be Allowed To Meet Any Flash Point and Viscosity Specifications, and Retesting of the Mixture After Blending Should Not Be Required

If EPA decides nonetheless to establish flash point and/or viscosity specifications, the CCF agrees that blending should be allowed to achieve those physical requirements.

Moreover, the CCF does not believe that there is any need for a blanket requirement that generators must retest the prospective comparable fuel after blending to ensure that the specification levels are met. As we understand EPA's preamble discussion, there would be no need to retest the mixture if the waste fuel were blended with clean fossil fuel whose constituents were appropriately documented. The CCF believes that the same rule should apply in the case of any blending agent; if the generator can document the low levels of Appendix VIII constituents in any fuel used as the blending agent, there should be no need to retest the mixture after blending. In such circumstances, the requirement to retest after blending would simply impose another level of effort and expense on the regulated community with no environmental benefit.

Response:
In the final rule, the Agency does not require a retest of the waste if the comparable fuel

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specification for viscosity is met after blending.

6. Clarification of blending for qualifying waste fuels

CFI5.8(commenter 128)

12. Blending should be allowed for qualifying wastes.

Concluding that the possibility of blending raises the specter of inappropriate dilution of metals and toxics, the proposal would require that comparable fuels meet the exemption specifications at the point of waste generation (POG).

CMA generally supports this provision and has included it also 'm its own proposal. (As discussed below, however, the POG consideration should only apply to specifications related to intrinsic hazard, not to physical characteristics.)

The EPA should clarify, however, that POG waste fuels may subsequently be blended prior to burning. Such blending may be incidental to the burning process (i.e., storage and commingling of multiple streams in storage) or it may be intentional in order to achieve a consistent fuel. In any event, such constructive blending of qualifying POG waste fuels should not be precluded.

Response:

Wastes that meet the exclusion qualifications are no longer solid wastes and further blending does not fall within the jurisdiction of RCRA.

7. Enforcement concerns regarding blending

CFI5.10(commenter 136)

3. Blending to Meet Fuel Specifications

Assuming arguendo the Agency proceeds with an exclusion for comparable fuels, under no circumstances should blending be allowed to meet the contaminant concentration and heating value specifications. Such blending would result in the mere dilution of toxic contaminants, contrary to EPA's dilution prohibition policy. In addition, such blending would inevitably conflict with the Agency's pollution, waste minimization and combustion strategy goals, by encouraging the increased combustion of toxic contaminants.

While EPA did prohibit blending to meet fuel and heating value specifications in the proposal (61 FR 17467), the Agency authorized blending for the purposes of meeting other physical specifications (flash point, viscosity), after the constituent and heating value specifications have been met (61 FR 17467). This allowance of blending for one purpose but not another raises serious enforcement concerns. Since exempt comparative fuels may be burned anywhere, can be subsequently blended with other materials in any manner once exempt, and the initial exemption determination is not subject to prior review and approval, EPA must construct the implementation scheme to ensure the initial exemption determinations are valid. After-the-fact investigations will not be fruitful since the evidence is likely combusted, the paper trail may involve many installations across several states, and variability in wastes may impair the Agency's ability to draw conclusions about historic wastes on the basis of current sampling efforts. Moreover, EPA and state inspection resources are dwindling, making it less likely frequent inspections can be performed to verify blending is performed for the allowed purposes only.

Accordingly, EPA should prohibit blending for any purpose absent prior review and approval by a regulatory authority after an adequate demonstration that such blending will be performed for the allowed purposes only, and that the exempt fuel will be only be burned onsite or shipped through fixed piping to obviate the need to track the material should violations occur.

Response:

In today's final rule, the Agency allows an as-generated hazardous waste, which meets the hazardous constituent and heating value specifications, but does not meet the viscosity specification, to be blended to meet the viscosity specification. The generator must document that the hazardous waste, as generated without processing, meets the hazardous constituent and heating value specifications prior to any blending. It is also the responsibility of the generator to document that the blending does not violate the dilution prohibition of §261.38(c)(6). This provision states that the hazardous constituent and heating value specifications cannot be met through dilution; i.e. they can only be met through treatment which destroys or removes hazardous constituents, or by the waste as-generated.

8. Requirement for retesting after blending for viscosity

CFI5.12(commenter 205)

Blending to Meet Specs/Retesting After Blending (p. 17467): TCC agrees with testing for physical specification after blending if compliance with physical specifications prior to blending is not required. TCC generally disagrees, however, with the proposed requirements to retest a blend of two or more comparable fuels when the two blend components meet the specification prior to blending.

EPA's proposal allows blending to meet physical specifications but not to meet heating value and individual constituent specifications. TCC agrees with allowing blending to meet physical specifications and testing for those physical specifications after blending. Most commercial fuel is not marketed as a raw petroleum distillation product, but rather the commercial fuel is prepared by blending. The same opportunity should be allowed for producers of comparable fuel.

EPA proposes allowing blending of excluded fuels, but is also considering a requirement to retest the blend. TCC feels any additional retesting of such a blend becomes expensive and is unnecessary. Analysis for the list of constituents costs on the order of $550. Analysis for the 14 metals specified in Table VI.I.1 costs around $250. Batch-wise testing of a blend (including physical parameters) will exceed $800 per sample or over $290,000 per year if the generator prepares and analyzes one blend per day.

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These costs are unnecessary if the as-generated comparable fuel must have already met the specs for specific constituents and heating value. This is because dilution of constituents and/or physical parameters occurs during blending of two comparable fuels. This dilution dictates that a concentration of a constituent cannot be achieved which is higher than the concentration of the constituent found in the blend make-up streams.

Response:
In the final rule, the Agency does not require a retest of the waste if the comparable fuel specification for viscosity is met after blending.

9. Limit exclusion to existing generator/on-site burners

CFI5.14(commenter 194)
The concept of developing a "benchmark fuel specification" has merits but the EPA must investigate the generation of these wastes as well. Organic mixtures that were to satisfy this future fuel specification should not qualify for the exclusion if they were to become contaminated with or were originally generated with materials or wastes that are not "fuel-like" (e.g. bottom sediment and free water). To exclude such materials from the definitions of solid and hazardous waste would promote blending of hazardous wastes on and off site. The materials would then be entered into commerce with very little tracking. Unless this idea is carefully crafted into a regulation that prevents "waste-like" materials from exiting Subtitle C controls because they match a fuel specification, many non-fuel wastes will become part of a new low grade fuel market. Norlite suggests the exclusion be granted to existing generator/on-site burners.

Response:
The Agency has not limited the exclusion to existing generator/on-site burners and allows any generator or handler who meets the exclusion requirements to take advantage of this rule.

10. Clarification of blending for BIFs

CFMISS.01(commenter 083)
34. Pg 17467, middle of column 2 and pg 17531, para 266.100 - says that waste containing less than 500 ppm of nonmetal compounds can not be blended with other wastes to meet the comparable fuels specification. It said that it was not necessary to establish this limit to remain consistent with other rules and policies. Para 268.3(c) of the LDR regulations allows you to incinerate waste that contains hazardous organic constituents above the Universal Treatment Standard (UTS) values. It is not clear how this new proposed rule fits in with the existing rules while still remaining consistent. Are you saying that BIF's can not accept waste containing organics below 500 ppm and that wastes containing organics in the range from the UTS values up to 500 ppm have to be burned in incinerators (not in BIF's)? This needs to

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be clarified.

Response:

The comparable fuels specification is intended to exclude those hazardous wastes that meet the specifications for burning in non-RCRA regulated units. The rule does not exclude BIFs from burning comparable fuels and the specifies that BIFs are one of the types of combustors that may burn hazardous wastes.

11. Calrification of regulatory language

CFMISS.04.b(commenter 089)

PART 261--IDENTIFICATION AND LISTING OF HAZARDOUS WASTE
§ 261.4 Exclusions
Pg 17529 § 261.4(a)(13)(iii)(C)(4) should read:

(4) IF a waste-derived fuel is blended in order to meet the flash point and kinematic viscosity specifications, the producer shall analyze the fuel as produced to ensure that it meets the constituent and heating value specifications and then analyze the fuel again after blending to ensure that it meets all flash point and kinematic viscosity specifications.

Response:

The Agency agrees with the commenter and has included the requirement that the fuel must meet all constituent specifications before and after such blending referenced in the comment above.

12. Impermissible dilution

CFMISS.27(commenter 130)

To control impermissible dilution, the ETC agrees with EPA's proposal (page 17467/2) to require that the heat content specification be met on an as-generated basis. This is particularly critical to ensure that waste of little to no fuel value is not blended up to meet the specification. Otherwise, waste loaded with metals and concentrated toxic constituents will go to uncontrolled burning, as opposed to properly regulated and controlled treatment facilities under Subtitle C.

Response:

The Agency agrees with the commenter.

Treatment to Meet the Specification

1. No additional requirements are needed for treatment

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CFI3.1.a(commenter 086)

M. No Additional Requirements are Needed for Treatment.

USWAG supports the Agency's determination that wastes can be treated to meet the comparable fuels specifications. Id. at17467-68. However, USWAG does not believe that any additional certification or notification requirements are required for comparable fuels produced by such treatment.

CFI3.1.b(commenter 086)

As the Agency recognizes, there are a number of wastes that can be treated relatively easily to meet the comparable fuel specifications, and there is no environmental reason to exclude these materials. One example is gasoline or diesel fuel that has been contaminated with water. Allowing these materials to be treated to meet the comparable fuel specifications expands the usefulness of the proposed exclusion without increasing the environmental risk.

There is no justification for additional controls on such treatment, however. These materials are hazardous waste until treated to meet the specifications. Their management and treatment, therefore, are subject to full Subtitle C regulation, including treatment in 90-day accumulation units because such units are subject to applicable Part 265 management standards. These controls are more than sufficient to ensure that the materials are properly handled. Indeed, these standards are specifically designed to be fully protective of human health and the environment, including those for 90-day accumulation units used for treatment activities. See, e.g., 51 Fed. Reg. 10146, 101 68 (March 24, 1986) (EPA determination that management standards applicable to 90-day accumulation units allow for treatment or storage because such standards are designed to be protective in either circumstance). Moreover, the Agency has already proposed testing and certification requirements for all materials for which the comparable fuels exclusion is claimed, and therefore no additional certification or testing requirements are needed.

In short, there is simply no reason to impose an additional layer of regulation on materials that meet the comparable fuel specifications through treatment.

Response:

The Agency agrees that comparable fuels can be produced via treatment of wastes under certain conditions, and §261.38(c)(4) specifically states that only treatment which destroys or removes hazardous constituents or materials is permissible. Moreover, the waste remains subject to subtitle C control during treatment and thus treatment can only occur in regulated units. (Treatment by blending to meet the viscosity specification likewise can only occur in regulated units, for the same reason.)

It is the responsibility of the generator claiming the exclusion to demonstrate eligibility. See generally §261.2(f). Put another way**,** it should be noted that just meeting the hazardous constituent, heating value and viscosity specifications would not qualify a hazardous waste for the exclusion; the implementation requirements of §261.38(c) (e.g., notices, certification, sampling and analysis, recordkeeping, etc.) also must be satisfied for a hazardous waste to be excluded as a comparable fuel. The person that treats the hazardous waste to generate a comparable fuel must also demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituents or materials of concern from the waste. The treater must either: 1) document that the unit that will treat the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents (at the levels present in the waste) or materials of concern from the type of waste being treated; or 2) treat the waste in a unit that removes or destroys the constituents of concern, then reanalyze the waste, in accordance with the requirements of §261.38(c)(7), to document that the constituent specifications have been satisfied.

If a hazardous waste is treated to produce a comparable fuel, only the waste would be excluded from RCRA subtitle C regulation upon a determination that it met the specification. The hazardous waste would be regulated under Subtitle C from the point of generation until the generation of a comparable fuel that meets the exclusion specifications. This means that the generation, transport, storage, and treatment of the hazardous waste, until exclusion as a comparable fuel, remains subject to applicable Subtitle C regulations.

In addition, residuals from the treatment of a hazardous waste remain solid waste and are subject to applicable Subtitle C regulations. Residuals from the treatment of a listed hazardous waste, listed in Subpart D of this part, to generate a comparable fuel remain hazardous wastes due to the mixture and derived from rule since they are derived from treatment of listed hazardous wastes.

The Agency also believes that facilities operating in compliance with the applicable RCRA management standards will be protective of human health and the environment for the treatment of waste to produce comparable fuels. Moreover, the waste remains subject to subtitle C control during treatment and thus treatment can only occur in regulated units.

2. Incidental settling during transport

CFI3.2(commenter 099)

11. The proposed regulation (40 CFR 261.4(a)(13)(iii)(E)(4)) indicates that treatment by incidental settling during storage and blending operations is not bonafide treatment for purposes of the exclusion.

Dow is concerned that this provision could be interpreted by EPA or state officials to include incidental settling likely to occur when a comparable fuel -is shipped from the generator to the burner. Therefore, Dow requests that the Agency clarify in the rule that any incidental settling that occurs or may occur during transport of the comparable fuel would not be covered by this provision.

Response:

In the final rule, incidental settling during storage and allowable blending is not treatment for the purpose of this exclusion.

3. Clarify bon-fide treatment

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CFI3.3.a(commenter 102)

J. Treatment to Meet Comparable Fuel Specifications

To further embellish the concept, EPA is proposing to extend deregulation to waste undergoing "bona fide" treatment to meet the benchmark fuel specification. It is ironic, given the anti-combustion bias of the overall rulemaking, that EPA argues that recovery of energy from hazardous waste derived fuels is so beneficial within a comparable fuel context, that the comparable fuels exclusion should be extended beyond "as generated" wastes.

In proposed rule 261.4(a)(13)(iii)(E)(I) the Agency suggest that only "bona-fide" treatment can be conducted on excluded comparable fuel waste. However, EPA does not define "bona fide treatment'. The Agency has chosen this term in an attempt to distinguish between different types of treatment processes to achieve comparable fuel specifications. NACR believes that the Agency should include a definition of bona-fide treatment so as to clearly distinguish between what is, and what is not, considered bona fide treatment.

CFI3.5.a(commenter 108)

3. EPA should clarify their definition for "bona-fide " treatment

In the proposed rule at section 261.4(a)(13)(iii)(E)(1), the Agency uses the term "bona fide" treatment. This term has been previously used or implied in a number of existing regulatory contexts (for example, in 40 CFR Section 268.3, in 40 CFR Section 266.103(a), and in other recent EPA guidance regarding RCRA treatment). The Agency appears to use the term here to distinguish between blending or mixing of different streams and actual treatment of a single stream so that it meets the comparable fuel specification. We believe the Agency needs to amend 260. 10 to include a definition of bona-fide treatment so as to clearly distinguish between what is allowed and what is not.

CFMISS.05(commenter 092)

Additionally, EPA has indicated that it may allow some waste material to be exempted after being subjected to bona fide treatment to meet the benchmark fuel specifications. The purpose here is to encourage the use of waste through energy recovery. Yet, in other actions proposed by EPA, the Agency does not believe energy recovery is an appropriate means of managing hazardous waste. The ironic message EPA is sending is that as long as the waste is not defined as hazardous, energy recovery is acceptable. When the same waste is classifies as hazardous, energy recovery is not considered a viable waste management practice.

<u>Response:</u>

The final rule does not define “bona fide” treatment, but allows the treatment of hazardous waste to generate a comparable fuel and provides that the claimant must demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituents or materials of concern from the waste. The treater must either: 1) document that the unit that will treat the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents (at the levels present in the waste) or materials of concern from the type of waste being treated; or 2) treat the waste in a unit that removes or destroys the constituents of concern, then reanalyze the waste, in accordance with the requirements of §261.38(c)(7), to document that the constituent specifications have been satisfied.

The final rule states that if a hazardous waste is treated to produce a comparable fuel, the hazardous waste would be regulated under Subtitle C from the point of generation until the generation of a comparable fuel that meets the exclusion specifications. This means that the generation, transport, storage, and treatment of the hazardous waste, until exclusion as a comparable fuel, remains subject to applicable Subtitle C regulations.

Moreover, the waste remains subject to subtitle C control during treatment and thus treatment can only occur in regulated units.

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4. Bona-fide treatment should occur at RCRA-regulated facility

CFI3.3.b(commenter 102)

NACR recommends that the EPA define "bona-fide treatment" as treatment which is conducted at a facility that has an interim status or Part B RCRA permit. NACR believes that the best protections to human health and the environment, and the greatest guarantee of compliance with the requirements for the comparable fuels exemption, result from a rule that specifies that treatment can only occur at a RCRA- regulated TSDF. Only then will the entire panoply of environmentally-protective measures be in place, and the agency's own reservations about creating incentive for impermissible handling of comparable fuels wastes will be addressed. Permitted facilities will be required to address specific issues related to the treatment of a hazardous waste that a generator will not be required to address. Treatment of comparable fuels at regulated TSDFs assures the EPA of compliance and recordkeeping procedures within a known reporting universe--the steps necessary to meet the agency's concerns regarding monitoring and enforcement.

CFI3.7(commenter 108)

Finally, Safety-Kleen suggests that EPA restrict all "bona fide" treatment to treatment which is conducted at a facility that is either a permitted or interim status treatment, storage, or disposal RCRA facility. Limiting treatment to interim status or permitted facilities will address the concerns the Agency expresses that the comparable fuel provision (as well as other areas where EPA restricts treatment to "bona fide" treatment) will create an incentive for impermissible or otherwise fraudulent treatment. Any necessary restrictions on allowable treatment activities can be incorporated into the approved facility permit or waste analysis plan. This would also eliminate the need to require special records of treatment activities as is currently proposed in section 261.4(a)(13)(iii)(H)(4). This requirement, as crafted, is extremely burdensome and not environmentally necessary. For example, approximately 100 drums go into a single truck of waste fuel. EPA's record keeping could require that a constituent by constituent analysis be performed for the full suite of Appendix VIII compounds for each drum as well as the final fuel product. It may also require a mass balance analysis for each constituent. By constraining "bona fide" treatment to an interim status or permitted RCRA TSDF, this requirement could be eliminated.

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CFI3.8(commenter 128)

13. The Agency should allow the use of treatment to meet a clean fuels specification.

The Agency has wisely proposed to allow treatment under limited circumstances to qualify waste fuels against a clean fuels exemption specification. CMA fully supports this action.

CMA believes that a most important consideration is that a waste fuel, having sufficient fuel value to incentives energy recovery, must exhibit as-burned properties that do not constitute an added risk to human health or the environment. Permitting qualified treatment does not violate this consideration.

At the same time, it is reasonable to require that the treatment must beneficially improve the waste fuel by improving physical characteristics (e.g., decanting to remove water and thus increase BTUS; reducing viscosity) or by removing hazardous constituents. The improvement of physical characteristics should be allowed by any means, including blending, as these properties are not involved with intrinsic risk (i.e., hazardous constituent content), but rather with handling properties. CMA supports that any qualifying treatment to meet limits on hazardous constituents must be met by removal techniques. Such treatment processes may be chemical (e.g., oxidation, reaction) or physical (filtration, adsorption, decanting), but should act to lower, by removal, the hazardous constituent content of the waste fuel to levels below the specification levels.

As the Agency suggests, it is rational and protective to provide that any clean fuels exemption does not become effective, in the treatment scenario, until after such treatment. The treatment process should be fully subject to the requirements of Subtitle C.

CFI3.9(commenter 170)

TREATMENT

EPA's proposal to exclude Comparable Fuels from its RCRA treatment regulations is the final insult. Basically, except f or "blending to meet the comparable fuels specification," EPA proposes to allow unregulated or minimally regulated treatment of these excluded hazardous wastes. Once again, as in the cases of transportation and storage, the Agency has provided n o tangible basis in the proposed rule for its suggestion that treatment of Comparable Fuels is somehow less threatening to human health and the environment because they meet an arbitrary specification and are destined to be burned by somebody somewhere sometime. Unless a scientifically and technically sound basis can be provided to support the opposite view, treatment of Comparable Fuels should not be excluded from RCRA regulations and should occur only at fully regulated facilities in regulated units. In an October 17, 1994 memorandum to Regional EPA Division Directors, EPA OSW Director Michael Shapiro took great pain to remind EPA regulators of the requirements that applied to all fuel blending and related treatment and storage activities. In that letter, Mr. Shapiro reviews at length the requirements that apply to generators and emphasize that, "The [LDR] provisions apply when generators send prohibited waste to fuel blenders/multi-purpose treatment/storage facilities." He explains that these requirements apply because, "Although the wastes may be combusted , some residue (such as combustion ash) would be land disposed and must meet the treatment standard applicable to the combusted waste...".

The Agency's proposed abandonment of these recently clarified requirements under the Clean

Fuels Exclusion warrants explanation and justification.

CFG(commenter 170)
CKRC has no objection to transportation, storage, or treatment of hazardous wastes that will be burned as Comparable Fuels; but such activities should be regulated under RCRA rules. The extra degree of protection of human health and the environment provided by RCRA requirements is at least as necessary for hazardous wastes meeting a comparable fuel specification as for other hazardous wastes. Otherwise, that extra protection is superfluous in both instances. (As an example, consider a hazardous waste that meets all the specifications for EPA's "90th percentile composite fuel specification" (61 FR Table 6., p. 17492) except that it has 30 mg/kg halogens. There is no way to sustain an argument that this hazardous waste is inherently riskier to transport, store, and treat than if it had 25 mg/kg halogens and met the specification. But EPA is, in effect, advancing that argument by arbitrarily excluding from RCRA regulation the transportation, storage, and treatment of the latter while regulating the former.)

Response:
The final rule states that if a hazardous waste is treated to produce a comparable fuel, the hazardous waste would be regulated under Subtitle C from the point of generation until the generation of a comparable fuel that meets the exclusion specifications. This means that the generation, transport, storage, and treatment of the hazardous waste, until exclusion as a comparable fuel, remains subject to applicable Subtitle C regulations. Moreover, the waste remains subject to subtitle C control during treatment and thus treatment can only occur in regulated units.

5. Opposed to allowing treatment to meet specification

CFI3.4.a(commenter 106)
ENSCO is opposed to allowing treatment to meet the specification also. Again, we are concerned with safety and environmental incidents that might result, if a generator of intermediate party not familiar with proper handling procedures for hazardous wastes attempts to treat this to a specification.

Response:
The Agency does not agree with the commenter and has developed criteria for the treatment of waste to produce a comparable fuel that will be protective of human health and the environment.

6. Allow simple or physical mechanical separations

CFI3.4.b(commenter 106)

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The specification must be limited to the as-generated wastes. ENSCO is not opposed, however, to allowing simple physical or mechanical separations, such as decanting of water or other phases, or removal of solid residues. In this case, these separate non-fuel components must continue to be managed as hazardous wastes, consistent with EPA's statement on page 17468/1.

Response:
The comparable fuels specifications are not limited to as generated wastes. The final rule allows the treatment of hazardous waste to generate a comparable fuel and the claimant must demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituents or materials of concern from the waste. The treater must either: 1) document that the unit that will treat the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents (at the levels present in the waste) or materials of concern from the type of waste being treated; or 2) treat the waste in a unit that removes or destroys the constituents of concern, then reanalyze the waste, in accordance with the requirements of §261.38(c)(7), to document that the constituent specifications have been satisfied.

If a hazardous waste is treated to produce a comparable fuel, only the waste would be excluded from RCRA subtitle C regulation upon a determination that it met the specification. The hazardous waste would be regulated under Subtitle C from the point of generation until the generation of a comparable fuel that meets the exclusion specifications. This means that the generation, transport, storage, and treatment of the hazardous waste, until exclusion as a comparable fuel, remains subject to applicable Subtitle C regulations.

In addition, residuals from the treatment of a hazardous waste remain solid waste and are subject to applicable Subtitle C regulations. Residuals from the treatment of a listed hazardous waste, listed in Subpart D of this part, to generate a comparable fuel remain hazardous wastes due to the mixture and derived from rule since they are derived from treatment of listed hazardous wastes

7. Subject to speculative accumulation provisions

CFI3.4.c(commenter 106)
H. Speculative Accumulation
ENSCO agrees with EPA's proposal on page 17469/1 that comparable waste fuels must remain subject to the speculative accumulation provisions under 261.2(c)(4).

Response:
EPA agrees with commenter.

8. Clarification of incidental settling

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CFI3.5.b(commenter 108)
EPA must also ensure that any definition is enforceable and creates a level playing field. In the proposed rule at section 261.4(a)(13)(iii)(E)(4), the Agency specifies that "incidental" settling does not constitute "bona fide" treatment. How will EPA distinguish between "incidental" settling and "intentional" settling in systems that are designed with this intent? Safety-Kleen believes this flaw can be solved by crafting a definition which is not based on intent.

Response:
In the final rule, incidental settling during storage and allowable blending is not treatment for the purpose of this exclusion.

9. Treatment should exclude simple physical blending or separation

CFI3.6(commenter 108)
Once EPA fixes this underlying problem, Safety-Kleen believes that it's appropriate for EPA to provide a consistent definition of "bona fide" treatment across the various sections of RCRA; this definition should exclude simple physical blending or separation of waste materials that don't themselves meet the relevant regulatory criteria. The relevant regulatory criteria could vary by section of the regulations. For example, in 40 CFR 266.103 (a) and 40 CFR 268.3, the relevant regulatory criteria should be the revised BTU level for legitimate energy recovery (i.e., 2500 - 3000 BTU). In this comparable fuel section, Safety-Kleen believes the relevant regulatory criteria should be a BTU level consistent with the BTU level of the comparable fuel (e.g., 15,000 BTU). However, Safety-Kleen emphasizes that in the absence of such a clarification on BTU level, we would not support a definition of "bona fide" treatment that excludes all blending or physical separation.

Response:
The Agency’s allowance of treatment in the final rule to produce a comparable fuel does not exclude all blending or physical separation.

10. Treatment should be allowed to meet specification

CFI3.10(commenter 174)
I.F.5 Treatment to Meet the Specification:
Treatment would minimize the hazardous waste constituents if removed and therefore we feel should be allowed.

CFMISS.48(commenter 214)
Fuel Components
The logic of the comparable fuels exclusion extends to a fuel's ingredients. Relatively few

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hazardous waste streams can perform as fuels in the absence of blending or other processing. Adjustments in viscosity, BTU value, flashpoint and oxygen content are frequently necessary to create high quality fuels. Moreover, the highest and best value of some waste streams is not as the principal fuel component, but rather as an additive. For example, light distillates that have been used as solvents may be used beneficially to improve the viscosity of heating oil during the cold winter months.

If the exclusion were limited only to waste streams that could be burned without processing or blending, many valuable fuel ingredients would have to be managed as a hazardous wastes and disposed of at RCRA-permitted incinerators. Such a result does nothing to promote legitimate resource recovery. In fact, it unnecessarily continues America's dependence on virgin fuels and chemicals. EPA should make clear, therefore, that exclusion extends to the components of fuels, not just final products.

Response:

The Agency agrees with the commenter. The final rule allows generators to treat, or in limited instances to blend, hazardous waste, in RCRA regulated units to generate comparable fuels.

11. Regulatory status of treatment facilities should not be modified.

CFI6.6(commenter 105)

Laidlaw believes that the Agency should not reduce or eliminate the RCRA requirements for those facilities which treat hazardous waste to meet the specification. Offsite facilities treating hazardous waste are required by Federal and State law to have an operating permit, or to be in interim status, before they can treat or manage a hazardous waste. This ensures the Agency and the public that the processes employed by this facility has undergone technical scrutiny and that there is adequate oversight of treatment operations. Generators of hazardous waste may treat the waste in 90-day tanks, under certain conditions, without a permit. The regulatory status of these types of treatment facilities, whether on or offsite should not be modified.

Response:

The comparable fuels specifications are not limited to as generated wastes. The final rule allows the treatment of hazardous waste to generate a comparable fuel and the claimant must demonstrate that the treatment of the hazardous waste destroys or removes the hazardous constituents or materials of concern from the waste. The treater must either: 1) document that the unit that will treat the hazardous waste has been demonstrated to effectively remove or destroy the hazardous constituents (at the levels present in the waste) or materials of concern from the type of waste being treated; or 2) treat the waste in a unit that removes or destroys the constituents of concern, then reanalyze the waste, in accordance with the requirements of §261.38(c)(7), to document that the constituent specifications have been satisfied.

If a hazardous waste is treated to produce a comparable fuel, only the waste would be excluded from RCRA subtitle C regulation upon a determination that it met the specification. The hazardous waste would be regulated under Subtitle C from the point of generation until the generation of a comparable fuel that meets the exclusion specifications. This means that the generation, transport, storage, and treatment of the hazardous waste, until exclusion as a comparable fuel, remains subject to applicable Subtitle C regulations.
In addition, residuals from the treatment of a hazardous waste remain solid waste and are subject to applicable Subtitle C regulations. Residuals from the treatment of a listed hazardous waste, listed in Subpart D of this part, to generate a comparable fuel remain hazardous wastes due to the mixture and derived from rule since they are derived from treatment of listed hazardous wastes

12. Clarification of regulatory language

CFMISS.04.d(commenter 089)
Pg 17529 § 261.4(a)(13)(iii)(E)(4) is not clear. Please establish what EPA means by "incidental settling." In some cases, phase separation processes, a legitimate treatment mode in may cases, may resemble incidental settling and so not be considered as bona fide treatment.

Response:
The final rule does not contain the requirement regarding "incidental settling" contained in the proposal.

Recordkeeping Requirements

1. Generator should keep one-time report

CFI1.1(commenter 099)
9. EPA invites comment on whether, for off-site shipments to a burner, records should be retained for each shipment
Dow agrees that if comparable fuels are sent off-site to a burner, records need to be kept. However, Dow questions whether this information needs to be retained by both the generator and the burner, and whether documentation needs to accompany each shipment. Rather, Dow suggests that the Agency adopt an alternative scheme whereby the generator would keep a one- time report in their records at the beginning of the year or when the generator first makes a shipment for the year (or when there are changes in the information) that would provide the following, 'Information: 1) name and address of facility receiving the comparable fuel; 2) expected quantity of waste to be shipped during the year; 3) a letter (or other documentation, such as a contract) from the receiving facility that indicates that the 'Material will be burned for its energy value, and 4) a reference to the analysis performed that shows

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the material meets the comparable fuel specification. Such information would be retained for three years. This approach would minimize the number of records that the regulated community would have to prepare and maintain, and thus, be consistent with the Administration's goal of minimizing the recordkeeping burden on the regulated community, while still providing the Agency with the information it needs to monitor the situation.

Response:
The Agency believes that the following files must be kept at the facility generating the fuel: 1) all information required to be submitted to the State Commissioner as part of the notification of the claim: I) the name, address, and RCRA ID number of the person claiming the exclusion; ii) the applicable EPA Hazardous Waste Codes for the hazardous waste; 2) a brief description of the process that originally generated the hazardous waste and process that generated the excluded fuel; 3) an estimate of the average and maximum monthly and annual quantities of each waste claimed to be excluded; 4) documentation for any claim that a constituent is not present in the hazardous waste as required under §261.38(7); 5) the results of all analyses and all quantitation limits achieved for the fuel; 6) documentation as required for the treatment or blending of a waste to meet the exclusion specifications; 7) a certification from the burner if the waste is to be shipped off-site; and 8) the certification signed by the person claiming the exclusion or his authorized representative.

The generator must also maintain documentation of the waste sampling and analysis plan and the results of the sampling and analysis that includes the following: 1) the dates and times waste samples were obtained, and the dates the samples were analyzed; 2) the names and qualifications of the person(s) who obtained the samples; 3) a description of the (temporal and) spatial locations of the samples; 4) the name and address of the laboratory facility at which analyses of the samples were performed; 5) a description of the analytical methods used, including any clean-up and sample preparation methods; 6) all quantitation limits achieved and all other quality control results for the analysis (including method blanks, duplicate analyses, matrix spikes, etc.), laboratory quality assurance data, and description of any deviations from analytical methods written in the plan or from any other activity written in the plan which occurred; 7) all laboratory analytical results demonstrating that the exclusion specifications have been met for the waste; and 8) all laboratory documentation that support the analytical results, unless a contract between the claimant and the laboratory provides for the documentation to be maintained by the laboratory for the period specified in §261.38(c)(10) and also provides for the availability of the documentation to the generator upon request. The Agency agrees with the commenter regarding the time frame for record retention and this rule requires records to be maintained for the period when excluded fuel is being managed and for at least three years after a generator stops managing the excluded fuel.

2. Include burner certification

CFI1.2.a(commenter 106)

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In addition, if the clean fuel exemption is promulgated under 261.4, ENSCO agrees with the need to require documentation in the generator's file for each shipment, the name and address of the receiving facility, a cross reference to the certification form from the receiving facility that the comparable waste fuel will be burned, date of shipment and a cross reference to the analyses documenting that the waste meets the comparable fuel specification. One added beneficial documentation that EPA must require is the completion of a Certificate of Burning by the receiving facility for each shipment, to document that it was burned. Again, these generator documentation requirements would not be needed if EPA limited the exemption to Subpart 0 and Part 266. Enforcement would be simplified and proper cradle to grave management would be assured.

CFI1.3.b(commenter 130)
In addition, if the clean fuel exemption is promulgated under 261.4, the ETC agrees with the need to require generators to document file for each shipment the name and address of the receiving facility, a cross reference to the certification form from the receiving facility that the comparable waste fuel will be burned, date of shipment and a cross reference to the analyses documenting that the waste meets the comparable fuel specification. One added beneficial documentation that EPA must require is the completion of a Certificate of Burning by the receiving facility for each shipment, to document that it was burned. Again, these generator documentation requirements would not be needed if EPA limited the exemption to Subpart O and Part 266. Enforcement would be simplified and proper cradle-to-grave management would be assured.

Response:
The Agency agrees with the commenter and has included a burner certification in the final rule.

3. Maintain records for three years

CFI1.2.b(commenter 106)
ENSCO agrees with EPA's proposed Record keeping provisions on page 17468/1, particularly requiring that records be maintained for three years.

CFI1.3.a(commenter 130)
The ETC agrees with EPA's proposed recordkeeping provisions (page 17468/1), particularly requiring that records be maintained for three years.

Response:
EPA agrees with commenters.

4. Recordkeeping should be minimal and simple

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CFI1.4(commenter 192)

Recordkeeping

UCC has little to comment on record keeping, but urges EPA to keep the requirement to a minimum and simple. Record keeping has historically been extremely complex and confusing for the regulated community. Clear guidance in the final rule is suggested to help in conveying reporting requirements. This is especially important for small businesses or smaller plants in a larger organization.

Response:

The Agency as attempted to keep the recordkeeping and reporting requirements of this rulemaking to a minimum and as simple as possible.

5. Notification requirements

CFMISS.03(commenter 089)

F. Implementation of the Exclusion

1. Notification and Certification

Pg 17466 "EPA understands that a "generator" may be a company with multiple facilities. For this reason, a single company would be allowed to submit one notification, but must specify at what facilities the comparable fuels notification applies. All other provisions apply to each stream at the point of generation."

In Texas, information regarding waste generation and waste management activities are tracked by individual sites. Pursuant to 40 CFR § 260.10, a "generator" is defined as "...any person, by-site,..."; and EPA and the Sate collect site-specific data. For ease of recordkeeping, data management and enforcement, we feel that each facility claiming a comparable fuels exclusion should provide the required notification on a site by site basis.

Response:

The Agency agrees with the commenters and notes that the rule requires a notification for each individual waste that a generator excludes.

CFMISS.12(commenter 106)

ENSCO agrees with a one-time notification and certification requirement specific to each waste stream. If the exemption is limited to Subpart O and Part 266, this notification and certification would only be filed by the burner. The generator would still manage and manifest the waste under Subtitle C.

CFMISS.25(commenter 130)

The ETC agrees with a one-time notification and certification requirement specific to each waste stream. If the exemption is limited to Supart O and Part 266, this notification and certification would only be filed by the burner. The generator would still manage and manifest the waste under Subtitle C.

Response:
The Agency agrees with the commenters, but has not limited the exclusion to Subpart O or Part 266 and the waste therefore is not manifested under Subtitle C.

6. Clarification of regulatory language

CFMISS.04.a(commenter 089)
PART 260--HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL
§ 260.10 Definitions
Pg 17528 §260.10 Definitions should include a definition of Comparable Fuel.

CFMISS.04.c(commenter 089)
Pg 17529 § 261.4(a)(13)(iii)(D)(1) should read:
(D) (1) Comparable fuel shall be burned on-site for energy recovery or shipped directly to a person who burns the waste for energy recovery.

Response:
The Agency has not included a definition of comparable fuels because a comparable fuel is one that meets the requirements of the exclusion. Additionally, the Agency does not agree with limiting the burning to on-site or direct shipment to the burner. The Agency believes that the comparable fuel may be managed like other commercial fuels and this includes off-site management and burning.

Waste Analysis Plan

1. Frequency of testing

CFMISS.02(commenter 086)
J. USWAG Supports the Proposed Testing Requirements.
USWAG believes that the requirement for analysis of material to determine whether they qualify for the comparable fuels exclusion should be limited, as proposed, to an initial test and then re-testing no more than once a year thereafter for those constituents the generator has reason to believe could be present. Id. At 17466. The scope of the testing required by the proposed rule is broad, and if it had to be performed more than once a year, the cost may render use of the exclusion cost prohibitive.

CFMISS.13.b(commenter 106)
ENSCO concurs with EPA’s proposal to require repeat sampling and analysis once per year.

CFMISS.26.b(commenter 130)
The ETC occurs with EPA's proposal to require repeat sampling and analysis once per year.

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CFMISS.46(commenter 198)
18. ECA recommends that if a stream is eligible for an exclusion, then annual testing should not be required.
EPA's proposal is that if a stream meets the comparable fuels specification, then the material is excluded from the definition of solid waste and therefore not subject o regulation under RCRA. On this basis, EPA should not require that annual testing be performed, but rather should rely on the generator to test if changes occur in a process. This approach is consistent with the entire waste characterization aspect of RCRA. If a generator has a solid waste, the generator is required to determine if the waste is hazardous or non hazardous. The generator can either analyze the sample or use process knowledge. However, once the determination is made, the generator is not required to analyze the material again. Generators will, however, analyze the material if there is the potential that waste characteristics have changed, perhaps due to process changes. Applying this approach to a clean fuels exclusion will reduce unnecessary, costly analysis.

Response:
The final rule allows the use of process knowledge in lieu of testing to determine if a waste is eligible. Testing is required after the initial exclusion if the waste stream changes in a way that the generator believes will have an effect on the eligibility of the exclusion or if process changes occur that change the composition of the waste.

2. Allow use of process knowledge

CFMISS.02.a(commenter 086)
USWAG also believes that generators should be able to rely on process knowledge to determine which constituents to analyze for in the initial analysis. Id. It simply makes no sense to compel generators to analyze their wastes for constituents that could not possibly be present in the material. The use of process knowledge to determine the status of a material has been a successful cornerstone of the hazardous waste program since its inception in 1980, and there is no reason not to carry this option forward into he comparable fuels program.

CFMISS.06(commenter 099)
7. EPA invites comment on whether to allow a generator to use process knowledge to determine what compounds to sample and analyze for in the initial demonstration of whether a material meets the comparable fuel specification.
Process knowledge should be allowed in the initial demonstration of any material that the generator believes is a comparable fuel. In fact, Dow questions how EPA can justify not allowing process knowledge to be used when EPA allows process to be used in the RCRA characteristics program. In both these programs, the generator is making a decision as to whether the material they generate is subject to Subtitle C of RCRA. Generators are well aware of the composition of the materials they generate, particularly if the material is used directly as a fuel in a company’s boiler and other such device, because the material is typically

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a production process stream of known and consistent characteristics. Moreover, Dow believes that generators will be extremely judicious in deciding which hazardous constituents to analyze for in determining whether a material meets the comparable fuel exclusion to avoid any enforcement action. Therefore, Dow strongly suggest that the Agency allow a generator to use process knowledge in the initial demonstration (as it proposes to allow in follow-up analyses) in determining whether a material is a comparable fuel.

In the alternative, Dow would suggest an implementation scheme that would provide the Agency with reasonable assurance that the material meets the comparable fuel specification, while at the same time reduce testing and recordkeeping costs for the regulated community. In particular, the Agency should identify a subset of Appendix VIII hazardous constituents that all generators must analyze for (i.e., volatile and semi-volatiles), but provide that process knowledge (including appropriate documentation) can be used for the remaining compounds or classes of compounds listed on Appendix VIII of Part 261. Thus, hazardous constituents such as pesticides, dyes, polychlorinated biphenyls, etc., would only have to be analyzed for if the generator ahs reason to believe that these compounds are present in the comparable fuel.

CFMISS.21(commenter 128)

11. Clean fuel sampling and analysis should be limited to those constituents reasonably expected to be present.

Generators are well positioned to determine the various constituents expected to be present in potential clean fuels. This is due to their familiarity with the feedstocks, chemicals, catalysts, technology, and products associated with arious production processes. Use of process knowledge is a long-accepted practice in the RCRA regulatory program. It should also be allowed for any clean fuels or comparable fuels exclusion.

The EPA proposal currently requires initial analysis for all Appendix VIII constituents. This is an expensive, and burdensome, requirement, particularly in light of the process knowledge available to focus the analysis on the constituents reasonably expected to be present. EPA should allow use of process knowledge for both initial and any periodic analysis requirement. Most generators are already required to follow the RCRA standards regarding waste analysis applicable to treatment, storage and disposal facilities. These regulations allow the use of published data and/or process knowledge in the waste analysis plan. 40 CFR 264/265.13(a)(2). In contrast, sampling is mandated only when the necessary information is not available. For example, 40 CFR 265.13 states that "analysis must be repeated as necessary to ensure that is accurate and up to date." Re-analysis is required when there are changes to the process or operation generating the waste or when the waste does not meet specification. Under this regulatory program, generators are not required to complete periodic re-analysis.

Guidelines for the comparable fuels analysis plan should not be more stringent than that program typically required for hazardous wastes. The generator, in mots clean fuels exemption cases (and in all cases under CMA's clean fuels proposal), will burn those materials on its site. Generators are uniquely familiar with the waste streams they produce. Any analysis program should be limited to the regulated constituents that the generator would reasonably expect to find in the waste stream.

CFMISS.28(commenter 134)

B. Process Knowledge Should Be Allowed In Determining Whether A Material Meets the Comparable Fuels Specification:

EPA's proposed implementation scheme would initially require the generator to analyze any material for all Appendix VIII hazardous constituents and at least every year thereafter for those constituents that the generator would have reason to believe are present in the comparable fuel. However, EPA is also requesting comment on whether to allow a generator to use process knowledge to determine what compounds to sample and analyze for in the initial analysis.

Ciba does not support a scheme that requires an initial analysis for all Appendix VIII hazardous constituents. In fact, RCRA allows process knowledge to be used in the waste determination process. In both these programs, the generator is making a decision as to whether the material they generate is subject to Subtitle C of RCRA. Generators are well aware of the composition of materials they generate, particularly if the material is used directly as a fuel, because the material is typically a production process stream of known and consistent characteristics. In addition, a plant's boiler (and other energy recovery device) is controlled by a company's liability insurance that requires the owner and operator of the plant to operate the unit in such a manner as to not present problems at the facility. Moreover, generators will be extremely judicious in deciding which hazardous constituents to analyze for in determining whether a material meets the comparable fuel exclusion to avoid any enforcement action. Therefore, Ciba urges the Agency to allow a generator to use process knowledge in the initial analysis (as it proposes to allow in follow-up analyses) in determining whether a material is a comparable fuel.

In the alternative, Ciba suggests an implementation scheme that would provide the Agency with reasonable assurance that the material meets the comparable fuel specification, while at the same time reduce testing and recordkeeping costs for the regulated community. In particular, the Agency could identify a subset of Appendix VIII hazardous constituents that all generators must analyze for (i.e., volatiles and semi-volatiles), but provide that process knowledge (including appropriate documentation) can be used for the remaining compounds or classes of compounds listed on Appendix VIII of Part 261. Thus, hazardous constituents such as pesticides, dyes, polychlorinated biphenols, etc. would only have to be analyzed if the generator has reason to believe that these compounds are present in the comparable fuel material.

CFMISS.43(commenter 198)

11. ECA recommends use of process knowledge for determining constituents reasonably expected to be present in Clean Fuels

Generators are well-positioned to determine the various constituents expected to be present in potential clean fuels. This is due to their familiarity with the feedstocks, chemicals, catalysts, technology, and products associated with various production processes. Use of process knowledge is an accepted practice in the RCRA regulatory program. This should

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also be allowed for any clean fuels or comparable fuels exclusion. In addition, in the CMA proposal, the generator, in many cases, will burn the materials on their own site.
The EPA proposal currently requires initial analysis for all Appendix VIII constituents. This is an expensive, and burdensome, requirement, particularly in light of the process knowledge available to focus the analysis on the constituents expected to be present. EPA should allow use of process knowledge for both initial and any periodic analysis requirement.

Response:
The Agency agrees that process knowledge can be used by generators to determine if a hazardous waste meets the exclusion specifications. The final rule preamble discusses in more detail what the Agency believes should constitute adequate documentation to substantiate process knowledge.

3. Approval of sampling compounds.

CFMISS.39(commenter 191)
110. Page 511
Allowing a generator to use process knowledge to determine what compounds to sample and analyze for during waste analysis should be reviewed and approved by the regulatory agencies prior to analysis.

Response:
The Agency agrees with the use of process knowledge, but does not agree that it should only be used to determine which compounds for to analyze or that it should be reviewed and approved prior to exclusion.

3. Do not allow use of process knowledge

CFMISS.13.a(commenter 106)
ENSCO agrees with EPA’s proposed provisions for sampling and analysis, and supports the requirement for a Comparable Fuels Analysis Plan. It is important to ensure that the sampling and analysis procedures, used as the basis for the exclusion, are documented and adhered to. ENSCO urges EPA to require analysis, and not allow reliance on generator knowledge, particularly since it is the burner who will be making use of the clean fuel specification. The burner in many cases will not be the generator, and therefore will not have knowledge of the waste. In addition, the specifications for many of the constituents are in the ppm range, and it is not possible even for the generator to know by knowledge what constituents are present.

CFMISS.26.a(commenter 130)
The ETC agrees with EPA's proposed provisions for sampling and analysis, and supports the requirement for a Comparable Fuels Analysis Plan. It is important to ensure that the sampling

and analysis procedures, used as a basis for the exclusion, are documented and adhered to. The ETC urges EPA to require analysis, and not allow reliance on generator knowledge, particularly since it is the burner who will be making use of the clean fuel specification. The burner often will not be the generator, and therefore will not have knowledge of the waste. In addition, the specification for many of the constituents are in the ppm range, and it is not possible even for the generator to know by knowledge what constituents are present at these levels.

Response:
The Agency understands the concerns of commenters and believes that with adequate documentation for those constituents that the generator has the necessary knowledge accurate characterizations of waste is possible. For all other constituents, testing will be necessary to determine if a waste meets the comparable fuels specifications.

4. Use of equivalent methods

CFMISS.07(commenter 099)
8. EPA invites comment on establishing a procedure similar to Part 63, Appendix A, Method 301 to validate alternative analytical methods, and whether to limit the Agency's time to approve an equivalent method.
Dow appreciates the Agency's willingness to consider other analytical methods (other than those identified in SW-846) for conducting analysis. However, Dow is concerned that the approach that the Agency is considering -- that is, require the company or facility to request EPA to approve the use of an equivalent method -- would put added pressure on the Agency since it is likely that the Agency's resources will likely stay the same, id not be reduced. Even if the Agency puts a maximum time limit on itself, the Agency indicates that it can always come back to the facility and indicate that the method is not appropriate and can not be used for further analysis.
Therefore, Dow suggests that the Agency adopt a different approach than the one described in the preamble. In particular, Dow recommends that the Agency adopt a self-implementing approach and publish as part of the final comparable fuel exclusion performance criteria that the method would have to achieve (i.e., maximum detection level achievable (and generally comparable to those achieved by SW-846 methods), QA/QC procedures, etc.) and allow the regulated community to use any method that achieves those criteria. In this way, the regulated community would have some flexibility to use methods that meet EPA's criteria and thus, assure EPA that the analytical results are accurate, without requiring EPA or the regulated community to spend resources preparing and reviewing a petition for an equivalent test method. Dow believes that this approach would be a win-win for both the regulated community, as well as EPA and be consistent with the Administration's goal of reducing the recordkeeping and reporting burden on the regulated community.

CFMISS.16.b(commenter 108)

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EPA also requests comments on whether the Agency should be limited in the amount of time it is allowed to review and approve an equivalent analytic method. We do not believe that a failure of EPA to act within a specified time should result in an analytic method being approved automatically. Such an approach could result in the application of inferior methods. In addition, thorough regulatory review and approval will ensure that appropriate alternative methods are more widely disseminated throughout the regulated community. At a minimum, EPA should establish third-party review options (e.g., a review through ASTM) to ensure that approvals are made in a timely manner.

CFMISS.18(commenter 110)

L. EPA Should Be Required to Approve or Disapprove Alternative Analytical Methods Within 60 Days

The CCF believes that, given the nature of many waste streams that would qualify for the comparable fuels exemption, alternative analytical methods may be required in some cases to achieve the detection limits proposed by EPA, especially for volatile organic compounds. Accordingly, the availability of methods other tan SW-846 may play an important role in the implementation of the exemption. By the same token, members of the regulated community will need to have certainty within a reasonably short period of time as to whether EPA will accept a particular proposed alternative method.

Therefore, the CCF members believe it is very important, and quite reasonable, to require that EPA must approve or disapprove a proposed alternative analytical method within 60 days after a facility requests approval. This requirement could be implemented in two ways. Under the first scenario, a facility would request approval to utilize an alternative method before undertaking any analytical work; if EPA failed to reject the proposed approach within 60 days, the facility could then proceed to utilize its method and submit the results to EPA secure in the knowledge that EPA would be foreclosed from rejecting the method. Alternatively, the facility would undertake the laboratory analyses utilizing the methods of its choice, and submit the results to EPA with a request for approval of the alternative methods used. If the agency failed to raise any objection to the analytical data within 60 days after its submission, the facility could proceed based upon those results.

CFMISS.45(commenter 198)

17. ECA recommends that alternate test methods be allowed to demonstrate compliance with a clean fuels or comparable fuels exclusion

EPA should allow alternate test methods to be used to demonstrate compliance with a comparable fuels exclusion. For example, ECA experience indicated that alternate methods (e.g. ASTM) were more suitable to testing fuels than EPA SW 846 methods. In addition, some laboratories are not set up for all the EPA test methodologies, yet they have approved or standard alternate methods. This occurred for the flash point, nitrogen, and some organic constituent tests. Limiting test methods to those identified by EPA in the proposal will severely limit the applicability of the proposal.

<u>Response:</u>

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The final rule does not require the use of SW-846 methods or prior approval before using alternative methods. The final rule allows the use of performance based methods, explained in detail in the final rule preamble.

5. Waste analysis requirements

CFMISS.16.a(commenter 108)
4. The sampling and analysis approach can be improved
The preamble to the comparable fuel provision states that the same waste analysis "rules" as applied to TSDFs would apply to comparable fuel generators. Yet the proposed rule itself does not refer to the TSDF waste analysis plan requirements at 40 CFR Sections 264.13 and 265.13. (see proposed rule 261.4(a)(13)(iii)(C)). Instead, the rule states that a comparable fuels sampling protocol must be developed using the same "protocols" as waste analysis plans. EPA must give careful consideration to whether this approach is appropriate. As drafted, the waste analysis requirements appear to under-control thereby increasing the chance that waste that should be regulated will not be. On the other hand, if EPA makes the testing requirements too onerous, the costs will be prohibitive for small businesses. Safety-Kllen leans toward requiring that all Appendix VIII constituents be evaluated until EPA approves a less stringent analysis. However, we are sensitive to the cost issues and believe that more careful analysis by EPA is needed. Again, it appears that EPA has not evaluated these trade-offs, another indication that this proposal is not ready and should not be part of the MACT rulemaking.

CFMISS.37(commenter 187 Solite)
2. Waste streams are typically not subject to the quality control checks that apply to products. Such waste streams are frequently managed in a manner which creates the possibility of inadvertent or deliberate contamination with other materials, and they can be highly variable. Because of this, and because of the powerful economic incentives which will exist to declare that a waste stream is a "comparable fuel," Solite proposes that facilities that burn such fuel be subject to waste analysis requirements at least as stringent as those that apply to the incinerators and industrial furnaces that burn hazardous waste streams that are not subject to the Comparable Fuel Exclusion.

Response:
The Agency believes that the notification, certification, and waste analysis plan requirements contained in the final rule will provide adequate oversite and assurance that comparable fuels meet the exclusion requirements.

6. Allow de minimis exemption for sampling

CFMISS.44(commenter 198)

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14. EPA should allow for a de minimis exemption as part of a Clean Fuels or Comparable Fuels proposal
EPA has proposed that each waste be compared to the specification based on its characteristics at the point of generation. In many large petrochemical operations there is the potential for de minimis additions of materials to the hazardous waste fuel. Attempting to identify and sample minor sources is complex and often raises safety questions. Examples of de minimis additions include analyzer sample purges, safety valve drains, transmitter bleeds, and losses due to normal material handling. ECA recommends that EPA allow a de minimis exemption from sampling and analysis for up to 1% of the flow as long as the de minimis sources of fuel are all associated with the process from which the hazardous waste fuel is generated and the aggregated waste fuel is analyzed.

Response:
Through the use of process knowledge a source can determine that the inputs that make up the comparable fuel and the final waste stream to be excluded meet the exclusion specifications. Each process knowledge determination must be adequately documented so as to ensure that the exclusion specifications are met.

Transportation and Storage

1. No additional transportation requirements needed

CFTRN.01(commenter 086)
I. USWAG Opposes Any Additional Transportation Requirements.
USWAG believes that current Department of Transportation ("DOT") regulations are adequate for the transportation of comparable fuels and that there is no need for additional transportation regulations under RCRA. Id. at 17460. DOT is charged with regulating the transportation of hazardous materials and has developed comprehensive regulations to do so. Materials that are substantially more dangerous than comparable fuels are routinely transported under DOT's rules and there is no reason to believe that these rules would not be adequate for the transportation of comparable fuels. Requiring compliance with another set of regulations for comparable fuels would merely complicate compliance without enhancing environmental protection. Finally, deference to the DOT regulations is more consistent with the classification of these materials as products rather than as solid waste.

CFTRN.02(commenter 090)
DOT Requirements
At the present time, waste solvents are considered hazardous waste and, therefore, regulated under the Federal Hazardous Materials Regulations ("HMR"), 49 CFR Parts 101 - 178. Though the HMR does impose requirements for transportation and storage incidental to transportation, it is the very nature of NIPCA members' . unusual industry niche that provides the greatest level of protection. As mentioned above, NIPCA members maintain a

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highly controlled, closed-loop solvent distribution system in which NIPCA members both deliver fresh drums of mineral spirits to their customers and, subsequently, retrieve the same drums when they are later full of spent mineral spirits.

NIPCA members exercise 'control over every aspect of their closed-loop distribution systems. All solvent deliveries and retrievals are performed by trained NIPCA members' employees, using NIPCA members' motor vehicles used exclusively for such service. NIPCA members' employees visually inspect every drum prior to each reuse. See attached copy of NIPCA's Recommended Container Management Guidelines. They fill the drums with clean product, load them onto NIPCA members' vehicles, transport and deliver the product to customers, unload the product, retrieve the drums containing spent product, load the spent solvent onto NIPCA members' vehicles, and transport the drums of spent solvent back to NIPCA members' facilities. Additionally, because of the nature of the operation of a parts cleaner unit, the solvent delivered to customers becomes "waste" solvent while contained in the same drums in which the fresh solvent was delivered. This means that the drums used by NIPCA members are virtually never empty. Therefore, both NIPCA members and their customers are able to monitor and inspect the drums for leaks on a continual basis. NIPCA members' employees carefully inspect drums for any damage and remove them from service if there is any indication of leakage or damage that may lead to leakage.

CFTRN.03(commenter 099)

2. EPA requests comment on whether the applicable Department of Transportation (DOT) and Occupational Safety and Health (OSHA) requirements are adequate to address the transportation and storage of comparable fuels.

EPA should not establish duplicative RCRA regulations to address the transportation and storage of comparable fuels, since DOT and OSHA regulations already adequately ensure the safe transportation, handling and storage of hazardous materials. For example, DOT has issued extensive regulations for the transportation of hazardous materials (see 49 CFR Parts 172 and 173). Such regulations control all aspects of the transport of these materials, including the requirement to properly mark, label and placard the various containers and transport vehicles; requirements to properly package these materials for transportation; requirements to ship these materials under shipping papers; requirements in the case of an emergency response; as well as other controls.

Likewise, the same comparable fuels would be protectively controlled under regulations promulgated by OSHA respecting the storage and handling of these materials. See, for example, 29 CFR 1910.106 where it provides extensive regulation for the management of flammable and combustible liquids, including requirements on the design and construction of tanks and containers, the proper venting of emissions from tanks and containers, corrosion protection on tanks, testing and repair of tanks to ensure their stability, spill containment, as well as several other requirements. In addition, Subpart Z of 29 CFR Part 1910 specifies employee exposure levels for specific air contaminants. Taken together, the body of DOT and OSHA regulations provide adequate control for excluded comparable fuels just as they would for other hazardous materials, thereby avoiding needless and duplicative regulation that

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would add no additional benefit to human health and the environment.

CFTRN.05(commenter 128)

15. OSHA and DOT regulations are fully adequate.

On 17468, EPA requests comment on the adequacy of DOT and OSHA requirements to safely regulate the storage and transportation of clean fuels. Current DOT and OSHA regulations for transportation of hazardous materials found in 49 CFR Subchapter C and 29 CFR § 1910.1200, respectively, sufficiently regulate the pre-transportation storage at the generating facility, the transportation itself, and the pre-use storage at the facility where the clean fuel will be burned. In addition, due to their value as fossil fuel substitutes and their physical properties, CMA believes that clean fuels will be handled in the same safe manner as the valuable fuel products they are displacing.

CFTRN.08(commenter 134)

IV. EPA’s Implementation Scheme For Comparable Fuels

A. Other Regulatory Programs Are Adequate To Control Transportation and Storage of Comparable Fuels So That Regulation Under RCRA Is Not Needed:

Ciba strongly supports the Agency's position and urges the Agency to finalize the provision as proposed that the comparable fuel exclusion would operate from the point of fuel generation to the point of combustion for energy recovery. Thus, these materials would be excluded from the transportation and storage requirements under Subtitle C of RCRA, as well as the requirement to burn these materials in a Subtitle C combustion device. In so doing, these materials would still be adequately controlled (as the Agency itself recognizes) under other federal and state regulations to ensure proper management.

As EPA correctly observes, both DOT and OSHA have promulgated regulations that adequately control these materials.[21] In particular, DOT has issued extensive regulations for the transportation of hazardous materials. In fact, EPA's Part 263 hazardous waste transportation regulation were drawn primarily from DOT's hazardous materials regulations. The DOT regulations control all aspects of the transport of these materials, including the requirement to properly mark, label and placard the various containers and transport vehicles (see Subparts D, E and F of 49 CFR Part 172), requirements to properly package these materials for transportation (see 49 CFR part 173), requirements to ship these materials under shipping papers (see Subpart C of 49 CFR Part 172), requirements in the case of an emergency response (see Subpart G of 49 CFR part 172), as well as other controls. Therefore, comparable fuel materials would be subject to sufficient safety and protective controls during transport so that further regulation of these materials under RCRA Subtitle C would be redundant and thus, not needed.

Likewise, these same comparable fuels would be protectively controlled under regulations promulgated by OSHA respecting the storage and handling of these materials. For example, 29 CFR Part 1910.106, provides extensive regulation for the management of flammable and combustible liquids, including; the design and construction of tanks and containers; testing and repair of tanks to ensure their stability; spill containment; as well as several other requirements. In addition, Subpart Z of 29 CFR part 1910 specifies employee exposure levels

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for specific air contaminants. Taken together, the body of DOT and OSHA regulations provide adequate control to allow the Agency to exclude comparable fuels from the hazardous waste transportation and storage regulations and avoid needless and duplicative regulation.
[Footnote 21: Under EPA's proposed specification, comparable fuels would generally have a flash point of less than 100 degrees Fahrenheit. Materials having this property are already controlled under DOT and OSHA regulations as flammable materials.]

CFTRN.10(commenter 153)
D. OSHA and DOT Requirements (61 Fed. Reg. at 17,468)
The Agency has requested comment regarding the adequacy of existing OSHA and DOT regulations to ensure the safe transport and storage of exempt fuel. CWM has reviewed EPA's proposed comparable fuel exclusion, and concluded that existing OSHA and DOT regulations are more than sufficient to ensure the safe handling, storage, and transport of exempt fuels. Due to the 5000 BTU/lb minimum heating value specification for comparable fuels, the vast majority of exempt fuel will meet the DOT definition of a Class 3 flammable or combustible liquid. As such, it must be handled in accordance with DOT's regulations governing the transport of hazardous materials located in 49 CFR Subchapter C, including packaging, marking, labeling, placarding, and shipping paper requirements. While on-site, exempt fuels meeting OSHA's definition of a Class IB, IC, II, or III combustible or flammable liquid must be stored in accordance with OSHA regulations located in 29 CFR §1910.106.
DOT and OSHA have extensive experience regarding the safe handling, transport, and storage of hazardous materials, and have established an extensive framework of regulations to ensure the safety of the public and workers is protected. Consequently, CWM recommends EPA defer to DOT and OSHA regarding the transport and storage of exempt fuel, and not promulgate additional regulations that would be redundant and would serve no useful purpose.

CFTRN.15(commenter 192)
Transportation and Storage
UCC acknowledges that some "waste" derived fuels may pose risks during transportation and storage. EPA requested comment on the adequacy of Department of Transportation (DOT) and Office of Occupational Safety and Health (OSHA) requirements related to storage and transportation of these materials to allow for safe handling and burning. The storage and transportation of excluded comparable fuel should pose no greater hazard than fossil fuel, both of which are regulated by applicable DOT and OSHA requirements and local and state fire codes. Duplicative RCRA regulations are not necessary, nor should they be required, for this excluded fuel. Current requirements under OSHA would mandate that a material safety data sheet (MSDS) be furnished for these materials. MSDS provides appropriate health, safety, environmental information (including flash point) making a separate flash point specification for comparable fuel not necessary.
Further the ability to use a comparable fuel on site not only saves transportation costs (including fuel), but takes "waste" carrying tankcars off the tracks and tank trucks off the

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public highways. Less flammable and combustible waste transport vehicles provides an obvious benefit of reduced public exposure.

As stated earlier UCC generally supports and incorporates by reference comments submitted by the AF&PA and the CMA. The following additional comments pertain to those provided by AF&PA and CMA.

CFTRN.16(commenter 205)

The following comments are submitted in response to EPA's comparable fuels approach: Adequacy of DOT, OSHA, etc. Requirements (p. 17460): TCC believes existing regulations are adequate with respect to transportation and storage of comparable fuels which are excluded from RCRA. A comparable fuels exclusion should not extend RCRA requirements beyond the point of exclusion.

Existing DOT rules regulate the loading and transporting of hazardous materials including fuels to protect against mishaps. OSHA rules regulate exposure to hazardous components of fuels to protect workers. NSPS rules for VOC storage and transfers currently exist for commercial fuels to protect the environment against emissions related to these operations. Since comparable fuel would merely be another commercial fuel, the same regulations would apply to comparable fuels. Therefore, additional transportation and/or storage requirements need not be promulgated since they would place an undue burden on participants in commerce.

In order for this proposed exclusion to be of value to the regulated community, it must truly reclassify comparable fuels as non-wastes, as indicated in the preamble. No RCRA requirements should attach to the comparable fuel past the point at which the exclusion is met.

Response:

The Agency agrees with commenters that the Department of Transportation (DOT) and the Occupational Safety and Health Agency (OSHA) requirements for the transportation and handling of comparable/syngas fuels will be adequate to ensure the safe management of these excluded fuels. The final rule does not require comparable/syngas fuel handlers to comply with the RCRA storage and transportation requirements. It should be noted that excluded comparable/syngas fuel transporters are required to comply with all applicable requirements under the U.S. Department of Transportation regulations in 49 CFR parts 171 through 180. Anyone who stores an excluded comparable/syngas fuel (e.g., generator, transporter, burner) is required to comply with all applicable requirements under the Occupational Safety and Health Agency regulations in 29 CFR part 1910. The occupational safety and health standards for flammable and combustible liquids can be found in Subpart H--Hazardous Materials section 1910.106 and standards for compressed gases in section 1910.101.

2. Address safety and fire hazards

CFTRN.04(commenter 106)

G. Transportation (17468/3)

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Again ENSCO emphasizes that our position is that the Comparable Fuel Exclusion must be limited to Part 266 and Subpart 0, and not be allowed under 261.4. This eliminates concern for the issues raised in this section of the preamble. ENSCO does agree with EPA's discussion in this section regarding the need to place a specification on flash point for comparable fuels, to address the safety and fire hazards with storage, and other OSHA concerns.

CFTRN.07(commenter 130)
H. Transportation and Storage
Again ETC emphasizes that our position is that the Comparable Fuel Exclusion must be limited to Part 266 and Subpart O, and not be allowed under 261.4. This eliminates concern for the issues raised in this section of the preamble (pages 17466-69). The ETC does agree with EPA's discussion in this section regarding the need to place a specification on flash point for "comparable fuels to address the safety and fire hazards with storage and other OSHA concerns.

CFMISS.34(commenter 174)
I, G Transportation and Storage
We feel that comparable fuels should not be allowed to be excluded if reactive or corrosive. Reactiveness and/or corrosiveness must be comparable to virgin fuel (in the non-hazardous range). Corrosive properties will ruin standard burners made for virgin fuel. Reactive and corrosive wastes should only be handled by hazardous waste personnel in hazardous waste facilities and are not comparable to a virgin fuel.

Response:
EPA believes that comparable fuels exclusion is properly placed under part 261.4. Furthermore, flash point is not necessary to address safety and fire hazards. DOT and OSHA regulations are protective for the transportation and handling of low flashpoint material. Setting a flash point specification under RCRA would be unnecessarily redundant with no ostensible gain in protectiveness.
In addition, EPA does not expect that corrosive or reactive wastes would be candidate comparable fuels because of the detrimental impacts to a burning unit that would occur.

3. DOT and OSHA provisions not adequate

CFMISS.09(commenter 106)
Also, ENSCO does not feel that applicable DOT and OSHA provisions are adequate to protect against incidents if a hazardous waste for which for which a comparable fuel exclusion is claimed is freely distributed in commerce. The OSHA worker protection provisions for hazardous wastes only apply to materials defined and managed as hazardous wastes. Only non-waste chemical hazards are limited to a small subset of constituents that are carcinogens. With regard to DOT, the hazardous material tables provide a wide range of less protective

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packaging and shipping options, that could result in significant hazard for comparable fuel excluded wastes. Since these wastes will likely have several constituents, a shipper can choose a wide range of shipping and packaging options tied to one or two constituents in the waste. These packaging and shipping options will be less stringent than the requirements for a hazardous waste. For these reasons, the comparable fuel exclusion must not be promulgated under 261.4, but only allowed as an exemption from AMCT, Subpart O and Part 266. In this way, hazardous waste meeting the comparable fuel exclusion will be fully controlled until the point at which they are burned.

CFTRN.06(commenter 130)
Also, the ETC does not feel that applicable DOT and OSHA provisions are adequate to protect against incidents if a hazardous waste for which a comparable fuels exclusion is claimed is freely distributed in commerce. The OSHA worker protection provisions for hazardous wastes only apply to materials defined and managed as hazardous wastes. Only non-waste chemical hazards are limited to a small subset of constituents that are carcinogens. With regard to DOT, the hazardous material tables provide a wide range of less protective packaging and shipping options, that could result in significant hazard for comparable fuel excluded wastes. Since these wastes will likely have several constituents, a shipper can choose a wide range of shipping and packaging options tied to one or two constituents in the waste. These packaging and shipping options will be less stringent than the requirements for a hazardous waste. For these reasons, the comparable fuel exclusion must not be promulgated under 261.4, but only allowed as an exemption from MACT, Subpart O and Part 266. In this way, hazardous waste meeting the comparable fuel exclusion will be fully controlled until the point at which they are burned.

CFTRN.09(commenter 136)
4. Exemption from RCRA Storage and Transportation Requirements
As proposed, the comparable fuels exemption would apply to RCRA storage and transportation requirements as well. EPA claims it can "rely on the storage and transportation requirements of other federal and state agencies" to ensure protection of human health and the environment. However, other than specifically mentioning DOT and OSHA requirements, the Agency provides no rationale as to whether and how such requirements provide equivalent protection of human health and the environment. In particular, none of these requirements would prevent the release of contaminants from tanks and containers into groundwater, one of the principal purposes of the RCRA regulations. Indeed, in 1986, EPA promulgated a detailed set of tank standards in response to the increasing number of leaking tanks discovered throughout the country. Corrosion protection, leak detection and other requirements promulgated by the Agency, and reinforced by Congress in Section 3004(o)(4) of RCRA, are necessary controls to prevent or minimize environmental releases.
EPA notes that the comparable fuels must be burned and "a comparable fuel which is not burned remains hazardous waste and is subject to regulation cradle-to-grave" (61 FR 17466). Consequently, the Agency should continue to regulate comparable fuels under full RCRA jurisdiction until the point of burning, absent a clear demonstration that other authorities

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provide adequate protection of human health and the environment.

CFMISS.31(commenter 170)

CKRC has no objection to transportation, storage, or treatment of hazardous wastes that will be burned as Comparable Fuels; but such activities should be regulated under RCRA rules. The extra degree of protection of human health and the environment provided by RCRA requirements is at least as necessary for hazardous wastes meeting a comparable fuel specification as for other hazardous wastes. Otherwise, that extra protection is superfluous in both instances. (As an example, consider a hazardous waste that meets all the specifications for EPA's "90th percentile composite fuel specification" (61 FR Table 6., p. 17492) except that it has 30 mg/kg halogens. There is no way to sustain an argument that this hazardous waste is inherently riskier to transport, store, and treat than if it had 25 mg/kg halogens and met the specification. But EPA is, in effect, advancing that argument by arbitrarily excluding from RCRA regulation the transportation, storage, and treatment of the latter while regulating the former.)

CFTRN.11(commenter 170)

TRANSPORTATION, STORAGE, AND TREATMENT OF COMPARABLE FUELS SHOULD BE REGULATED UNDER RCRA

EPA's proposal to exclude from RCRA transportation, storage, and treatment regulations hazardous wastes that meet a Comparable Fuel specification is unjustified and arbitrary. The hazards associated with transportation, storage, and treatment of flammable or combustible wastes, especially liquids, are independent of their comparability to fossil fuel specifications. In fact, because "comparable" hazardous wastes typically would have greater energy value and a higher concentration of those toxic constituents that most contribute to their utility as fuels, such materials can be more hazardous than many other less concentrated wastes and therefore require greater regulatory control to minimize risks to human health and the environment. EPA has offered no scientific or regulatory bases for excluding Comparable Fuels from RCRA controls over their transportation, storage and treatment.

A Comparable Fuels Exclusion may have merit as a way to simplify the permitting of air emissions from certain combustion units; but hazardous wastes should not be arbitrarily excluded from RCRA regulation altogether. As an example of its arbitrary criteria, EPA is proposing in this rule to exclude from RCRA controls wastes that contain Benz(a)anthracene at a concentration ranging from 100 mg/kg to as high as 610 mg/kg (61 FR April 19, 1996, pp. 17481-17494, Tables 1.-6.); while in the recently proposed Hazardous Waste Identification Rule, EPA has established a non-wastewater exit level for Benz(a)anthracene at 0.1 mg/kg (61 FR 17466). EPA has provided no justification for the three-order-of-magnitude difference between these RCRA "exit" or "exclusion" levels for this toxic constituent.

CFTRN.12(commenter 170)

TRANSPORTATION

All hazardous wastes should be transported only by licensed and regulated hazardous waste

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transporters; and all shipment s should be tracked from cradle-to-grave under the hazardous waste manifest regulations. EPA's proposal to exclude certain RCRA hazardous wastes (e.g., Comparable Fuels) from regulation if they are either burned on-site or shipped off-site "to a person who in turn burns the comparable fuel" is weird and lacks common sense. EPA apparently is willing to confer so me special dispensation upon these hazardous wastes simply because they are destined to be burned. By what measure does the Agency differentiate between the transportation risks associated with Comparable Fuels shipped to an excluded burner and those risks associated with an analogous waste shipped either to a non-excluded burner or the same exact waste shipped to a non-combustion treatment facility? If there is any technical basis for such unique reasoning, EPA must place it in the docket and make it available for public comment.

CFTRN.13(commenter 170)
STORAGE The same logic applies to the storage of Comparable Fuels. The Agency has invited comment "on whether the applicable Department of Transportation (DOT) and Office of Occupational Safety and Health (OSHA) requirements are adequate" to "ensure that storage and transportation of excluded comparable fuel poses [sic] no greater hazard than fossil fuel" such that "duplicative RCRA regulation would not be needed." (61 FR 17460). For the most part, all RCRA regulation of transportation and storage of hazardous waste is duplicative of DOT and OSHA requirements. If the Agency believes that risks to human health and the environment can be adequately minimized without resorting to the extra protection afforded by RCRA regulation of the transportation and storage of hazardous wastes, why not end those duplicative regulations for all wastes? As noted above, there are absolutely no scientific or technical b ases for selectively and arbitrarily granting special status to wastes simply because they resemble fossil fuels in some ephe meral way and eventually will be burned. If duplicative RCRA regulation makes sense for any hazardous wastes, it makes sense for Comparable Fuels; and vice versa.

CFTRN.14(commenter 187)
3. Solite sees no justification for excluding comparable fuels from any RCRA transportation and storage requirements. There is no reason to believe such fuels do not pose precisely the same environmental risks posed by other hazardous waste derived fuels. Prior to promulgation of the BIF Rule in 1991, industrial furnaces such as the lightweight aggregate kilns operated by Solite were in effect the beneficiaries of an exclusion for high- BTU waste fuels. As is now proposed for comparable fuels, the burning of such hazardous waste fuel was exempt from RCRA regulation. However, the transportation and storage of such fuel was and is regulated. Accordingly, long before the BIF Rule went into effect the hazardous waste fuel burned by Solite was received under manifest and stored in fully RCRA permitted facilities. We do not see any justification for excluding comparable fuels from any RCRA requirements other than those that apply to the actual combustion process. Accordingly, all RCRA transportation, storage, and treatment (in the case of blending) requirements should continue to apply.

Response:
EPA disagrees with commenters that the DOT and OSHA requirements for the transportation and handling of comparable fuels are not adequate. DOT regulations ensure proper handling of the transport of these materials, including the requirements properly label containers and transport vehicles, requirements to properly package materials for transportation, requirements to ship these materials under shipping papers, and requirements in the case of an emergency response. In addition, OSHA requirements ensure the proper storage and handling of comparable fuels including regulation for the management of flammable and combustible liquids, which includes the design and construction of tanks and containers, testing and repair of tanks to ensure their stability, and spill containment.

To further ensure safe handling and transport, he final rule requires that for each shipment of comparable fuel a generator sends off-site for burning in an industrial furnace or boiler, or hazardous waste incinerator, a record of the shipment must be kept by the generator on-site. Because these fuels are not required to be accompanied by a manifest, this recordkeeping ensures that comparable fuels are transported to and burned in only those units approved for such burning some type of tracking mechanism is warranted. Therefore, the final rule requires for off-site shipments the following information be maintained by the generator on-site: 1) the name and address of the facility receiving the comparable fuel for burning; 2) the quantity of comparable fuel delivered; 3) the date of shipment or delivery; 4) a cross-reference to the record of comparable/syngas fuel analysis or other information used to make the determination that the comparable fuel meets the specifications; and 5) the one-time certification by the burner.

4. Transportation spills

CFMISS.40(commenter 191)
111. Page 521
The Agency states on page 513 "A comparable fuel which is not burned remains a hazardous waste and is subject to regulation cradle-tograve" later the Agency proposes to exempt comparable fuels from RCRA storage and transportation requirements. If a comparable fuel is being transported and is spilled it would appear that it suddenly becomes a HW. However, if it has been exempted from RCRA storage and transportation requirements how will the regulatory agency know of the spill? This item must be addressed.

Response:
The Agency believes that if a comparable fuel is spilled, like other fuels, adequate tracking is available through DOT handling requirements that adequate spill response requirements exist to ensure safe cleanup.

Use as Fuel

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1. Allow the use of third parties

CFI6.1(commenter 086)

K. USWAG Opposes The Proposed Prohibition on the Use of Dealers and Brokers.

USWAG strongly opposes the proposed requirement that, to qualify for the comparable fuels exclusion, a generator must either burn the fuel itself or ship it directly to the burner**.** Id. at 17466. EPA has provided no justification for this restriction, which will substantially reduce the usefulness of the proposed exclusion. Many potential generators of comparable fuels may not have the capability to burn the material directly, and it would be extremely inefficient for them to have to enter into arrangements with a specific burner. It would be much more efficient if the generators could distribute these materials through brokers. The restriction on the use of brokers and dealers is likely to make the use of the comparable fuels exclusion impracticable for many generators and thus would defeat the purpose of the exemption. Moreover, the proposed restrictions are inconsistent with the fundamental premise of the exclusion, which is that secondary materials that meet the comparable fuels criteria should be managed as products rather than as a waste.

The proposed restriction is also inconsistent with the Agency's experience under the used oil program. Under that program, generators of used oil routinely transport their used oil to brokers and dealers who either recycle it themselves or arrange for recycling. The brokers and dealers are an essential component of the used oil system, and there is no evidence that the use of such third parties has created any environmental problem. In fact, the used oil system has proven to be one of the nation's most successful recycling programs, and the role of third-party brokers and dealers has been integral to the program's success.

Dealers and brokers could serve the same critical function in the comparable fuels system, and there is no reason to believe that the use of such third parties would create any environmental problem. The goal of the proposed exclusion is to allow these materials to remain in the stream of commerce, and brokers and dealers are an integral part of this stream.

Therefore, the Agency should eliminate the condition that the generator must either burn a comparable fuel itself or send it directly to the burner.

CFI6.5(commenter 102)

H. EPA should allow applicable regulated third parties to handle comparable fuels.

As drafted, the comparable fuels provisions would preclude third parties from managing comparable fuels. (61 Fed. Reg. at 17466) The current proposal requires that the comparable fuel be either burned on-site or shipped off- site directly to a person who burns the comparable fuel. The proposal is apparently constructed in this manner to address EPA's concern that it would likely be too difficult to ensure that the excluded fuel meets the specification and is appropriately burned if a third party manages the material.

NACR totally disagrees with EPA. RCRA regulated third party fuel blenders, such as the member companies of NACR, have considerable experience in handling fully regulated hazardous waste,. NACR members' collection, storage, blending, and overall management of waste fuels are carried out using the most environmentally protective practices. In fact, third party fuel blenders typically handle conditionally exempt small quantity generator waste

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in a manner consistent with small and large quantity generators waste. Therefore, there is no reason to believe that a hazardous waste treatment, storage and disposal facility (TSDF) would apply handling practices for comparable fuels that are less environmentally protective than those employed for regulated hazardous waste derived fuels.

Apparently, EPA is hesitant to allow third party hazardous waste TSDFs to manage a non hazardous waste fuel in an environmentally protective manner. In fact, the proposed requirement that comparable fuels be burned on-site, or shipped off-site directly to the point of combustion, actually Guarantees that the protections afforded by RCRA-regulated treatment storage and disposal facilities (TSDFS) will not be in place. NACR is disappointed by this specific proposal. At its illogic extreme, the Agency's position makes it appears that EPA is concerned that non hazardous waste will be managed in a manner that is overly protective of human health and the environment.

In an effort to ease EPA's misconceptions (in the event a comparable fuels exclusion is implemented), NACR recommends that when third parties manage comparable fuels, the Agency require third parties to provide a simple certification to generators stating that the excluded comparable fuel material will be burned in a combustion device. This certification could take the form of a one time notice that is made to the generator prior to the initial shipment. This type of notification is already in place for applicable used oil marketers and generators of hazardous waste exempt from LDR requirements. This type of requirement would provide the Agency with assurance that the waste was being burned and that the generator has knowledge that the ultimate disposition of the waste material is combustion. It would also provide EPA with a simple means of verifying compliance.

CFI6.8(commenter 108)

1. Regulated third parties should be allowed to handle comparable fuel

As drafted, the comparable fuel provision would preclude third parties from collecting comparable fuels. (61 FR at 17466 (Apr. 19, 1996)) The rule requires that the comparable fuel be either burned on-site or shipped off-site directly to a person who burns the comparable fuel. EPA states the following:

EPA is reluctant to allow persons other than the generator and the burner to manage the comparable fuel because it would likely be too difficult to ensure that the excluded fuel meets the specification and is burned. We invite comment on how to allow third party intermediaries, such as fuel blenders, to handle an excluded comparable fuel without precipitating serious enforcement and implementation difficulties. ad. at 17466)

We believe that EPA is overestimating the potential environmental and compliance concerns associated with allowing third parties to handle comparable fuels.

RCRA regulated third party fuel blenders, such as Safety-Kleen, have considerable experience in handling fully regulated hazardous waste.[10] Hence, the collection, blending, and overall management of waste fuels are carried out using the most environmentally protective practices.- These practices would also be applied to the handling of comparable fuels. In fact, third party fuel blenders may manage large quantities of comparable fuels as if they were hazardous, providing the associated protective benefits. This is similar to Safety-Kleen's handling of CESQG waste in a manner consistent with SQG and LQG waste. If companies such as Safety-Kleen are precluded from blending wastes, a smaller quantity of comparable fuels may be disposed of in fully regulated combustion devices. [Footnote10: We note that the RCRA requirements for fuel blending may be simplified through the OSW regulatory process and Safety-Kleen supports such simplification.]

If EPA has concerns regarding ensuring compliance when third parties manage comparable fuels, the Agency could require third parties to provide a simple certification to generators stating that excluded material was properly burned. This certification could be similar to the one businesses must provide generators as proposed by EPA on page 17466 of the preamble. Such a requirement would provide the Agency with assurance that the waste was being burned and that the generator has knowledge of the proper disposition of the waste material. In that regard, we support the limited record keeping proposal included in the preamble except as discussed below.

CFI6.15(commenter 153)

C. Third Party Handling (61 Fed. Reg. at 17,466)

EPA proposes to restrict the third party handling of exempt fuels because of concerns regarding waste tracking and the assurance that the exempt fuels will actually be burned. CWM objects to the Agency's rationale for this approach and recommends that the Agency remove this restriction provided the exempt fuel is not impermissibly blended with other non-exempt fuel, and all movements of the exempt fuel are documented in the third party's operating record.

The Agency's concerns regarding third party handling of exempt fuel can be addressed by requiring the generator to record and maintain information for each shipment, including the amount of exempt fuel shipped and the identity of the receiving facility. In turn, each receiving facility, whether third party or the ultimate destination, would be required to record the amount of exempt fuel received, the identity of the generator, and the ultimate management method, including shipment off-site to a burner. These additional recordkeeping requirements would not impose an excessive regulatory burden on the generator or third party facility and would provide a paper trail of the exempt fuel's movements to ensure it is managed as the Agency intended.

In addition, a provision to allow the third party handling of exempt fuel would enable the generator to reduce his transportation costs by being able to consolidate drum quantities of exempt fuel with other containers of non-exempt hazardous wastes on the same transport vehicle. In conclusion, CWM maintains that the third party handling of exempt fuels can be conducted in compliance with the intent of the proposed regulation, and recommends that the Agency revise the language in the rule accordingly.

CFI6.17(commenter 172)

Should EPA finalize the "comparable fuels exclusion", Heritage would like to comment on EPA's proposal to not allow the exclusion for generators who ship their fuels to a blending facility prior to being burned. While Heritage does not own or operate a cement kiln, we are familiar enough with the market to conclude that the kiln would rather manage a small number of large bulk shipments from blending facilities, than assume the burden of managing

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a large number of small shipments from individual generators. There are significant economies of scale in the administrative management of the waste streams and customers (more individual customers and their waste streams creates higher administrative costs), as well as the production and physical management of the shipments (smaller quantities per shipment and shipment in small containers versus bulk containers is significantly more labor-intensive). Such a restriction will effectively negate the usefulness of the "comparable fuels exclusion" for all but the largest generators who have the volumes of waste to deal directly with the kilns. The smaller generators will still be managing their materials through blending facilities, thus minimizing potential positive impact of this exclusion.

Heritage strongly recommends that EPA reconsider not allowing the exclusion to apply to materials shipped to blending facilities. EPA's proposal to require certification from the burner that the material is burned should apply to blenders as well, thus addressing the concern that the comparable fuels may not ultimately be burned. Restricting the exclusion to allow only facilities with a valid RCRA hazardous waste permit to manage the comparable fuel would also provide assurance that the material will actually be burned. Most, if not all fuels blending facilities that are currently operating are subject to permitting requirements under 40 CFR Part 264. These permits and the associated regulatory requirements in Part 264 more than sufficiently regulate the management of hazardous waste fuels blending where those activities are taking place. The comparable fuels will more than likely be managed with other fuels that are regulated as hazardous wastes, as it will likely not be economical to manage them separately. rhus, once the comparable fuels are received by the blending facility, they will be mixed with hazardous wastes and via the mixture rule must be subsequently tracked and managed as hazardous.

Heritage hopes EPA will reconsider restricting the "comparable fuels exclusion" to generators and burners as this will significantly limit the usefulness of the exclusion. Hazardous waste fuels blending facilities should be permitted to accept comparable fuels from generators who have properly implemented the exclusion without penalizing the generator for not shipping directly to the burner.

CFI6.18(commenter 174)

I.F.3 Use as a Fuel:

We feel for the regulations to succeed used oil fuel blenders would have to be allowed to handle these wastes. Used oil fuel blenders already have in place collection capabilities, analysis plans and proper burner markets. Following the basic plan of the used oil management standards would insure the waste was handled properly and was indeed burned. Possibly the blender could become the guarantor of the content of the fuel that is produced, alleviating EPA's need to police many small generators. Used oil fuel blenders are already required to have these systems ln place, and are monitored by EPA. Also used oil fuel blenders need low viscosity blending stock. Asphalt plants that burn used oil that do not have heating equipment to heat the oil must burn a used oil-distillate mixture, frequently used oil and virgin #2 fuel oil. Allowing used oil fuel blenders access to low viscosity comparable fuel wastes would allow these fuel blenders to stop purchasing virgin fuel for blending, further conserving our natural resources. This would also promote RCRA's resource recovery goals

without creating any risk greater than those posed by the commonly used commercial fuels, as has stated is its desire for this proposal. After all, the proposed fuel specification constituent levels are either the same OR- much lower than those same constituent levels in used oil, plus the Comparable Fuels Specification is much more extensive.
Only very large generators would be capable of marketing this waste to a burner directly. Small to medium sized generators would not be capable of dealing directly with the proper types of burners of comparable fuels. Larger stationary burners that have air discharge permits will not deal with multiple sources of smaller generators for a supply. The burners would have to become, in effect, collectors to secure wastes from generators. Very few burners will want to become waste collection companies. When faced with this, burners will simply continue to burn virgin fuel. However, if used oil fuel blenders, and possibly others, could act as the collectors for the generators, these wastes could easily be marketed by those collectors to the burners. This is, in effect, how the current used oil industry operates. Therefore, used oil collectors and their facilities are very adequate to handle these wastes and can provide economical collection and transportation, screening out of solids, water separation and the er burner market to the generators. Procedures and markets small and medium sized generators would not have access to directly.

CFMISS.35(commenter 174)
Summation:
In closing, what we are requesting is the hope that a good, common-sense, usable regulation comes out of this proposal. This proposal, with some common sense changes, would be an excellent way to achieve a market driven recycling scheme as EPA stated is its desire for the proposal. It would also fit in extraordinary well with EPA's thoughts on Targeted Legislative changes to RCRA (proposed in the FR, Apr 28, 1995) concerning using management standards that could negate the risk posed for that waste, and thus the need for a hazardous waste designation, (management requirements). To achieve this we feel that an intermediary will be necessary between all but the largest generators and burners to collect, transport and market the fuel.

CFI6.21(commenter 214)
Availability of the Exclusion
As presently drafted, EPA's comparable fuels exclusion would only be available to generators. This is an unnecessary and counterproductive restriction. It seems logical that a central purpose of EPA's proposal is to facilitate the transfer of waste materials that can be safely burned for energy recovery from the generator to the appropriate burner. In general, it can be expected that neither the generator nor the burner have sufficient incentive or resources to locate each other. The generator is, of course, interested in selling what would otherwise be considered a waste stream, but has relatively little motivation to investigate the market. The burner is interested in purchasing fuel that meets his specifications at a cheaper price, but will not invest in an effort to scour the landscape for waste generators who, on their own, cannot provide an adequate supply of a consistent quality product. The service that both the generator and the burner need is provided by a third party who serves several functions. The

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collector/processor/marketer:

- investigates the market and determines the fuel needs of burners;
- investigates the availability and consistency of generators' waste streams for use as fuel; o collects the appropriate waste streams from generators;
- processes waste streams to produce a fuel that meets burners' specifications; and
- transports and sells the fuel to the burner at a profit.

All of these functions have to be carried out to the satisfaction of the generators and burners in compliance with applicable regulations. The business relationships, transactions and regulatory compliance requirements necessary to make this enterprise profitable are sufficiently complex that neither burners nor generators are likely to divert resources from their principal business to make the effort. Without sufficient resources or motivation, the generator simply will not take advantage of the exclusion. In general, only those in the business of collecting, processing and marketing would make use of the exclusion. There are several other practical reasons why this is the case.

First, the collector/processor has -- or will obtain -- the collection and storage facilities, equipment, and knowledge needed to properly blend and/or process fuel.

Second, to meet specifications that vary from burner to burner and season to season, blending and processing are essential. Meeting the burners' expectations and specifications requires technical expertise and knowledge of the demands of a competitive market that most generators -- especially small quantity generators -- simply do not possess.

Third, the processor/marketer -- rather than a multitude of generators -- becomes the guarantor of the content of the fuel and can be held accountable if the fuel fails to meet specifications. Focused accountability -- as opposed to widely diffused accountability -- is preferable to all concerned, including regulators.

In summary, the benefits that can be derived from the comparable fuels exclusion will not be realized if the exclusion is limited to those who will not use it.

Response:

The final rule does not place restrictions on the third party handling of the excluded comparable fuel. The final rule does not require that the generator burn the waste on-site or ship it directly to the burner, but does require that the burner submit a burner certification. Any blending of a hazardous waste to achieve the standards for the exclusion may only occur at a fully regulated RCRA Subtitle C facility.

The final rule does not require comparable/syngas fuel handlers to comply with the RCRA storage and transportation requirements. It should be noted that excluded comparable/syngas fuel transporters are required to comply with all applicable requirements under the U.S. Department of Transportation regulations in 49 CFR parts 171 through 180.

Anyone who stores an excluded comparable/syngas fuel (e.g., generator, transporter, burner) is required to comply with all applicable requirements under the Occupational Safety and Health Agency regulations in 29 CFR part 1910. The occupational safety and health standards for flammable and combustible liquids can be found in Subpart H--Hazardous Materials section 1910.106 and standards for compressed gases in section 1910.101.

Prior to exclusion of the waste, the waste must be managed as a hazardous waste in

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accordance with applicable RCRA Subtitle C requirements.
In addition, the final rule requires the burner to certify that the excluded comparable fuel is to be burned in one of the types of units allowed in the rule.

2. Burning requirement not necessary

CFI6.2(commenter 086)
In the same vein, USWAG also objects to EPA's assertion that if, for some reason, the comparable fuel material is not burned, it becomes hazardous waste from the point of generation. Id. at n. 205. Again, this position is inconsistent with the basic principle of the exclusion, which is that these materials are products. Moreover, this position could render the exclusion meaningless because generators will be concerned about potential liability if, for some unexpected reason, the designated facility cannot burn the material (for example, if it has to shut down due to a malfunction).
Moreover, the Agency's fears of misuse are overblown, and there is simply no need for this provision. Burning a high Btu waste as a fuel is, in nearly all cases, the most efficient way to manage the material, and it is highly unlikely that a generator would go to the trouble of classifying a material as a comparable fuel only to dispose of it in some other fashion. Such an action would simply not make economic sense.

Response:
The final rule continues to require that comparable fuels be burned to be eligible for this exclusion. If the comparable fuel is not burned, it therefore is not "comparable" to other fuels and is subject to the Subtitle C requirements for the management of hazardous wastes.

3. Restrict to regulated stationary sources

CFI6.3(commenter 089)
3. Use as Fuel
Pg 17466 "EPA invites comment on whether the burning of a comparable fuel should be restricted to only stationary sources either with air permits or that otherwise have their air emissions regulated by a federal, State, or local entity. EPA's primary concern is that excluded fuel may be burned in unregulated combustion devices. EPA believes that unregulated burners may be unaware of or unprepared to handle many unique issues related to fuels other than fossil fuels. In addition, EPA invites comment on whether comparable fuels should be allowed for use in sources other than stationary sources, i.e., mobile sources (on- and off-road automobiles, trucks, and engines) and small engines."
As stated earlier in this document, EPA should limit the burning of comparable fuels to energy recovery purposes. We feel that this could be best achieved in stationary devices, such as boilers, industrial furnaces, and as previously mentioned, some incinerators. In Texas, all of these sources would require authorization to burn pursuant to the Texas Clean Air Act.

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CFI6.7(commenter 106)
In response to EPA's request for comment on page 17466/3, ENSCO feels that the burning of the comparable fuel should be limited to only stationary sources with air permits and emissions regulated by a local, state or federal regulatory body. In this way there will be an avenue for review and enforcement of the provisions of the comparable fuel exemption. In addition, this would eliminate the burning of waste fuel in unregulated units which do not have adequate controls to ensure proper combustion. ENSCO concurs with EPA that operators of unpermitted units are ill-prepared and not train to safely manage hazardous waste, and the environmental and safety issues raised by even hazardous waste that meets the clean fuel specification. ENSCO is opposed to allowing the use of comparable fuels in mobile sources, as this greatly magnifies the risk, hazards, and harmful emissions. In addition the use of comparable fuels in mobile sources be impossible for EPA and state and local agencies to properly regulate and enforce.

CFI6.10(commenter 110)
I. Burning of Comparable Fuels Should Be Restricted to Stationary Sources That Are Permitted Or Otherwise Regulated Under the Clean Air Act or State Analogs
EPA has invited comments on this issue because of its stated concern that allowing the burning of exempted fuels in completely unregulated combustion devices could pose unwarranted environmental risks. The CCF believes that EPA's concern is a valid one**.** It would be a reasonable precondition for EPA to limit the exemption's availability to facilities that are subject to permitting and/or regulation under clean air laws. Such a limitation should help to ensure that the exemption is available only to those facilities that have the experience and training necessary to handle exempt fuels in an environmentally sound manner.

CFMISS.20(commenter 128)
As further assurance that a waste fuel is used for heat recovery as a fuel substitute (and that the CMA proposed specifications on operating conditions are practiced), CMA has suggested in its proposal that the exempted waste material must be burned in a physically co-located facility (at the generator site) or another facility under common ownership with the generating facility. While this level of control is not indispensable, it provides added assurance that generator certification is based on generator knowledge.
CMA also supports precluding third party blenders from managing or marketing clean fuels, and limiting combustion to stationary sources. The CMA proposal also meets these stipulations, which are further assurances against sham burning, or against burning without adequate controls.

CFI6.12(commenter 130)
In response to EPA's request for comment (page 17466/3), the ETC feels that the burning of the comparable fuel should be limited to only stationary sources with air permits and emissions regulated by a local, state or Federal regulatory body. In this way there will be an avenue for review and enforcement of the provisions of the comparable fuel exemption. In addition, this would help restrict the burning of waste fuel in unregulated units which do not

have adequate controls to ensure proper combustion. The ETC concurs with EPA that operators of unpermitted units are ill-prepared and not trained to safely manage hazardous waste. The ETC is opposed to allowing the use of comparable fuels in mobile sources, as this greatly magnifies the risks, hazards, and harmful emissions. In addition, the use of comparable fuels in mobile sources would be impossible for EPA and state and local agencies to properly regulate and enforce.

CFI6.14(commenter 153)

B. Comparable Fuel Burning (61 Fed. Reg. at 17,466)

To ensure the burning of an exempt fuel does not increase emissions of contaminants that the Agency is attempting to reduce through promulgation of the MACT combustor standards for hazardous waste incinerators and cement kilns, CWM recommends that the Agency restrict the burning of exempt fuels in a unit that is operating under a state or federally issued air permit. As discussed in Section II of these comments and by the Agency throughout the proposed rule, the exact source and formation of D/Fs is not thoroughly understood. What is known is that the level of D/F emissions hinges on a combination of factors, including the type of waste fed to the unit, good combustion, and the residence time spent downstream in the D/F formation window. By requiring that exempt fuels be burned in a unit that is operating under an authorized air permit, there will be some measure of control over the combustion process which will help to ensure D/Fs and other contaminants are not released to the environment.

For the reasons discussed above, CWM opposes the Agency's suggestion that the exempt fuels be allowed to be burned in automobiles, trucks, and other mobile sources. The sampling and analysis of hazardous waste is not an exact science due to waste variability and other factors. Since recurrent sampling is only required once per year, it is possible that Appendix VIII contaminants above the 90th percentile specification level could be present in the exempt fuel due to waste variability or manufacturing process changes and go undetected. If this fuel is subsequently burned at a facility with a state or federally authorized air permit, the environmental impact may be marginal. If burned in an automobile or other mobile combustion device, however, the environmental impact would increase significantly and may pose an unacceptable risk to personnel who may be unwittingly exposed to the misrepresented fuel.

CFI6.16(commenter 170)

A COMPARABLE FUEL EXCLUSION SHOULD BE LIMITED TO PERMITTED UNITS

The Agency is well aware that the environmental effects of waste combustion primarily are related to combustion system parameters such as temperature, chemistry, and the air pollution control system (APCS). To exclude from RCRA regulation or otherwise sanctify a hazardous waste simply because it meets a specification comparable to fossil fuel is without scientific basis. Anyone who has followed closely behind a poorly maintained automobile and suffered the resulting visual and olfactory insults knows there is no automatic environmental benefit to combustion of fossil fuels. For that reason, EPA should, at the minimum, restrict

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availability of a Comparable Fuel Exclusion to stationary sources with federally enforceable air permits.

CFI6.19(commenter 174)
We feel that the burning of a comparable fuel should be restricted to only stationary sources either with air permits or that otherwise have their air emissions regulated by a federal, state or local entity due to the same concerns EPA raised in the proposal. We feel these types of fuels due to their more inconsistent nature would not be appropriate for most smaller unregulated burning devices or small mobile machinery.

CFMISS.42(commenter 198)
Many hazardous waste-derived streams that are burned in boilers, incinerators, or furnaces (BIFs) have recoverable fuel value with little or no metals, halogens or acutely toxic materials. These streams can be burned with no more risk than that associated with many fossil fuels. For such waste-burning operations it is logical to manage the facilities as fuel-burners under the Clean Air Act rules governing fossil fuel combustors versus under RCRA Subtitle C requirements. Many of the Clean Air Act rules are in place, and Maximum Achievable Control Technology (MACT) standards for these fuel-burners will be fully in place by the end of the decade.

Response:
The Agency also believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, will ensure that the fuel was burned in a unit subject to Federal/State/local air emission regulations. Industrial furnaces or boilers, or hazardous waste incinerators are believed to be a universe of units that are capable of handling comparable/syngas fuels and that would be subject to Federal/State/local air emission requirements.

4. Clarification of third party exclusion

CFI6.9(commenter 108)
In addition,if EPA wants to supplement environmental controls, it- could require both generators and third party fuel managers to only send fuel to a facility that is covered by a CAA MACT standard.
As a practical matter, EPA's wording in the proposed rule regarding the exclusion of third parties is potentially confusing. Proposed Rule 261.4(a)(13)(iii)(D)(1) reads: "comparable fuels shall be burned on-site or shipped directly to a person who burns the waste. " (emphasis added) What is the definition of a person in this context? Does a person include all locations within a single corporate entity? For example, if a generator of a comparable fuel sends their waste to an off-site facility, can the waste be transported from that off-site facility to another off-site facility for burning if both off-site facilities are owned by the same company? This points out just one of the problems in trying to exclude the use of any intermediate handling

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of comparable fuels. The waste handling system cannot always be neatly performed by the direct transportation of a waste from generator to burner. In particular, such management is very unlikely for smaller waste generators. While a large generator may either have an on-site combustion device, or is generating sufficient quantities to ship directly to a burner, small business must usually rely on collection networks. EPA, by placing limits on the collection of various comparable fuels by third-parties, is significantly limiting the ability of smaller generators to use the exemption.

Response:
The final rule does not require comparable fuels to be shipped directly to a "person."

5. Restrict off-site use of comparable fuels

CFI6.11(commenter 126)
6.2 Restriction of Off-site Use of Comparable Fuels
If EPA adopts a comparable fuels policy, it should ensure that such hazardous waste fuels only be burned (as fuel) at the local site where a waste generator produces such waste. EPA should not permit hazardous waste fuels to be injected into general commerce and introduced via blending to other fuel burning sectors, like residential and commercial heating.

Response:
The final rule requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, would ensure that the fuel was burned in a unit subject to Federal/State/local air emission regulations. Industrial furnaces or boilers, or hazardous waste incinerators are believed to be a universe of units that are capable of handling comparable/syngas fuels and that would be subject to Federal/State/local air emission requirements. Excluded comparable fuels are not subject to restrictions in the final rule with regard to their blending and can be treated like other commercial fuels so long as they are burned in the types of units described above.

6. Constituent levels in comparable fuel

CFI6.20(commenter 187)
V. Miscellaneous Issues
A. Comparable Fuels Exclusion
Solite agrees with the proposition that high-BTU waste fuel which is burned for injury recovery in boilers and industrial furnaces in leu of fossil fuels, and which has chemical and physical properties which make it no more hazardous than the fossil fuels it displaces, should be excluded from the requirements that apply to the burning of hazardous waste. However,

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Solite is very concerned that the comparable fuels exclusion as proposed is premature and could create a major loophole. We see the following potential problems:
1. In determining constituent levels for the "benchmark fuel", we are concerned that EPA may arrive at a specification that would allow burners to switch to a "comparable fuel" that in fact has higher levels of hazardous constituents than the fossil fuels it displaces. In addition to showing that the comparable fuel meets the specifications for the benchmark fuel, burners should be required to demonstrate that the specific waste fuel that they propose to use does in fact have levels of hazardous constituents that are equal to or lower than the levels of hazardous constituents in the fuel that has been their principal fuel for the three year period prior to promulgation of the Rule. Otherwise, the use of comparable fuels may result in an increase in emissions of hazardous air pollutants. For the same reason, the exclusion should be restricted to facilities with air permit limitations that apply to the unit burning the comparable fuel.

Response:
The final rule does not restrict the unit burning the comparable fuel to only burning a comparable fuel that is comparable to the type of commercial fuel currently being burned in the facility. The final rule determined the standards based on a benchmark approach that combined the data from several commercial fuels. Hazardous waste must may demonstrate it’s exclusion based on the benchmark, they do not have to show that the comparable fuel is comparable exclusively to the type of commercial fuel being burned in the particular unit.

7. Waste-derived fuel producer

CFMISS.08(commenter 099)
10. The proposed regulation (40 CFR 261.4(a)(13)(iii)(A)) states that the person who generates the waste or produces the syngas must claim the exclusion and is referred to as the waste-derived fuel producer.
Dow encourages the Agency to use a different term other than “waste” or “waste-derived fuel producer” in the regulation. For example, 40 CFR 261.4(a)(13)(iii)(A) could read, “The person who generates the comparable fuel or produces the syngas must claim the exclusion. For the purposes of this paragraph, that person is called the comparable fuel producer.” This would be far preferable and less confusing than the proposed regulation which states that the person who generates the “waste” will be referred to as a “waste-derived fuel producer”. Dow believes that the use of the term “waste” or “waste-derived fuel producer” is inappropriate since materials that meet the specification are not considered wastes and thus, not hazardous wastes.

Response:
The person claiming the exclusion is termed the “comparable fuel generator” in the final rule.

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Small Business Considerations

CFI2.1(commenter 090)
Because NIPCA members' customers are small businesses which -generate waste solvent (i.e., mineral spirits), NIPCA is very interested in that portion of EPA's proposal entitled Small Business Considerations: Inherently Comparable Fuel (61 Fed. Reg. at 17468). As described in detail below, NIPCA believes that there are both significant advantages and disadvantages to EPA's inherently comparable fuel concept as proposed which must be considered before a final rule is created. In fact, NIPCA believes so many unresolved issues exist with respect to the inherently comparable fuels concept that a second, separate proposal specifically on inherently comparable fuels would be appropriate.

CFI2.2.g(commenter 090)
NIPCA urges EPA to engage in a companion rulemaking to its inherently comparable fuels proposal which would create an exemption based upon the same management criteria for small generators and their intermediaries/recyclers but with an end use of distillation rather than burning for energy recovery. NIPCA believes that EPA has the authority to engage in this rulemaking under 40 CFR § 261.4(c)l and §261.6. [Footnote 1: The fact that the solvent used in NIPCA members' service becomes waste while in service drums could fall within the parameters of hazardous wastes exempted from certain regulations under § 261.4(c).] NIPCA appreciates the opportunity to submit comments on this proposal.

CFI2.2.a(commenter 090)
1. Inherently Comparable Fuel Content
In order for the inherently comparable fuel exclusion to be a useful exception to the existing regulatory scheme, EPA must choose fuel specifications that will capture relevant waste streams; preferably those which are already managed closely. The one waste stream identified by EPA as a possibility for inherently comparable fuel under small business considerations is waste mineral spirits used to clean automotive parts. (61 Fed. Reg. at 17468) This waste stream is obviously the main waste stream handled by NIPCA members and that which NIPCA would particularly like to see included within EPA's proposed exclusion as a comparable fuel. As such, NIPCA would favor a "benchmark" approach based upon fossil fuels with 10,000 BTU/lb. NIPCA also urges EPA to continue the requirement that waste mineral spirits be managed separately from used oil, rather than encourage a waste mineral spirits/used oil inherently comparable fuel, because if those two waste streams are managed together it will virtually destroy the opportunity for reclamation and reuse of waste mineral spirits. See section IV below.

CFI2.2.b(commenter 090)
II. Small Generator Reliance on Knowledge from Routine Business Practice
NIPCA agrees with EPA's concern that the proposed implementation scheme for the comparable fuel exemption would be overly burdensome to small businesses because of the small volume of waste each business is likely to generate as well as the general lack of time,

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money, and available employees to undertake the various sampling and analysis, notification and certification, and recordkeeping requirements. (61 Fed. Reg. at 17459) Of particular concern to NIPCA is the possibility of imposing testing requirements on small generators because imposition of a testing requirement at the small generator level would virtually ensure a lack of participation. Since it appears that the exclusion, as proposed, would operate from the point of generation forward (61 Fed. Reg. at 17460), failure of NIPCA members' small generator customers to participate in the regulatory exclusion would also eliminate NIPCA members' ability to "participate" in the exclusion if that ability exists (See section III below).

CFI2.2.c(commenter 090)
NIPCA suggests that EPA consider two options in further developing the inherently comparable fuels exclusion strategy: (1) adopt test results of typical batches of waste solvent from small automotive businesses as representative of the parameters for waste solvent specifications. Other trade associations, such as the National Oil Recyclers Association, would be excellent sources for obtaining such data; and (2) create a presumption of acceptable content similar to the used oil- destined-for-recycling presumption of non-hazardousness in 40 CFR Part 279 which could allow a facility to apply knowledge derived from routine business practice to verify that the facility has no reason to believe that waste solvents generated at the facility would fall outside the required fuel specifications.

CFI2.2.d(commenter 090)
III. Role of Intermediaries
In order for the proposed inherently comparable fuels exemption to be useful, those businesses which act as intermediaries between the small business generator and industrial burners must be included within the parameters of the exemption. As mentioned above, NIPCA's customers do not and, in most cases, cannot deal directly with industrial burners; nor can they recycle the waste solvent themselves. When a small generator must rely on an intermediary to handle the majority of its waste streams, the regulatory cost to the generator is tied directly to the regulatory cost of the intermediary. As is the case for used oil generators, such as fast-lube facilities, the general costs of a business generating used oil are only manageable if two factors exist: (1) used oil destined for recycling is not considered a hazardous waste; and (2) viable end uses exist for used oil. The case for waste solvent is similar. If the generator receives an exemption for waste solvents but the exemption does not flow through to the intermediary, then the generator's costs remain the same because the intermediary is still subject to the procedures and costs involved with managing, a hazardous waste. NIPCA urges EPA to specifically include intermediaries in its next proposal and/or final rule regarding the proposed inherently comparable fuel exemption.

CFI2.3.a(commenter 095)
We are providing comments as requested on p. 1 7359 in the section entitled "Small Business Considerations: Inherently Comparable Fuel." Specifically, we want EPA to consider the

eligibility of on-site solvent distillation residue and settlings which contain a combination of used oil, petroleum distillates[2], and solids for exclusion from the inherently comparable fuel provisions. while retaining its eligibility for management under the used oil management rules. We would encourage EPA to take this opportunity to assure that the used oil rules, hazardous waste rules and any new provisions which establish inherently comparable fuel provisions be in consistent alignment.
[Footnote 2: Petroleum distillates includes mineral spirits. petroleum naphtha and Stoddard solvent. it is not intended to include any solvent that would be listed as a hazardous waste. Attached is a Material Safety Data Sheet for Shell (Wesco) 200 HT solvent. This MSDS is exemplary of the type of solvent used in our specific equipment for EPA reference.]

CFI2.3.b(commenter 095)
THE DISTILLATION SYSTEM:
Several hundred, mostly small, businesses and government operations are using our patented solvent distillation units throughout Oregon as a way to minimize solvent waste and indefinitely extend their solvent life while still effectively meeting their cleaning needs. These small units attach directly to a standard "basin on a drum" parts cleaner unit. (See the attached process flow diagram.) These distillation units are designed to continuously clean non-halogenated and non-chlorinated solvents that would not be listed as hazardous waste which contain material washed from a variety of vehicle and industrial parts (e.g. oil, grease, metal particles, silica, rust and dirt). During the parts cleaning process, solvent washes oils and greases off of pans and combines into a mixture prior to distillation. The distillation process cleans the solvent through a low temperature vacuum distillation process where the solvent-portion of the mixture is physically separated from the non-solvent portion (i.e. oil, grease, and so on) in a closed-loop process. The solvent and oil mixture contained in the drum under the basin is drawn, via closed connection. into an electrically heated vacuum distillation chamber, where the heated vapor rises through a filter column that separates any entrained liquids from the vapor. The vapors are condensed in a fan cooled condenser and the clean solvent is periodically returned to the wash basin for immediate use as a clean solvent. The solvent can then be reused continuously and indefinitely - only the material separated from the solvent is ever venerated as a residue that must be managed. Instead of generating 10 to 25 gallons of hazardous waste solvent per parts washer per month, those using solvent distillation equipment generate one to three gallons of residue per month. It is the residues created in this process that we believe should be eligible for the inherently comparable fuel exclusion.

CFI2.3.c(commenter 095)
THE RESIDUES:
Each distillation system results in the creation of two low volume-ne residuals: I) solid damp silica-like material, washed off the parts, which naturally settle to the bottom of the barrel under the parts washer basin, and 2) oily material, washed off the parts. which is separated from the solvent by distillation and collected after the distillation process is complete and the solvent has been returned to the cleaning process. The exact characteristics of the residue will

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vary slightly. The variability of the residue is dependent on the type of parts being cleaned and what is being cleaned off the parts not on the type of solvent being used to clean the parts. Whatever material that is washed off of a part (i.e. oils and grease) gets separated from the solvent material during distillation and ends up as a residue collected in a five gallon container at the bottom of the distillation unit or through natural settling in the drum under the basin. The distillation process is very effective in removing the solvent from the mixture although, some imperceptible portion of solvent may remain in the residue.

Solvent used in the distillation process does not introduce hazardous constituents, such as metals, organics, and chlorine. The only hazardous characteristic that can be added by the solvent to the residual mix is that of ignitability. (See the attached solvent MSDS.) Because used oil and mineral spirit solvents are both derived from petroleum. it is very difficult. if not impossible, to analytically distinguish them in the residual mixture.

The current used oil mixture rule [3] is and should continue to allow mixtures of ignitable hazardous waste and used oil to be managed as used oil, provided the resultant mixture does not exhibit the characteristic of ignitability. However, should this scenario becomes disallowed by modification or vacatur of the used oil mixture rule, at least the residues created through the distillation process under the circumstances laid out in this letter should continue to be eligible for management as used oil and specifically excluded from the inherently comparable fuel provisions. It is important to distinguish between the intentional mixing of waste solvent and used oil for purposes of waste management and the combination of solvent and oil as part of an industrial cleaning process prior to the generation of any waste followed by the intentional separation through distillation so that clean solvent can be returned to the original process and to allow the remaining residuals to be further reclaimed, recycled or recovered. In addition to the used oil provisions, we believe the residue created by the distillation process involving used oil and petroleum distillate solvents, should also be eligible for the inherently comparable fuel exclusion. regardless of the flashpoint of the resultant residue.

[Footnote 3: 40 CFR 279.10(b)(2).]

WM4.074(commenter 095)

HAZARDOUS CONSTITUENTS:

The level of hazardous constituents present in the distillation residue and settlings will vary by numerous factors, such as the process source for cleaning, what is actually being cleaned off the individual parts and the effectiveness of the distillation process. We assume that the solvent used in the cleaning process is not a listed hazardous waste or derived from a listed hazardous waste. We also assume the solvent contains no chlorinates, halogens or other toxic constituent levels of concern approaching TCLP regulatory levels. While the oily material washed off of a variety of parts may introduce different contaminates, we assume that they would be well within the allowable specification levels established for used oil. Based on sampling of distillation residues from our operations here in Oregon, the hazardous constituents of cadmium. chromium and lead are well within the allowable limits used to define on-specification used oil and should fall within the parameters of inherently comparable fuel standards.

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WM4.075(commenter 095)

FUEL VALUE:

In addition to its amenability for further recycling and reclamation, residues from solvent distillation have substantial fuel value. The two components (i.e. solvent and oil) that are combined to create the residues each have similar BTU content levels. For instance the BTU value of mineral spirits solvent typically used in our equipment ranges from 18,700 to 18,720 BTU/lb. Although used oil has a higher flashpoint than solvent. it also generally has slightly more fuel value per pound and per gallon than solvent because of its density. Typically, used motor oil ranges from 18,500 to 19,250 BTU per pound. Of course, the type of oil being cleaned and the source of the oil will vary in BTU content. We would not expect it to ever be less than 10,000 BTUs. The fuel value of the resultant distillation residues is at a similar level making it amenable to energy recovery as a management option.

Since the oily residues meet all the physical characteristics of typical used oil, it should be specifically classified as a used oil destined for energy recovery. If, however, it is to be placed in the hazardous waste category, its fuel value qualities it for the comparable fuels exclusion.

CFI2.3.c(commenter 095)

SMALL BUSINESS DEFINITION:

EPA indicates that the comparable fuels exclusion be available for "small businesses." Small businesses are never specifically defined within the rule proposal, although we presume 100 or fewer employees would constitute a small business. It is not clear whether the small business designation is site specific or company-wide. This should be clarified in the final rule.

We would suggest that a volumetric level, as well as size of business. be used to establish an exclusionary level. Many large businesses generate small amounts of waste and should not be precluded from taking, advantage of a comparable fuel exclusion simply because of their size - especially when they may have undertaken activities to obtain waste reduction gains. We would suggest eligibility for the exclusion to be the same volumetric line used to distinguish between a large and small quantity generators.

CFI2.7a(commenter 154)

We are providing comments as requested on p. 17468 in the section entitled "Small Business Considerations: Inherently Comparable Fuel." Specifically, we want EPA to consider the eligibility of on-site solvent distillation residue and settlings which contain a combination of used oil, petroleum distillates, and solids for exclusion from the inherently comparable fuel provisions, while retaining its eligibility for management under the used oil management rules. We would encourage EPA to take this opportunity to assure that the used oil rules, hazardous waste rules and any new provisions which establish inherently comparable fuel provisions be in consistent alignment. (Petroleum distillates includes mineral spirits, petroleum naphtha and Stoddard solvent. It is not intended to include any solvent that would be listed as a hazardous waste. Attached is a Material Safety Data Sheet for Shell (Wesco) 200 HT solvent. This MSDS is exempt of the type of solvent used in our specific equipment for EPA reference.)

CFI2.7.b(commenter 154)

THE DISTILLATION SYSTEM:

Several hundred, mostly small, businesses and government operations are using innovative solvent distillation equipment throughout Oregon, Utah and Iowa as a way to minimize solvent waste and indefinitely extend their solvent life while still effectively meeting their cleaning needs. These small units attach directly to a standard "basin on a drum" parts cleaner unit. (See the attached process flow diagram.) These distillation units are designed to continuously clean non-chlorinated solvents that would not be listed as hazardous waste which contain material washed from a variety of vehicle and industrial parts (e.g., oil, grease, metal particles, silica, dust and dirt). During the parts cleaning process, solvent washes oils and greases off of parts and combines into a mixture prior to distillation. The distillation process cleans the solvent through a low temperature vacuum distillation process where the solvent-portion of the mixture is physically separated from the non-solvent portion (i.e. oil, grease, and so on) in a closed-loop process. The solvent and oil mixture contained in the drum under the basin is drawn, via closed connection, into an .electrically heated vacuum distillation chamber, where the heated vapor rises through a filter column that separates any entrained liquids from the vapor. The vapors are condensed in a fan cooled condenser and the clean solvent is periodically returned to the wash basin for immediate use as a clean solvent. The solvent can then be reused continuously and indefinitely - only the material separated from the solvent is ever generated as a residue that must be managed. Instead of generating 10 to 25 gallons of hazardous waste solvent per parts washer per month, those using solvent distillation equipment generate only one to three gallons of oily residue per month. It is the residues created in this process that we believe should be eligible for the inherently comparable fuel exclusion.

CFI2.7.c(commenter 154)

THE RESIDUES:

Each distillation system results in the creation of two low volume residuals: 1) solid damp silica-like material, washed off the parts, which naturally settle to the bottom of the barrel under the parts washer basin, and 2) oily material, washed off the parts, which is separated from the solvent by distillation and collected after the distillation process is complete and the solvent has been returned to the cleaning process. The exact characteristics of the residue will vary slightly. The variability of the residue is dependent on the type of parts being cleaned and what is being cleaned off the parts not on the type of solvent being used to clean the parts. Whatever material that is washed off of a part (i.e., oils and grease) gets separated from the solvent material during distillation and ends up as a residue collected in a five gallon container at the bottom of the distillation unit or through natural settling in the drum under the basin. The distillation process is very effective in removing the solvent from the mixture, although, some imperceptible portion of solvent may remain in the residue.

Solvent used in the distillation process does not introduce hazardous constituents, such as metals, organics, and chlorine. The only hazardous characteristic that can be added by the solvent to the residual mix is that of ignitability. (See the attached solvent MSDS.) Because used oil and mineral spirit solvents are both derived from petroleum, it is very difficult, if not

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impossible, to analytically distinguish them in the residual mixture.

The current used oil mixture rule (40 CFR 279.10(b)(2)) is and should continue to allow mixtures of ignitable hazardous waste and used oil to be managed as used oil, provided the resultant mixture does not exhibit the characteristic of ignitability. However, should this scenario become disallowed by modification or vacatur of the used oil mixture rule, at least the residues created through the distillation process under the circumstances laid out in this letter should continue to be eligible for management as used oil and specifically excluded from the inherently comparable fuel provisions. It is important to distinguish between the intentional mixing of waste solvent and used oil for purposes of waste management and the combination of solvent and oil as part of an industrial cleaning process prior to the generation of any waste followed by the intentional separation through distillation so that clean solvent can be returned to the original process and to allow the remaining residuals to be further reclaimed, recycled or recovered. In addition to the used oil provisions, we believe the residue created by the distillation process involving used oil and petroleum distillate solvents, should also be eligible for the inherently comparable fuel exclusion, regardless of the flashpoint of the resultant residue.

CFI2(commenter 154)

HAZARDOUS CONSTITUENTS:

The level of hazardous constituents present in the distillation residue and settlings will vary by numerous factors, such as the process source for cleaning, what is actually being cleaned off the individual parts and the effectiveness of the distillation process. We assume that the solvent used in the cleaning process is not a listed hazardous waste or derived from a listed hazardous waste. We also assume the solvent contains no chlorinates, halogens or other toxic constituent levels of concern approaching TCLP regulatory levels. While the oily material washed off of a variety of parts may introduce different contaminates, we assume that they would be well within the allowable specification levels established for used oil. Based on sampling of distillation residues from our operations here in Oregon, we have found the following results in mg/l:

Cadmium	.19 to 54
Chromium	non-detect
Lead	1.2 to 2.1

Therefore, the primary hazardous constituents of concern are well within the toxicity regulatory level used to define a toxic hazardous waste, as well as within the allowable limits used to define on-specification used oil and should fall within the parameter of inherently comparable fuel standards.

CFI2(commenter 154)

FUEL VALUE:

In addition to its amenability for further recycling and reclamation, residues from solvent distillation have substantial fuel value. The two components (i.e. solvent and oil) that are combined to create the residues each have similar BTU content levels. For instance the BTU value of mineral spirits solvent typically used in our equipment ranges from 18,700 to 18,720

BTU/lb. Although used oil has a higher flashpoint than solvent. it also generally has slightly more fuel value per pound and per gallon than solvent because of its density. Typically, used motor oil ranges from 18,500 to 19,250 BTU per pound. Of course, the type of oil being cleaned and the source of the oil will vary in BTU content. We would not expect it to ever be less than 10,000 BTUs. The fuel value of the resultant distillation residues is at a similar level making it amenable to energy recovery as a management option.

Since the oily residues meet all the physical characteristics of typical used oil, it should be specifically classified as a used oil destined for energy recovery. If, however, it is to be placed in the hazardous waste category, its fuel value qualities it for the comparable fuels exclusion.

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CFI2.7.d(commenter 154)

SMALL BUSINESS DEFINITION:

EPA indicates that the comparable fuels exclusion be available for "small businesses." Small businesses are never specifically defined within the rule proposal, although we presume 1 00 or fewer employees would constitute a small business. It is not clear whether the small business designation is site specific or company-wide. This should be clarified in the final rule.

We would suggest that a volumetric level, as well as size of business, be used to establish an exclusionary level. Many large businesses generate small amounts of waste and should not be precluded from taking advantage of a comparable fuel exclusion simply because of their size - especially when they may have undertaken activities to obtain waste reduction gains. We would suggest eligibility for the exclusion to be the same volumetric line used to distinguish between a large and small quantity generators.

CFI2.4(commenter 102)

K. "Inherently" comparable fuels for small businesses

EPA also proposed to unconditionally exempt certain "inherently" comparable fuels generated by small businesses. The EPA states that the proposed implementation framework may be too burdensome for small business and therefore proposes a petition process in the final rule where a class of generators could prove that its waste qualifies as an inherently comparable fuel. The inherently comparable fuel could then be blended, treated, and shipped off-site without restriction.

NACR strongly opposes this proposal for a number of reasons. First, the inherently comparable fuel exclusion is objectionable for the same reasons as the general exclusion; it will decrease incentives for recycling and waste minimization, adversely impact the environment and undermine the existing RCRA regulatory framework. Second, the self-implementing nature of this proposal is unenforceable and counterproductive. Specifically, the absence of meaningful periodic analytical determination, recordkeeping and reporting requirements as proposed for other comparable fuels does not fit with the Agency's mission of protecting human health and the environment. Finally, the Agency is inappropriately equating a RCRA small quantity generator with a small business. In fact, many small businesses are not small quantity generators, and conversely, many small quantity generators are not small businesses. As a result, an inherently comparable fuel exclusion for

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small quantity generators may in fact disproportionately benefit medium and large businesses instead of small business.

While EPA appears to be concerned in the preamble about the impact of combustion MACT on small quantity generators, EPA does not address the economic impact of the MACT rule on small businesses which are commercial fuel blenders, recycling, and RCRA regulated treatment, storage, and disposal facilities. Many of the NACR member companies are also small businesses as defined by the Small Business Administration. NACR estimates that the increased costs of waste combustion projected by the proposed rule will have significant adverse economic impact on our member companies. This adverse impact must be addressed by the EPA prior to promulgation of the final regulation.

CFI2.5(commenter 106)

ENSCO is oppose to any further simplification of the clean fuel specification and implementation requirements for small businesses, as discussed on page 17468/2 of the preamble. We are also opposed to any classification by EPA of "inherently comparable fuel" for large volume categories of wastes. Wastes are not that constant and homogenous, even large volume streams, to safely and reliably allow a broad based "inherently comparable fuel" exemption. All wastes must be subject to the safeguards provided by testing. This is not burdensome given that the testing is only required once per year. Otherwise, EPA will be subject the public and the environment to substantial risk.

CFI2.6(commenter 130)

The ETC is opposed to any further simplification of the clean fuel specification and implementation requirements for small businesses (page 17468/2). We are also opposed to any classification by EPA of "inherently comparable fuel" for large volume categories of wastes. Wastes are not that constant and homogenous, even large volume streams, to safely and reliably allow a broad based "inherently comparable fuel" exemption. All wastes must be subject to the safeguards provided by testing. This is not burdensome given that the testing is only required once per year. Otherwise, EPA will be subjecting the public and the environment to substantial risk.

CFI2.8(commenter 164)

Valvoline is also submitting comments to the Agency on the small business considerations for inherently comparable fuel discussed on page 17468 of the Federal Register notice. First Recovery offers to its customers a parts washer service in which the parts washers use mineral spirits as a cleaning agent. U.S. EPA has specifically requested data on whether a large number of small businesses generate wastes that would meet a comparable fuel specification and the Agency specifically mentioned mineral spirits used to clean automotive parts. In order to promulgate an exclusion, the Agency stated that it would need constituent data from various small generators indicating that these wastes would meet the comparable fuel exclusion on a routine basis. Valvoline will address this issue first.

Small Business Considerations: Inherently Comparable Fuel

First Recovery currently provides parts washer machines to almost 3,000 customers nationwide that use either 105 F or 140 F flash point virgin mineral spirits for the cleaning of automotive parts. A typical parts washer machine is depicted in the picture enclosed as Exhibit A. Various tubs and "customer owned machines" are handled on a less frequent basis. The spent mineral spirits collected from First Recovery customers has historically been transported to a RCRA Part B permitted treatment, storage, and disposal (TSD) facility for reclamation by distillation. As a condition of the TSD facility's permit, EP Toxicity analyses have been performed on the spent mineral spirits generated by all the First Recovery customers for several years. The results of the analyses show that the spent mineral spirits consistently meet all permit parameters, i.e., do not exceed the EP Toxicity metals levels. Examples of the EP Toxicity testing results are enclosed as Exhibit B. First Recovery believes that the EP Toxicity test results remain consistent because excessively contaminated mineral spirits loses its effectiveness as a cleaning fluid. Generators are, therefore, requesting service intervals frequent enough to maintain the cleaning effectiveness of the fluid. These intervals are constantly evaluated and are easily adjusted. In addition, a more frequent service interval prevents excessive sludge build-up over prolonged periods of time. Mineral spirits collected by First Recovery, if hazardous, is generally characterized as such, not because of the presence of metals, but because it exhibits the characteristic of ignitability (i.e., flash point less than 140 F). Typically, the flash point becomes higher with use, and in many instances will be higher than the virgin material supplied to the customers. Copies of the MSDS forms for virgin mineral spirits and spent mineral spirits are enclosed as Exhibits C and D respectively. If U.S. EPA would like additional copies of the EP Toxicity data in First Recovery's files, First Recovery would be happy to provide them. First Recovery has hundreds of EP Toxicity analytical results from samples of mineral spirits used in parts washer machines.

First Recovery has ceased using the RCRA TSD facility to recycle the spent mineral spirits that it collects. In early 1995, First Recovery entered into a contractual relationship with another company for that company to purchase the spent mineral spirits collected by First Recovery as a replacement for the virgin mineral spirits used in the manufacture of certain roofing products. Prior to finalizing the relationship, the company conducted analyses to determine whether the spent mineral spirits is commercially similar to the virgin mineral spirits which it would substitute with no prior reclamation or treatment. The potential purchaser has complete testing to ensure that the spent mineral spirits is an effective substitute with respect to product quality. A copy of the letter received by First Recovery from the roofing products manufacturer confirming that spent mineral spirits is an effective substitute is enclosed as Exhibit E.

As a part of the contractual relationship with this other company, the spent mineral spirits that First Recovery delivers to them must meet certain contractual specifications. In addition to other product specific specifications, the company required that the mineral spirits meet parameters virtually identical to the current TCLP criteria. First Recovery has implemented a testing program to ensure that the mineral spirits delivered to this company meets the contract specifications. To date all of the mineral spirits delivered have met the contract specifications, including the TCLP criteria.[1] Copies of that data are attached as Exhibit F.

[Footnote 1: As additional information, the company with whom First Recovery has made these arrangements wanted to include TCLP criteria as a contract specification to ensure that

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if a spill or other release were to occur at their facility, it would be likely that any cleanup material would not have to be disposed of as a hazardous waste. The criteria was not included as any measure of product performance.]

As you can see, First Recovery has numerous data points that unanimously establish that the presence of hazardous constituents in mineral spirits used in parts washer machines is very low and is certainly comparable to virgin fuels. Valvoline very much supports the Agency's adoption of an exclusion for this waste in the final rule as it has been proposed. As Valvoline understands the proposal, generators of such an excluded waste would not be subject to the proposed implementation requirements for the general provisions of the comparable fuels rule, namely notification, sampling and analysis and recordkeeping.

CFI2.9(commenter 174)

I.F.7 Small Business Considerations:

Parts washer solvents at automotive repair facilities are definitely a high volume and we feel inherently comparable fuel. These generators are small generators and definitely would not be able to take advantage of this proposal if required to test their individual streams due to the costs of that analysis. Our industry has stated that this type of waste from these types of facilities is best handled by used oil fuel blenders. This is due to the fact that we are normally the only source the generator has to rely on for disposal (or information about disposal) of these wastes. Also we feel these wastes are much cleaner than used oil, Therefore they would help us meet the used oil specification. In addition, other than the Safety Kleen Corporation, most hazardous waste treatment companies are not usually interested in this type of small generator. It appears that parts washer solvent/used oil mixture is widespread. If used oil fuel blenders are not allowed to handle this waste, generators will have to pay exorbitant rates for disposal. This encourages improper disposal, especially at the small generator level.

Prior to the implementation of our parts washer management standards (included) contamination was evident in some streams of this type occasionally. But as we saw and mentioned earlier concerning used oil, again once the"standards" were put in place by us, in an effort to save money, the generators cleaned up this streams. e t this fact we have seen the with a monetary incentive and some management standards for generators to follow, this type of waste stream should be inherently comparable to virgin fuels and is much cleaner than the used oil it is belong mixed into. However also as stated we feel some generator management standards and certification by the generator as to compliance to those standards would be required to safely exclude this type of waste stream on a class wide basis.

These wastes appear to be consistent in low contamination from generators following our management standards. Even generators waste streams that have shown heavy contamination(such as Halogens) prior to the implementation of our standards were still well below the average current contamination in automotive used oil. With some generator education and management standards we have seen that this type of waste stream can actually help US meet the used oil specification and lower oil contaminate levels in used oil. Classifying used part; washer solvent from automotive type facilities as an inherently comparable fuel we feel will provide the relief needed to small business while fully ensuring protection of human health and the environment.

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We are proceeding with analysis of these solvents and intend to test samples from generators. Testing will follow EPA procedures from this proposal. EPA indicated they may provide notice and request comment on such data before making a final determination on this type of waste. We are asking EPA to provide notice to this effect and allow a 6 month comment time frame to allow ourselves and other interested parties to complete detailed collection and analysis of spent automotive parts washer solvents.

CFI2.10.b(commenter 215)

Small Generators Must not be Overly Burdened

AOCA agrees with EPA's estimation of the small volume of waste each small generator, such as a fast-lube facility, will accumulate on a monthly basis for the purposes of the proposed inherently comparable fuels exemption. AOCA also appreciates EPA's recognition of the fact that extensive paperwork and testing requirements would tend to exclude small generators from participation in the proposed exclusion. Without consideration of these factors, the difficulty for small generators in taking part in the proposed exclusion would be two-fold: (1) lack of volume necessary to deal directly with industrial burners; and (2) lack of time, money, and employees for undertaking sampling and analysis, notification and certification, and recordkeeping requirements. Since small generators do not generate enough waste, such as waste solvent, to deal with industrial burners directly; intermediaries are a necessity. Although it appears to AOCA that intermediaries are meant to be included by the proposed inherently comparable fuel exemption, EPA's brief discussion of the proposed exemption does not provide any detail as to the effect upon intermediary transporters or services. The preamble states that "inherently comparable fuel could be blended, treated, and shipped off-site without restriction given that it would be excluded from regulation as generated." The phrase "without restriction" gives the impression that EPA intends for an inherently comparable fuels exemption to be summarily treated as a non-hazardous waste. However, AOCA does not see any language in the preamble addressing the impact of the proposal upon transporters. It would be helpful if EPA would clarify that intermediaries are specifically covered because the recycling chain will break down without them.

CFI2.10.a(commenter 215)

This letter is submitted in response to the request by the Environmental Protection Agency ("EPA") for comments regarding its proposal entitled Revised Standards for Hazardous Waste Combustors (61 Fed. Reg. 17358, April 19, 1996); specifically the subsection of the proposed rule entitled Small Business Considerations: Inherently Comparable Fuel (61 Fed.Reg. at 17468). As the national representative for approximately 3,500 small business fast-lube facilities, all of which handle and store used oil, and most of which handle and store automotive solvent (i.e., mineral spirits), the Automotive Oil Change Association ("AOCA") believes that EPA's idea to create a special hazardous waste exemption for small business that generate hazardous wastes which may also be considered inherently comparable industrial fuels, such as automotive solvent, bears significant merit. However, AOCA does not believe the concept has been fully developed in this current proposal. As such, AOCA encourages EPA to publish a second, separate proposal specifically on inherently comparable fuels.

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CFI2.22(commenter 215)

Used Solvent Would be a Good Candidate for the Inherently comparable Fuel Exemption; Possible Ramifications Upon Used Oil Management

It is AOCA's understanding that used automotive solvent tends to burn between 10,000 and 15,000 BTU/Ibm which would make it a good candidate for the inherently comparable fuel exemption according to the criteria discussed by EPA in the comparable fuels proposal (61 Fed. Reg. at 17461). AOCA needs clarification, however, as to whether an inherently comparable fuel exemption for used solvents would be applicable to de minimis quantities of used solvents in used oil at the same facility to which the exemption is issued. At the present time, the 1992 federal used oil management standards allow de minimis quantities of ignitable wastes to be mixed with used oil without the resulting mixture being considered a hazardous waste so long as the resulting mixture does not exhibit the characteristic of ignitability. 40 CFR Part 279. It appears to AOCA that EPA's current comparable fuels proposal might permit the same outcome so long as the facility in question has an inherently comparable fuels exemption and any resulting mixture of de minimis quantities of used solvents with used oil do not cause the mixture to exhibit the characteristic of ignitability. It also appears that used solvents - as inherently comparable fuel-might be acceptable for burning on-site in space heaters. Please provide an explanation of these issues.

Response:

Note: The following is in response to all the comments above with regard to the proposed small business considerations: inherently comparable fuels section.

EPA requested comment on whether there are high volumes of comparable fuel that is being generated from a large number of small generators. If so, the Agency was prepared to provide notice and request comment on data submitted showing that these wastes would meet the comparable fuel exclusion level on a routine basis. The Agency did not receive responses indicating that there are high volumens of comparable fuel being generated by a large number of small generators, nor did the Agency receive analytical data supporting the classification of particular wastes as inherently comparable fuels. Therefore, the Agency is not finalizing an inherently comparable fuel section to this final rule. Many commenters supported the idea, but felt that it needed to be fleshed out further. Because the Agency did not receive data indicating that there is a high volume of waste being generated by a large number of small generators, EPA is not pursuing the issue any further at this time.

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COMPARABLE FUELS: GENERAL APPROACH

Benchmark vs Risk-based Approach

1. Assessment of risks at example facilities.

CFAP.01(commenter 089)
1. The Benchmark Approach Pg 17460 "EPA also does not know how emissions relate to real individual facilities as compared to example facilities used to derive the "clean fuel" specification. (Emissions and/or risks at a given facility could be higher than those of the example facilities given site-specific considerations.)" It seems that this same argument could be made for the specific MACT standards proposed in this rule. Since example facilities were evaluated in coming up with generic risk estimates, risks at a given facility may in fact be higher than those for the example facilities due to site-specific factors such a facility characteristics, surrounding land use, meteorological conditions, terrain, etc.

Response:
Risk assessment for "clean fuels" pose different problems than the risk assessment for the MACT rule. To develop a national rule, EPA has insufficient data relating to the types of waste burned and the risks they pose to develop a fully protective and complete "clean fuels" exclusion. It would be difficult to consider all possible emission scenarios at the multitude of actual facilities that would burn an exempt fuel. In the case of the MACT rule, this poses less of a problem because EPA has information on most MACT facilities. It should be noted that EPA is addressing concerns about the MACT rule risk assessment in the HWC MACT rule response to comment document.

2. Support benchmark approach.

CFAP.02(commenter 106)
ENSCO agrees with EPA's overall benchmark approach, establishing criteria for comparable fuels consistent with the characteristics and composition of hazardous constituents normally found in certain fossil fuels. We agree with the list of constituents proposed by EPA, including metals, halogens, and individual Appendix VIII toxic organic constituents.

CFAP.05(commenter 130)
The ETC agrees with EPA's overall benchmark approach, establishing criteria for comparable fuels consistent with the characteristics and composition of hazardous constituents normally found in certain fossil fuels. We agree with the list of constituents proposed by EPA, including metals, halogens, and individual Appendix VIII toxic organic constituents.

CFAP.09(commenter 156)
ISP is a chemical company with headquarters in Wayne, New Jersey. One of our

manufacturing Facilities, Calvert City, Kentucky, is affected by this rulemaking. It is important to note that the plant as well as other chemical plants across the country have successfully used millions of gallons per year of hazardous waste as a non-commercial fuel for many decades. However, in many cases the combustor permitting process under RCRA Subtitle C was found to be too time consuming and costly to justify this conservative and practical use of fuel resources. In many cases, the waste fuel which is currently being burned off-site for energy recovery is extremely clean (e.g., in ISP's case contains less than 0. 1% ash, and no detectable levels of heavy metals, and halogens.) Accordingly, ISP applauds EPA's efforts to propose an exemption under RCRA Subtitle C for the burning of waste fuels that pose no greater threat to human health and the environment than commercial fuels. This proposal makes common sense and will aid in conserving the countries fuel resources.

Response:
EPA agrees with the commenter.

3. Evaluate the impact of the comparable fuel provisions on the environment.

CFG.27.b(commenter 105)
EPA compares the exemption of hazardous waste meeting the comparable fuel specification to the exemption of spent pickle liquor used as a wastewater treatment agent. This comparison is not justifiable considering that spent pickle liquor consists of a limited number of acidic compounds; principally hydrochloric acid and ferric chloride, while a comparable fuel could be made up of any number of listed or characteristic wastes. The decision to exclude wastes meeting the fuel specification appears to have been done out of expediency, and is very HWIR-like. Unlike HWIR, however, EPA fails to provide any indication in the preamble discussion or in the background documents that it adequately studied the risks associated providing the exclusion.

CFAP.03(commenter 108)
3. EPA has failed to evaluate the impact of the comparable fuel provisions on the environment EPA has also failed to evaluate the environmental implications of its comparable fuel provisions. In addition to the potential environmental implications of a reduction in waste minimization, EPA also must evaluate the differences in emissions from the burning of comparable fuel in various types of non-RCRA regulated (and perhaps non-CAA regulated) combustion devices as compared to RCRA- and CAA-regulated devices such as cement kiln. This analysis will also be sensitive to the timing of various CAA combustion MACT rulemakings.

CFAP.07.a(commenter 136)
1. Failure to Assess Potential Risks to Human Health and the Environment
In the development of the proposed comparable fuel exclusion, the Agency has not conducted even the most cursory analysis of the potential impacts on human health and the environment

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resulting from the combustion of exempt hazardous wastes.

CFG.52.b(commenter 170)
CKRC generally supports changes in regulations that reduce or eliminate unnecessary burdens and improve cost-effectiveness. However, CKRC can support such changes only when and to the extent they neither compromise nor undermine protection of human health and the environment. In a number of ways, EPA's Comparable Fuel Exclusion fails this test.

Response:
EPA disagrees that it is necessary to evaluate the environmental implications of its comparable fuels approach. The Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. EPA refers to this as the benchmark approach. For this approach, EPA set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that the comparable fuel would pose no greater risk when burned than a fossil fuel and would at the same time be physically comparable to a fossil fuel, leading to the conclusion that these materials are products, not wastes. The Agency concludes it has discretion in exercising jurisdiction over waste-derived fuels that are essentially the same as fossil fuel, and since there would not likely be environmental benefits from regulating those fuels (i.e., burners would likely just choose to burn fossil fuels), EPA has decided not to exert regulatory control over comparable hazardous waste fuels meeting the benchmark specifications.

Furthermore, the final rule requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, would ensure that the fuel was burned in a manner protective of the environment.

4. Risk associated with fuels

CFG.27.a(commenter 105)
1. Comparable Fuel Exemption (p. 17459)
Laidlaw is opposed to the use of a comparable fuel exclusion, as it is defined in the proposed rule, for the purpose of exempting the waste stream from RCRA controls. A waste stream cannot be exempted from Subtitle C controls, simply because it meets a fuel specification. EPA admits that hazardous waste meeting the specification of the exclusion still may contain hazardous constituents, albeit at levels comparable to those contained in normal fuels. EPA states that the risks posed by excluded comparable fuels are no great than those posed by "normal" fuels. Exposure to "normal" fuels is not without risk; one only has to visit the local gas station and read the myriad warnings on avoiding inhalation of gasoline vapors that are posted on the delivery pumps. These risks, however, appear to be more socially acceptable

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than those associated with hazardous waste management.

Response:
It is true that there are risks associated with fuels, especially with regard to handling. However, the value of the fuel ensures proper use and minimizes the risks associated with it. Furthermore, a whole system of regulation has been established for fuels used in commerce to ensure safety and reduction of risk. In fact, these regulations will apply to comparable fuels, which as a result of this exclusion be classified as fuel products.

Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel (and satisfies other parameters related to comparability as well), EPA has discretion to classify such material as a fuel product, not as a waste. See 46 FR 44971 (August 8, 1981) (exemption from Subtitle C regulation for spent pickle liquor used as a wastewater treatment agent in part because of its similarity in composition to the commercial acids that would be used in its place); 50 FR 49180, 49181, 49183 (November 29, 1985) (explanation of a similar type of benchmark approach in establishing used oil fuel specification); 53 FR at 31164 (August 18, 1988) (exemption for certain hazardous waste-derived fertilizers due to similarity to the commercial fertilizers that would be used in their place).

5. RCRA resource recovery goals

CFG.27.c(commenter 105)
The EPA contends that classifying a material containing hazardous constituents in concentrations comparable to those in fossil fuel a non-waste promotes RCRA's resource recovery goals. Laidlaw disagrees with this contention and believes that pursuit of the goal of resource recovery in this manner is nothing more than a "paper chase". The materials which are being proposed for exclusion are already being in burned in combustion units either at the facilities at which they are generated or at offsite facilities.

Response:
EPA agrees that most of the materials eligible for the exclusion are currently being burned in combustion units either at the facilities at which they are generated or at offsite facilities. However, many of these combustion units (mainly boilers and industrial furnaces) are currently using hazardous waste in place of fossil fuels and in fact carry on a form of resource recovery. The comparable fuels should continue to promote this resource recovery.

6. Oversight under RCRA Subtitle C

CFG.27.d(commenter 105)
These materials will continue to be burned in the same manner if they are excluded, however, the management of these materials will no longer be subject to the oversight provided under

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RCRA Subtitle C.
Throughout the preamble discussion of the exclusion, EPA's concern over the potential mismanagement of hazardous wastes classified as comparable fuels is evident. EPA requests comments on numerous alternatives to ensure that waste is not impermissibly blended or diluted, that the facilities managing the fuel maintain proper records and that the burning of the fuel is done in an environmentally sound manner. These are exactly the functions the Subtitle C system is design to provide.

Response:
The Agency agrees that Subtitle C controls are needed for hazardous wastes that are not yet comparable fuels, and thus is requiring full subtitle C standards, plus additional recordkeeping for the special purposes of this rule, until a comparable fuel is generated. However, at the point a fuel comparable to other commercial fossil fuels is generated, EPA has discretion to classify that material as a product rather than a waste.

7. Classification of the comparable fuel

CFG.27.e(commenter 105)
We believe that the resource recovery and waste minimization goals of the EPA are worthwhile. We also believe that EPA cannot achieve these goals in any realistic manner simply by "pronouncing" that a waste is no longer hazardous. The hazardous nature and constituents do not go away by edict. All that changes is the perception that a hazardous waste is being managed and perception is not reality.

Response:
EPA disagrees with the commenter’s conclusion the comparable fuels exclusion is “pronouncing” that a waste is no longer hazardous. In this final rule, EPA is classifying a comparable fuel as a fuel product. Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel (and satisfies other parameters related to comparability as well), EPA has discretion to classify such material as a fuel product, not as a waste.

8. Comparability to fossil fuels

CFAP.07.b(commenter 136)
The Agency notes that it "considered" using a risk-based approach to determine the specifications for the comparable fuels exemption (61 FR 17460), but added that it has "insufficient data relating to the types of waste burned and the risks they pose." As a result, EPA is proposing the "benchmark approach" and plans to develop a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. EPA "would expect that the comparable fuel would pose no greater risk when burned

than a fossil fuel and would at the same time be physically comparable to a fossil fuel" (emphasis added) (61 FR 17460), but provides no factual support for the expectation.

CFAP.08(commenter 140)
F) EPA Must Not Create an Exclusion for HWC "Comparable" Fuels
EPA has proposed to create an exclusion from the HWC regulation for HWC burning waste that is "comparable" in composition to fossil fuels.[45] EPA has admitted, however, that it has no idea what risks to public health this exclusion would create.[46] Instead of attempting to determine this risk, EPA has engaged in another regulatory sidestep by using a "benchmark approach" that just assumes that burning waste with constituents similar to those found in fossil fuels is no more dangerous than burning fossil fuels.[47]
This assumption is irresponsible and blatantly violates EPA's duty to protect public health. Until EPA knows that the combustion of comparable fuels is no more dangerous than the combustion of fossil fuels, it should not even consider creating this exclusion.
[Footnote 45: Id., at 17459.] [Footnote 46: Id., at 17460.] [Footnote 47: Id.]

CFAP.10.a(commenter 170)
EPA'S BASIS FOR A COMPARABLE FUELS EXCLUSION IS FLAWED
To justify its approach to the Comparable Fuels exclusion, the Agency repeatedly states or implies that fossil fuels burn "well"; and, therefore, hazardous waste which meets a specification "comparable" to fossil fuels also will burn well (i.e., apparently with no greater risk to human health and the environment). [61 FR 17460- "...EPA would expect that the comparable fuel would pose no greater risk when burned than a fossil fuel..."] EPA notes that industry proponents of this exclusion have claimed that hazardous waste fuels can present less risk than the fossil fuels they replace. But EPA acknowledges that "This claim has not been documented with full emissions and risk analysis." [61 FR 17459]

CFMISS.32(commenter 170)
CKRC believes that, after EPA ensures that waste generation is being minimized, the Agency should do whatever it can to encourage energy recovery over treatment or disposal of hazardous wastes. But parsing its RCRA regulations in the manner suggested in this proposed rule cannot be and has not been supported either scientifically or technically: and, for that reason, the Comparable Fuel Exclusion is arbitrary and capricious and should be dropped from this rulemaking.

Response:
EPA has provided factual support for the expectation that the comparable fuel would pose no greater risk when burned than a fossil fuel and would at the same time be physically comparable to a fossil fuel. The Agency has explained in detail exactly how the specifications were developed, and how a comparable fuel indeed will have lower concentrations of hazardous constituents than many fossil fuels. Based on the fact that a comparable fuel would have lower concentrations hazardous constituents than many fossil fuels, there is no reason to think that they would burn in a different manner than fossil fuels being replaced.

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9. Mandate of Section 3004(q)

CFAP.07.c(commenter 136)
Significantly, in the background document EPA prepared in support of the comparable fuels exclusion, the Agency indicated:

> Previous attempts to derive "clean fuel" exclusions were based on risk. However, there were many unknown factors associated with using risk models, requiring conservative assumptions which tended to drive the constituent concentrations to low levels. Thus, this approach had very limited value to the regulated community .... The problems associated with this approach, therefore, have led EPA to abandon risk as a means of setting a "comparable fuel" specification. [114] [Footnote 114 Draft Technical Support Document for Development of a Comparable Fuel Exemption, February 1996, p. 1-3.]

Therefore, the Agency's comparable fuels proposal will likely result in higher exemption concentrations than levels that would normally be derived using a risk-based approach. Such an approach would violate the clear Congressional mandate in Section 3004(q) of RCRA to regulate the burning of hazardous waste for energy recovery "as may be necessary to protect human health and the environment."

Response:
Section 3004(q) applies to hazardous wastes which are burned for energy recovery. The provision does not speak to EPA’s authority to determine whether particular fuels produced from secondary materials are, or are not, products rather than wastes. It is rational for the Agency to determine, after rigorous examination, that secondary materials which have the same heating values and composition as normal commercial fuels, and the same types and levels of hazardous constituents, are no longer solid wastes.

10. Relationship to HWIR rulemaking

CFAP.08(commenter 136)
An exemption based on lack of risk should not be abandoned because "this approach has very limited value to the regulated community." The comparable fuels exemption has the potential for becoming de facto exit levels from RCRA, particularly if generators are allowed to blend or treat wastes to meet the exemption levels. Consequently, the lack of a risk basis for the levels in the instant rulemaking could undermine the risk-based exemption setting process EPA has undertaken in the HWIR rulemaking. In the HWIR rulemaking, exit levels will be based upon a comprehensive evaluation of risks to human health and the environment arising from exposures to releases along a variety of pathways. If such risk-based exit levels can be overridden by a higher comparable fuels exit level not based upon potential risks, EPA will be both diminishing the importance of the risk evaluation in HWIR and encouraging the combustion of hazardous wastes through a higher exit level.[115] [Footnote 115 TMS inconsistency would be greatly exacerbated under comparable fuels specifications which lack

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concentration limits for many contaminants found in wastes, including contaminants contributing to the formation of PICS. The lack of concentration limits for many constituents would stand in stark contrast to the exit levels for hundreds of constituents contemplated in the HWIR rulemaking.]

Finally, lacking a risk basis for the exclusion, EPA's rationale for the comparative fuels exclusion is largely the combustion equivalent of the indigenous principle previously articulated by the Agency in attempting to define RCRA jurisdictional limits for K061. However, the Court in API v. EPA, 906 F.2d 729 (D.C. 1990), rejected this limitation to RCRA jurisdiction. Therefore, the similarity of hazardous waste to fossil fuels is by itself not a sufficient basis for a RCRA exemption, absent a compelling demonstration that RCRA controls are not needed to protect human health and the environment.

Response:

The Agency notes that it has not foreclosed individual risk determinations, and indeed have recently finalized such an exclusion in the pulp and paper MACT standard. However, difficulties in developing such an approach on a national basis remain.

In regard to HWIR rulemaking, the comparable fuels exclusion would not undermine the risk-based exemption setting process EPA has undertaken in the HWIR rulemaking. The comparable fuels exclusion is conditioned on the waste being combusted, and thus prohibits direct placement on the land. The comparable fuel specifications need not be the same as the HWIR exit levels. Indeed, the comparison is misplaced. The HWIR proceeding is defining when wastes no longer are hazardous. This proceeding is defining when a fuel-like secondary material is not a waste. (Even viewed from the standpoint of risk -- a misplaced comparison for the reason given -- it should be noted that there could be a legitimate difference between exit numbers for materials which must be combusted and those which could be managed in many other manners, including direct land disposal.)

With regard to API v. EPA, EPA disagrees with the commenter’s point. In the rule referred to by the commenter, the Agency made no attempt to develop hundreds of hazardous constituent levels to show that secondary materials and normal commercial products are comparable. EPA also notes that the principle that a hazardous waste can cease being a waste after treatment is well established in the rules. See §261.3(c)(2)(i) (final sentence). Therefore, the similarity of hazardous waste to fossil fuels by itself is not a sufficient basis for a RCRA exclusion, absent a compelling demonstration that RCRA controls are needed to protect human health and the environment. Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel (and satisfies other parameters related to comparability as well), EPA has discretion to classify such material as a fuel product, not as a waste.

11. Relationship of emissions to fuel content

CFAP.10.b(commenter 170)

There is nothing inherently safe about the combustion of fossil fuels or hazardous wastes which meet a specification "comparable" to fossil fuels. Conversely, there is nothing inherently unsafe about combustion of hazardous wastes that don't meet a specification comparable to fossil fuels. EPA has overwhelming data both from BIF units and incinerators as well as its own tests demonstrating that the safety and environmental performance of waste combustion is almost wholly unrelated to the characteristics (or "specifications") of the waste. For example, in these comments CKRC is resubmitting and referencing data generated by the cement industry, an EPA contractor and others showing that, for cement kilns and other combustors (including boilers), there exists no correlation between emissions of D/F's and the chlorine content of hazardous waste fuel.[227,228] Nonetheless, EPA's lists of possible specifications for Comparable Fuels invariably are headed by a limit on halogens (of which chlorine is the most prevalent in liquid waste streams); apparently because the Agency has ignored its own data and, instead, arbitrarily chosen to link the chlorine content of combusted waste to emissions of D/ F's.

EPA is in possession of additional data for various types of combustion units that shows no correlation between D/F emissions and the popular supposed indicators of "good combustion" such as carbon monoxide, total hydrocarbons, or oxygen content of flue gases.[229]

In light of these data which prove that combustion emissions of the purportedly most toxic compounds are independent of either fuel composition (e.g., chlorine content) or supposed indicators of "good combustion," it is puzzling that EPA apparently has concluded (absent evidence in the record) that burning hazardous waste that simply is "comparable" to fossil fuel poses inherently less risk than combustion of other less-favored hazardous wastes. EPA's conclusion is arbitrary and capricious.

[Footnote 227: Dioxin and furan emissions have been cited by EPA as one of the major justifications for its Waste Minimization and Combustion Strategy and its progeny, the proposed HWC MACT rule. In its November, 1994 "Strategy for Hazardous Waste Minimization and Combustion" EPA announced that one of its most important actions would be to "Implement final rule [sic] in a manner that achieves the greatest possible immediate reduction in dioxins, furans...".] [Footnote 228: "Emissions Testing of Ash Grove Cement Company Foreman, Arkansas Waste-Derived Fuel Facility Cement Kiln No. 3," Energy and Environmental Research Corp. (EER), EPA Contract 68-D2-0164, Work Assignment 2-07, May 19, 1995; and "The Relationship Between Chlorine in Waste Streams and Dioxin Emissions from Waste Combustor Stacks," The American Society of Mechanical Engineers, August, 1995].] [Footnote 229: "Dioxin Emission Results from Testing," Rigo & Rigo Associates, Inc. and Schreiber, Grana & Yonley, Inc., February, 1995]

Response:

The commenters example is an inapposite to EPA’s basis for establishing a comparable fuels exclusion. This exclusion is not premised on the performance of waste combustion, but rather whether hazardous waste-derived fuels are comparable to fossil fuels. Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel (and satisfies other parameters related to comparability as well), EPA has discretion to classify such material as a fuel product, not as a waste.

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With regard to the concerns about the halogen specification, EPA is not just concerned about the formation of dioxins. EPA has chosen to establish a total halogen specification because of its concern about the formation of chlorinated PICs. See comment response concerning total halogens for further discussion.

12. Impacts on waste minimization

CFG.22.a(commenter 102)
As a policy matter, the comparable is strangely positioned in a rulemaking arising out of a national waste minimization and combustion strategy. We believe that, as proposed, the concept will prove to be anti-recycling and anti-waste minimization. Given the elevated detection levels of Appendix VIII compounds suggested, there is little, if any, incentive for generators to segregate waste streams or minimize waste.

CFAP.06.b(commenter 136)
In addition, EPA must also evaluate the potential impact a comparative fuels exemption would have on pollution prevention efforts generally, and EPA's combustion and waste minimization strategies specifically. An exemption for these wastes could lead to a significant increase in the combustion of hazardous wastes, and potentially a correlated increase in risks to human health and the environment.

Response:
On balance, the impact of the comparable fuels provision on pollution prevention and waste minimization will be negligible. For the final rulemaking, EPA assessed the impacts of the comparable fuels provision on pollution prevention and recycling. The results of EPA’s analysis conclude that about three fourths of hazardous wastes now meeting the comparable fuels specifications are already being combusted; the remainder (about one-fourth) is recycled. The 70,000 tons of hazardous wastes that are currently recycled annually could shift to the comparable fuels market, if all generators responded the same way, a possibility which seems unlikely. This figure represents less than a one percent annual increase in the amount of hazardous waste combusted, but it represents a decrease of about 20% in the amount of hazardous wastes recycled annually.

If the comparable fuels provision were implemented alone, a 20% decrease in recycling might appear to have a negative effect on pollution prevention and waste minimization. However, some generators will install pollution prevention and waste minimization measures (i.e., to prevent high levels of constituents from becoming part of the waste) in order to qualify for the comparable fuels exclusion. This would have the effect of increasing pollution prevention. In addition, EPA fully expects that the increased cost of upcoming MACT standards will cause the regulated community to seek cost effective pollution prevention and waste minimization solutions to offset the higher costs (a response seen for example, in the RCRA land disposal restrictions program).

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13. Comparable fuels proposal needs further evaluations.

CFG.33(commenter 108)

4. EPA has failed to evaluate the range of implementation approaches for a comparable fuel program and thus has failed to fully consider these Impacts on environmental benefits and on costs

There are numerous difficult implementation questions surrounding any exemption, particularly a self-implementing exemption. These include testing, record keeping, and reporting issues. They also include questions on management standards for exempt materials. For all of these topics, the choices EPA makes must optimally balance the need for environmental protection with the need for a cost-effective implementation design. This proposal fails to identify the range of options and the costs and environmental benefits of each.

CFAP.06.a(commenter 136)

D. Comparable Fuels

In the instant rulemaking, EPA proposes to exclude from RCRA regulation, hazardous waste burned for energy recovery that meets certain specification levels for concentrations of toxic constituents and physical properties that affect burning. The proposed specifications are based on analyses conducted of gasoline and certain fuel oils. For the reasons explained in this portion of the comments, the comparable fuels proposal needs further evaluations. In particular, since the exempt hazardous wastes can be burned in essentially any combustion device without prior review and approval, and the proposed specification levels are in excess of 500 ppm for many contaminants, EPA must ensure such combustion of hazardous waste will not pose risks to human health and the environment.

Response:

The Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. EPA refers to this as the benchmark approach. For this approach, EPA set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that the comparable fuel would pose no greater risk when burned than a fossil fuel.

EPA has provided factual support for the expectation that the comparable fuel would pose no greater risk when burned than a fossil fuel and would at the same time be physically comparable to a fossil fuel. The Agency has explained in detail exactly how the specifications were developed, and how a comparable fuel indeed will have lower concentrations of hazardous constituents than many fossil fuels. Based on the fact that a comparable fuel would have lower concentrations hazardous constituents than many fossil fuels, there is no reason to think that they would burn in a different manner than fossil fuels being replaced.

EPA notes that the comparable fuels exclusion has several implementation requirements that ensure the proper handling of the comparable fuel. These requirements include reporting,

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testing, and recordkeeping. The exclusion requires the generator to notify when claiming the exclusion and also requires a burner certification. In addition, the final rule requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, would ensure that the fuel was burned in a manner protective of the environment. Furthermore, EPA notes that most of the specifications in the final rule are well below 500 ppm for many contaminants. In fact, the specifications for organic halogens, organic nitrogens, organo-sulfurs are non-detect (with specified minimum detection limits).

14. Impacts of exclusion on boilers

CFG.53(commenter 170)

EPA'S CONSIDERATION OF A COMPARABLE FUEL EXCLUSION IS PREMATURE

Among the reasons EPA cites for proposing the HWC MACT Rule is the Agency's commitment in its Hazardous Waste Minimization and Combustion Strategy "to upgrade the emission standards for hazardous waste-burning facilities." [61 F R Vol. 61, April 19, 1996, p. 17360, col. 2) The current proposal does not cover industrial boilers, which burn 15-20 per cent of all hazardous waste combusted. EPA is scheduled to address regulation of these units by December, 1998. It is confusing, then, that EPA has selected this proposal to pursue a Comparable Fuel Exclusion which affects industrial boilers almost exclusively. How does the Agency reconcile its desire to "upgrade" emission standards by exempting currently-regulate d units years before it is scheduled to propose MACT emissions standards for those same devices? The Agency has offered nothing in the proposed rule by which the public could identify and comment on the impact[230] of the Comparable Fuel Exclusion upon the wastes combusted in industrial boilers. [Footnote 230: For example, the Agency has not discussed the emissions profile of the units that will burn this material, the number of units involved in the exclusion, or the amount of waste being exempted.]

Response:

Because the comparable fuels exclusion is deregulatory in nature, EPA did not assess the economic impact associated with the rulemaking. For the proposed rule, EPA assessed the cost associated with the recordkeeping requirements, Information Collection Request (ICR), which provided an estimate of the possible number of facilities that would take advantage of the exclusion. For the final rule, however, EPA has performed an economic analysis, assessment of impacts on waste minimization, and the burden associated with recordkeeping (ICR). See docket for copies of these documents.

EPA did not assess risk (i.e., the emissions profile of the units that will burn the material) because the comparable fuels exclusion is based on the level of hazardous and other constituents normally found in fossil fuels. For this approach, EPA set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that the comparable fuel would pose no greater risk when burned than a fossil fuel.

15. Risk-based information from used oil burning should be used.

CFAP.11(commenter 174)
EPA has some risk-based information from their and industries studies of used oil burning. This information should definitely be used where available in possibly establishing higher constituent levels where risk based information is available.

Response:
Due to the fact that the comparable fuel universe is different than the use oil universe, it would be inappropriate to apply the used oil risk analysis to comparable fuels. Besides, it is not EPA's intent to use a risk assessment in the comparable fuels rulemaking. EPA has set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that comparable fuel would pose no greater risk when burned than a fossil fuel. EPA pursued this approach to avoid the complexities associated with performing a risk assessment on the potential comparable fuels universe.

16. Rationale for benchmark approach

CFG.34(commenter 110)
Commendably, EPA has devoted significant resources in the past few years to crafting an exemption from the BIF regulations that is intended to address the foregoing problems. Those efforts have culminated in the proposed "Comparable Fuels ' Exclusion." Unfortunately, however, the EPA proposal takes a different and much more limited tack than the approach generally suggested by the Draft Task Force Report. Rather than grappling with the issue of how to define a "clean" fuel -- I-e-, rather than developing an exemption that directly addresses risk -- EPA has proposed exempting waste fuels that have characteristics and constituents that compare favorably to certain "benchmark" fuels that EPA has identified as traditional fuels -- gasoline, various fuel oils and supposed statistical composites of those traditional fuels.

EPA's underlying rationale for this benchmark approach is simple: if Congress has not seen fit to legislate requirements for the burning of these "conventional" fuels whatever the associated risks of burning them may be -- then EPA should not be concerned with (and is not required by RCRA to regulate) the burning of waste-derived fuels that are "comparable" to those conventional fuels -- whatever the associated risks.[11]

This rationale has a certain logic and simplicity. It also clearly is attractive to the agency

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because, in EPA's view, the benchmark approach requires the allocation of far fewer agency resources to develop, administer and enforce than a regulation based on risk. However, as currently proposed, any simplicity that the regulation would achieve would be more than offset by its limited utility. While the CCF believes that a risk-based regulation should be developed by EPA, the CCF's members also believe that the currently proposed benchmark approach could be rendered more useful with certain changes discussed below. Theses changes will not undermine the simplicity of EPA's proposal, nor will they increase environmental risks. They will, however, increase the proposals utility to the regulated community.

[Footnote 11: Indeed, many of the fuels that EPA seeks to regulate under the BIF regulations are not only as clean as traditional fuels but have been used as fuels -- i.e.-, as products -- for years. RCRA not only does not require EPA to regulate the burning of such products; it does not authorize EPA to do so. To the extent that industrial byproducts have the same characteristics as fuels which Congress has chosen not to regulate, EPA arguably lacks jurisdiction to regulate the burning of those materials under RCRA Subtitle C.]

Response:

EPA notes that the comparable fuels do not have to be regulated under one regulatory regime (i.e., for hazardous waste) and fuels under another (CAA). There is nothing which prevents EPA from classifying fuels which are demonstrably alike under the same regulatory structure, rather than two significantly different regulatory regimes.

17. Benchmark approach does not go far enough.

CFAP.13(commenter 192)

Benchmark Approach EPA's "benchmark approach" is a step in the right direction, but does not go far enough to be useful. It does little to support the Agency's goals of promoting beneficial energy recovery and resource conservation, reduction of unnecessary regulations, and demonstration of a common-sense approach to regulation.

CFG.38(commenter 128)

C. Discussion of EPA comparable fuels approach.

1. Introduction

CMA has been an advocate of a clean fuels exemption under RCRA since the issue was discussed during the RCRA Definition of Solid Waste Roundtable dialogue in 1992. Since the conclusion of that dialogue in 1994, CMA and its member companies have actively cooperated with EPA to attempt to develop a clean fuels exemption that is protective of human health and the environment, while still reducing regulatory burdens.

CMA is pleased that EPA has put forth a clean fuels proposal as part of the MACT rulemaking effort. CMA is also pleased that the proposal recognizes the importance of allowing treatment to reach comparable fuels levels. Unfortunately, the proposed comparable fuels approach is so restrictive that it will allow very few, if any, deserving waste streams to

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qualify. As discussed below, for the comparable fuels approach to provide any meaningful relief to low-risk hazardous waste streams, EPA will need to make several significant changes. Even ff constituent levels are set at the 90th percentile, the sheer number of levels and the fact of variability ensure, as a matter of statistics, that most waste streams will fail one or more levels with regularity. Establishing levels as "nondetect" rather than as specific numerical values also makes the proposal unworkable. These and other concerns are discussed below. CMA strongly urges EPA to consider them seriously; otherwise, the Agency's effort will represent a bold but ultimately hollow advance.

CFG.44(commenter 134)

A. EPA's Comparable Fuel Proposal Is More Conservative Than Need Be:
Ciba produces fuel-like secondary materials that should be considered comparable fuels and excluded from the definition of solid and hazardous waste. For example, Ciba produces a stream at its Newport, Delaware facility that contains over 90 percent alcohols (i.e., methanol and-ethanol) and ethers (i.e., dimethyl ether, methyl ethyl ether and dimethyl ether), none of which are listed on Appendix VIII of Part 261 as hazardous constituents. This by-product stream also contains a number of additional non-Appendix VIII constituents and some Appendix VIII hazardous constituents, all of which are at extremely low levels, if detected. However, this stream contains total halogens somewhat above the proposed specification. Ciba also produces a material at its McIntosh, Alabama plant that is comprised primarily of carbon and certain non- hazardous volatile compounds (i.e., xylene, methanol, isopropanol, ethyl acetate, and acetone). This material also contains some Appendix VIII hazardous constituents; however, like the methanol-based stream produced at the Newport, Delaware facility, these constituents were at low levels or below those typically found in fossil fuel. Our analyses also showed that certain compounds not expected to be in the material had detection limits above those specified in the proposal. Thus, Ciba is concerned that because of the extremely conservative nature of the proposal, these materials and many-others that are fossil fuel-like would remain subject to. RCRA Subtitle C without any environmental benefit. In fact, in some respects, the Agency's proposal is more stringent than the existing regulations. Therefore, Ciba encourages the Agency to take the following actions:

Response:

EPA believes its benchmark approach promotes beneficial energy recovery and resource conservation, reduction of unnecessary regulations, and demonstration of a common-sense approach to regulation. EPA pursued the benchmark approach to avoid the complexities associated with performing a risk assessment on the potential comparable fuels universe. Therefore, EPA is not inclined at this time to consider developing any alternative approaches as part of its final deliberations on the comparable fuel exclusion. At some future point as the state of risk science evolves and as our understanding of emissions from a wider variety of sources grows, EPA may be able to consider other approaches if appropriate and feasible.
EPA believes that its choice of the composite at the highest value will provide regulatory relief. EPA believes the composite addresses statistical concerns that most streams will fail to meet the specification with regularity. (See later commenter responses for further

discussion of this issue.) EPA also maintains that its policy on non-detects is appropriate and will not make the exclusion unworkable. (Again, see later comment responses for further discussion.)

With regard to commenter's (Ciba) waste stream, EPA does not have complete data to determine whether its waste stream meets the comparable fuels specifications. EPA has made every effort to provide flexibility in the exclusion and address commenter's concern with regard to specific specifications or requirements of the exclusion.

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COMPARABLE FUELS: WASTE MINIMIZATION

WM1.003 & WM4.078 (commenter RCSP00102)

The reuse of waste in an environmentally protective manner has been recognized as a beneficial activity by Congress. Throughout the statutory language of RCRA and the Pollution Prevention Act of 1990, Congress encourages the EPA to recognize and encourage the recovery of energy from waste materials.

According to the Pollution Prevention Act of 1990, (42 U.S.C. 131 0 1 (b)) the national hierarchy of waste management is as follows:

1. pollution prevention/source reduction
2. environmentally sound recycling
3. environmentally sound treatment
4. environmentally sound disposal

NACR, CKRC and others have long advocated the recognition of beneficial energy recovery as a legitimate step in the management hierarchy, above treatment and below recycling. (See Attachment 1) To date, EPA policy has not formally endorsed this distinction--EPA's position (clearly evidenced by this rulemaking) has been that cement kilns conduct RCRA thermal treatment and belong in step 3 of the hierarchy. NACR encourages the Agency to extend its recognition of beneficial energy recovery beyond the context of a comparable fuel exclusion to the proper overall role energy recovery plays in the waste minimization/pollution prevention hierarchy.

The Pollution Prevention Act also defines source reduction:

The definition of "source reduction" (42 U.S.C.13102(5)(A) and (B)) means any practice which reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment to recycling, treatment, or disposal and reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. Source reduction does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service. [emphasis added]

Beneficial recovery of energy in a cement kiln meets the above criteria for source reduction in that:

- recovering energy from waste fuels reduces the amount of contaminants released to the environment and therefore reduces hazards to public health;
- hazardous waste derived fuels are used in a process which is integral and necessary to production of a product and therefore should not be excluded from being considered source reduction; and
- cement kilns receive waste fuels from recycling processes prior to treatment or disposal. The foreword to the Waste Minimization Opportunity Assessment Manual EPA/625/7-88/003, 7/88 states:

Waste minimization is an umbrella term that includes the first two categories of the EPA's preferred hazardous waste management strategy which is shown below:

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1. Source Reduction: reduce the amount of waste at the source, through changes in industrial processes.
2. Recycling: Reuse and recycle wastes for the original or some other purpose, such as materials recovery or energy production [emphasis added].
3. Incineration/Treatment: Destroy, detoxify, and neutralize wastes into less harmful substances.
4. Secure Land Disposal: Deposit wastes on land using volume reduction, encapsulation, leachate containment, monitoring, and controlled air and surface/subsurface waste releases.

While EPA considers "waste minimization" to encompass both source reduction and recycling, EPA maintains that waste minimization does not include treatment. However, when discussing what waste minimization does not include, EPA only excludes thermal treatment for destruction:

EPA believes that waste minimization, the term employed by Congress in RCRA includes 1) source reduction and 2) recycling. EPA believes that recycling activities closely resembling conventional waste management activities do not constitute waste minimization. Treatment for the purposes of destruction or disposal [emphasis added] is not part of waste minimization, but is, rather, an activity that occurs after the opportunities for waste minimization have been pursued. . ..Treatment may be either thermal (i.e. incineration), chemical, or biological, especially for hazardous wastes. . ..58 FR 31115, May 28, 1993, Guidance on the Elements of a Waste Minimization Program.

We believe EPA's guidance is inconsistent with Congressional intent and directly at odds with the statute as the following additional elements will demonstrate.

RCRA/HSWA at 42 U.S.C. 6901(d) states:

The Congress finds with respect to energy that:

1. solid waste represents a potential source of solid fuel, oil, or gas that can be converted into energy;
2. the need exists to develop alternative energy sources for public and private consumption in order to reduce our dependence on such sources as petroleum products, natural gas, nuclear, and hydroelectric generation, and
3. technology exists to produce usable energy from solid waste.

42 U.S.C. 6902 states:

The objectives of this chapter are to promote the protection of health and the environment and to conserve valuable material and energy resources by-- ....

(10) promoting the demonstration, construction, and application of solid waste management, resource recovery, and resource conservation systems which preserve and enhance the quality of air, water, and land resources.

42 U.S.C. 6903 defines the following:

(20) The term "recovered resources" means material or energy recovered from solid waste.

(22) The term "resource recovery" means the recovery of material or energy from solid waste.

(24) The term "resource recovery system" means any facility at which solid wastes is processed for the purpose of extracting, converting to energy, or otherwise separating and preparing solid waste for reuse.

Clearly, Congressional intent in RCRA articulated a preference for facilities performing beneficial energy recovery from solid wastes in order to distinguish them from other types of treatment facilities. In these and other sections of the statute, Congress placed significant emphasis on energy recovery from solid waste, as well as source reduction and recycling, as preferred means of accomplishing resource conservation and recovery. While environmentally safe disposal remained among the waste management options, Congress left little room for doubt of its preference for other "conservation" alternatives. The proposed hazardous waste combustor rule does not fulfill EPA's statutory obligation to encourage legitimate energy recovery and, in fact, actually discourages it.

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Response:

The commenter requests EPA to re-evaluate the position of energy recovery within the waste management hierarchy presented in the 1990 Pollution Prevention Act (PL 101-58, Sec. 6602(b)) and echoed in EPA's Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program in Place (58 FR 31114-31120). The waste management hierarchy expresses EPA's preference for source reduction, followed by recycling, then treatment and finally disposal. EPA considers energy recovery to be a type of treatment. 40 CFR 260.10 defines "treatment" as any method, technique or process designed to ... recover energy or material resources from the waste."

The commenter believes that combustion of a hazardous waste for energy recovery should be added as a fifth element of the waste management hierarchy, to rank below recycling and above treatment. The commenter also presents reasons why combustion for energy recovery should be considered source reduction. EPA disagrees: source reduction occurs when the processes generating a particular hazardous waste stream are modified to "reduce the amount of any hazardous substance, pollutant or contaminant entering any waste stream or otherwise released into the environment prior to recycling, treatment, or disposal" (emphasis added). This reduction must take place in the course of the process generating the stream, that is, at the source of the waste. Once a hazardous waste is generated and on its way to recycling, treatment or disposal, there are no further opportunities for source reduction.

The commenter supports the claim that energy recovery is source reduction by quoting section 6603(5)(B) of the Pollution Prevention Act of 1990: "Source reduction does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service."

However, the commenter misses the point that the 1990 Pollution Prevention Act definition of source reduction specifically excludes processes which produce products or provide services by using hazardous wastes already generated elsewhere, which is the case when hazardous wastes are combusted in cement kilns. Additionally, since the majority of cement kilns in the US do not use hazardous waste fuels, it is clear that combusting hazardous wastes for energy recovery is neither integral to nor necessary for the production of a product or the providing of a service and that such combustion therefore falls outside the 1990 Pollution Prevention Act's definition of source reduction.

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In expressing EPA's support for source reduction as the waste management practice of choice, the waste management hierarchy does not foreclose treatment and disposal of hazardous waste. EPA realizes that recycling processes result in contaminant-rich "byproduct" streams in addition to the recovered product streams. These streams are often prohibitively expensive to process further for product -- distillation still bottoms are an example. EPA realizes that these streams can only be managed by the treatment and disposal processes at the lower end of the waste management hierarchy. However, treatment and disposal processes handling wastes resulting from recycling are not therefore in themselves part of the recycling process.

WM1.031.b(commenter 192)
UCC believes that a comparable fuel or "Clean fuel" exclusion makes sense and support's EPA's move to utilize this valuable resource for its fuel value. Further it fits into the environment of regulatory relief and common sense initiatives, while still being protective of human health or environment. It a win-win situation for all.

Response:
EPA agrees that the comparable fuels exclusion makes sense. The rationale for this approach is explained in today's preamble, however the rationale does not include fitting into the concepts of regulatory relief or common sense initiatives as a criteria or reason for taking this approach.

One response is provided immediately following the following two identical comments:
WM3.053(commenter 095)
RECYCLING & RECLAMATION: We strongly believe that recycling and reclamation are much preferable to burning for energy recovery or destruction. EPA needs to assure that whatever regulatory exclusions or exemptions are finally promulgated under this proposal for hazardous waste fuels should be provided for the same set of materials when they are recycled and reclaimed. If regulatory relief is warranted for energy recovery then a similar or expanded exemption is also appropriate for legitimate recycling technologies such as Ace's solvent distillation system. For EPA to fail to recognize such parallel waste burning, to the detriment of recycling methods which are more protective of the environment.

CFG(commenter 154)
RECYCLING & RECLAMATION: We strongly believe that recycling and reclamation are much preferable to burning for energy recovery or destruction. EPA needs to assure that whatever regulatory exclusions or exemptions are finally promulgated under this proposal for hazardous waste fuels should be provided for the same set of materials when they are recycled and reclaimed. If regulatory relief is warranted for energy recovery then a similar or expanded exemption is also appropriate for legitimate recycling technologies such as Ace's solvent distillation system. For EPA to fail to recognize such parallel waste burning, to the

detriment of recycling methods which are more protective of the environment.

Response:
The commenter's request that an exemption be extended to recycling technologies similar to the comparable fuels exclusion comes in the context of the commenter's request that the proposed Inherently Comparable Fuels Exclusion be extended to cover wastes generated by the commenter's solvent distillation system.
The commenter also states that the comparable fuels exclusion provides regulatory relief for burning for energy recovery, and requests that similar relief be provided for recycling and for their onsite solvent distillation units. The comparable fuels exclusion is not promulgated as a basis for regulatory relief for burning for energy recovery. The basis of EPA's decision, as explained in today's preamble, is set in the similarity of these wastes to fossil fuels. EPA's discretion over hazardous wastes essentially the same as fossil fuels allows the Agency to decide not to regulate these fuels provided they meet a set of benchmark specifications.
EPA has chosen not to promulgate the proposed Inherently Comparable Fuels Exclusion because no commenters sent in the data specifically requested by EPA in the April 19, 1996 proposal.

WM3.054(commenter 095)
WASTE REDUCTION BARRIERS: It is essential that EPA not create barriers to further waste reduction or on-site recycling through elimination of the used oil mixture rule and/or preclusion of eligibility for the comparable fuel exclusion. The worst possible disincentive for furthering waste reduction. however, would be to create conflicting or ambiguous standards. It is important for EPA to create clear incentives and cost signals that would allow businesses an array of options but with the least expensive also being the most environmentally preferable.

CFI2(commenter 154)
WASTE REDUCTION BARRIERS:
It is essential that EPA not create barriers to further waste reduction or on-site recycling through elimination of the used oil mixture rule and/or preclusion of eligibility for the comparable fuel exclusion. The worst possible disincentive for furthering waste reduction, however, would be to create conflicting or ambiguous standards. It is important for EPA to create clear incentives and cost signals that would allow businesses an array of options but with the least expensive also being the most environmentally preferable.

Response:
EPA does not intend to eliminate any aspects of the used-oil rule; the preamble discussion in the proposal used the used-oil rule as an example to contrast and compare those parts of the comparable fuels proposal which differ or resemble the used oil rule.
EPA believes that the comparable fuels specifications for concentration, viscosity and heat content are straightforward and easily determined as are the implementation regulations

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require annual laboratory analysis, notification of state or municipal air authorities and identification of the combustion unit in which the comparable fuel will be burned. EPA believes these provisions will provide another option for facilities to manage these wastes, namely to combust them as fuel. In addition, as explained in today's preamble, EPA is not promulgating the Inherently Comparable Fuels Exclusion, which the commenter supported in other sections of his comment, and may be implied in this section of the commenter's submission.

WM3.055(commenter 095)

CONCLUSION:

Many businesses, educational institutions and Government entities want readily available innovative technologies that promote waste minimization. On-site solvent distillation units can provide a key element for many automotive repair shops, fleet and aircraft maintenance operations, and manufacturers. in reducing their solvent waste. However, because of the small amount of residue created by each distillation unit, it can create difficulties for some operations because there are fewer and sometimes more expensive management options for small quantities of waste. EPA should strive to ensure that appropriate, affordable, and reasonable options for managing small quantities of residue amenable to further reclamation and recovery are not precluded by new regulations. Used oil management should continue to be available as an option for residues created by the distillation process. Likewise, if these residues must meet inherently comparable fuel standards through a complex and lengthy petition process it would provide a difficult barrier for many businesses and government entities, potentially to the detriment of recycling. An exclusion from these comparable fuel provisions would provide an additional management option complimentary to the used oil mixture rule.

We appreciate the opportunity to provide comments and urge EPA to maintain current management options under the used oil mixture rule and provide additional management options under the inherently comparable fuel provisions, while looking at the current levels which define an ignitable hazardous waste. If additional information is needed, please let us know.

WM3(commenter 154)

CONCLUSION:

Many businesses, educational institutions and Government entities want readily available innovative technologies that promote waste minimization. On-site solvent distillation units can provide a key element for many automotive repair shops, fleet and aircraft maintenance operations, and manufacturers. in reducing their solvent waste. However, because of the small amount of residue created by each distillation unit, it can create difficulties for some operations because there are fewer and sometimes more expensive management options for small quantities of waste. EPA should strive to ensure that appropriate, affordable, and reasonable options for managing small quantities of residue amenable to further reclamation and recovery are not precluded by new regulations. Used oil management should continue

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to be available as an option for residues created by the distillation process. Likewise, if these residues must meet inherently comparable fuel standards through a complex and lengthy petition process it would provide a difficult barrier for many businesses and government entities, potentially to the detriment of recycling. An exclusion from these comparable fuel provisions would provide an additional management option complimentary to the used oil mixture rule.

We appreciate the opportunity to provide comments and urge EPA to maintain current management options under the used oil mixture rule and provide additional management options under the inherently comparable fuel provisions, while looking at the current levels which define an ignitable hazardous waste. If additional information is needed, please let us know.

Response:

The commenter is proposing their onsite solvent distillation units as candidates for the Comparable Fuels Exclusion.

EPA has chosen not to promulgate the proposed Inherently Comparable Fuels Exclusion because no commenters sent in the data specifically requested by EPA in the April 19, 1996 proposal. The basis of EPA's decision to promulgate today's comparable fuels exclusion, as explained in today's preamble, is set in the similarity of these wastes to fossil fuels. EPA's discretion over hazardous wastes essentially the same as fossil fuels allows the Agency to decide not to regulate these fuels provided they meet a set of benchmark specifications.

WM4.072(commenter 90)

IV. Waste Minimization: Equivalent Exemption for Waste Solvent Destined for Reclamation through distillation

Although NIPCA supports EPA's effort to create a realistic and nonpunitive regulatory scheme to encourage waste solvent recycling, NIPCA maintains that recycling via distillation should be given at least equivalent treatment; i.e., an exemption for generators and intermediaries through which waste solvent is destined for recycling by distillation and eventual reuse. EPA's request for comments regarding the effect of its proposal on source reduction was right on target - both recycling through burning for energy recovery and distillation/reuse must be emphasized or the result will be to essentially penalize those business which distill and reuse waste solvent. Such a result would also be contrary to EPA's own regulatory hierarchy which prefers source reduction to energy recovery. NIPCA urges EPA to engage in a companion rulemaking to its inherently comparable fuels proposal which would create an exemption based upon the same management criteria for small generators and their intermediaries/recyclers but with an end use of distillation rather than burning for energy recovery. NIPCA believes that EPA has the authority to engage in this rulemaking under 40 C.F.R. § 261.4(c)l and §261.6.

[Footnote 1: The fact that the solvent used in NIPCA members' service becomes waste while in service drums could fall within the parameters of hazardous wastes exempted from certain regulations under § 261.4(c).] NIPCA appreciates the opportunity to submit comments on this proposal.

Response:
The commenter implies that the comparable fuels exclusion provides regulatory relief for combustion and requests that similar relief be provided for solvent recycling, and suggests that EPA include wastes destined for distillation either as “hazardous wastes which are excluded from certain regulations” under 261.4(c) or as “recyclable materials” under 261.6. Both these suggestions are outside the scope of the comparable fuels exclusion proposed in this rule which allows a waste similar to fossil fuel to be combusted as a fuel based on this similarity rather than on any preference for combustion.

WM4.077(commenter 102)
I. NACR Urges Stronger EPA Recognition of the Benefits of Energy Recovery.
NACR notes that EPA extends recognition that burning hazardous waste for energy recovery is beneficial, as cited in the preamble section introducing the proposed comparable fuel exclusion. The Agency states:
Hazardous waste is burned for energy recovery in boilers and industrial furnaces in lieu of fossil fuels. There are benefits to this energy recovery in the form of diminished use of petroleum-based fossil fuels.
NACR strongly endorses EPA's position, but believes the Agency has fallen far short of where statute and policy ought to direct it. We note that the endorsement is confined to the comparable fuels portion of the proposed rule, and that no mention of the benefits of the energy recovery from hazardous waste fuels used in the production of cement is made anywhere else within the context of the rule. The Agency seems to imply that environmentally beneficial energy recovery can only come from a hazardous waste comparable fuel, a proposition that we resoundingly reject. A close examination of some of the statutory and guidance language associated with pollution prevention and waste minimization implies that recovering energy from wastes, whether "comparable fuels" or not, should be recognized above other RCRA treatment technologies.

Response:
The preamble language cited by the commenter [61 FR 17459] clearly states that there are benefits to energy recovery from burning hazardous waste fuels. The fact that this language only appears in the section of the preamble which discusses the comparable fuel exclusion does not mean, as the commenter infers, that EPA believes that beneficial energy recovery is only possible if comparable fuels are being combusted in BIFs.
EPA’s primary reason for promulgating the comparable fuels exclusion was not to state a preference for combustion of comparable fuels for energy recovery over combustion of hazardous wastes for energy recovery, as the commenter implies, but to allow wastes similar to fossil fuel to be burned as fossil fuels. Wastes meeting the comparable fuels exclusion criteria have been found to contain lower levels of toxic constituents than hazardous wastes not meeting these criteria and are thus safer to burn, therefore they can be burned safely with fewer regulatory controls than can hazardous wastes.

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The waste management hierarchy expresses EPA's preference for source reduction, followed by recycling, then treatment and finally disposal. EPA considers energy recovery to be a type of treatment. In expressing EPA's support for source reduction as the waste management practice of choice, the waste management hierarchy does not foreclose treatment and disposal of hazardous waste at all facilities, instead, EPA is encouraging facilities to pursue opportunities for source reduction and recycling before sending a waste stream to treatment and disposal.

WM4.079(commenter 102)

As a policy matter, the comparable fuels proposal is strangely positioned in a rulemaking arising out of a national waste minimization and combustion strategy. We believe that, as proposed, the concept will prove to be anti-recycling and anti-waste minimization. Given the elevated detection levels of Appendix VIII compounds suggested, there is little, if any, incentive for generators to segregate waste streams or minimize waste.

<u>Response:</u>

EPA's investigations of current patterns in recycling and combustion found that about 75% of hazardous wastes likely to meet the comparable fuels specifications for constituent concentration levels and for energy value are already being combusted. Given this high proportion already being combusted, the comparable fuels exclusion is unlikely to tip the balance further away from recycling and towards combustion. EPA's analysis in contained in the docket.

WM4.080a(commenter 102)

C. The comparable fuels exclusion will result in a negative impact on recycling and waste minimization.

EPA states that in the preamble that it does not "wish to discourage pollution prevention/waste minimization opportunities to reduce or eliminate the generation of wastes in favor of burning wastes as comparable fuels." (61 Fed. Reg. at 17464) Yet, as pointed out earlier by NACR, the Agency has not collected any information on the amount of waste that could potentially meet the comparable fuels definition (i.e., the universe of current hazardous wastes which could potentially be burned rather than recycled or minimized). Neither has the Agency conducted any analysis at all on whether any of these wastes are currently being recycled, what type of treatment methods are currently being employed, or whether waste minimization opportunities exist.

Merely redefining hazardous wastes out of Subtitle C is perhaps an expeditious approach to waste minimization, but hardly legitimate. Creating a comparable fuel specification will not decrease the volume, nor the toxicity, of the materials which will qualify for the exit. To the extent that the comparable fuel provision is waste minimization, it is waste minimization through regulatory redefinition.

NACR believes it is too important an issue for EPA not to conduct a thorough evaluation of

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the impacts of the exclusion before proposing it.

Response:
EPA’s investigation of current patterns in recycling and combustion found that about 75% of hazardous wastes likely to meet the comparable fuels specifications for constituent concentration levels and for energy value are already being combusted. Given this high proportion already being combusted, the comparable fuels exclusion is unlikely to tip the balance further away from recycling and towards combustion. EPA’s analysis is contained in the docket.

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WM4.080b(commenter 102)
If generators will be allowed to blend their hazardous waste to produce a comparable fuel, source reduction may no longer be a feasible option for medium to small companies. It is NACR's opinion that a lot of material that is suited for recycling will be diverted from environmentally sound recycling operations, such as solvent reclamation and fuel blending, because it will be more cost effective to mix hazardous waste that meets a comparable fuel specification with a hazardous waste that does not, and burn the material in an unregulated combustion device. This scenario is identical to how used oil is being managed today. Under the used oil provisions (40 CFR 279) a generator is allowed to dilute a hazardous waste by mixing it with used oil. The ability for a generator to mix hazardous waste with a nonhazardous used oil and burn it on-site in a small space heater is more cost effective than sending used oil to a re-refinery for reclamation. Therefore, the amount of used oil that can be processed for recovery is decreased because of this regulatory option.
NACR believes that this type of hazardous waste exclusion provide a disincentive for generators to investigate opportunities to minimize the waste.

Response:
EPA agrees with the commenter that tight controls on waste blending are necessary within the comparable fuels regulations in order to prevent impermissible dilution. EPA further agrees that such impermissible dilution would lead to inhibit pollution prevention and waste minimization by providing an easy way to dispose of toxics-laden wastes outside of Subtitle C facilities.
EPA’s final comparable fuels management regulations, therefore, require that waste streams be managed as hazardous wastes until they meet the comparable fuels specifications. One minor exception to this principle allows the generator to blend for viscosity once the other comparable fuels specifications have been met (most importantly, the constituent levels specifications). In other words, treatment to bring a waste to the comparable fuels specifications is allowed only if the treatment is carried out in a Subtitle C unit and if the waste is managed as a hazardous waste. Any residuals from such treatment would remain hazardous wastes. Additionally, the generator must specify the burner in which the comparable fuel is to be combusted whether onsite or offsite. This provision sends the waste directly from the generator to the burner, as the commenter requests and takes intermediate

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parties out of the picture except for transporters.

WM4.080c(commenter 102)

In addition, NACR disagrees with the EPA that a hazardous waste exclusion is a form of waste minimization or pollution prevention. The same amount of waste will be generated, only the amount of regulated "hazardous" waste generated will be artificially reduced.

Response:

EPA does not claim that a hazardous waste exclusion is waste minimization or pollution prevention. However, it is true that the quantities of hazardous waste reported may drop to account for wastes that meet today's comparable fuels specifications.

WM4.082(commenter 108)

2. EPA has failed to evaluate the impact of the comparable fuel exclusion on recycling and waste minimization.

EPA states in the preamble that it does not "wish to discourage pollution prevention/waste minimization opportunities to reduce or eliminate the generation of wastes in favor of burning wastes as comparable fuels. " (61 at 17464 (Apr. 19, 1996)) Yet, as pointed out above, the Agency has not collected any information on the amount of waste that could potentially meet the comparable fuel definition (i.e., the universe of current hazardous wastes which could potentially be burned rather than recycled or minimized). Neither has the Agency conducted any analysis at all on whether any of these wastes are currently being recycled or whether recycling or source reduction opportunities exist for these waste streams.

Instead, EPA asks the public for comment on the effect of the comparable fuel proposal on source reduction and recycling. This is too important an issue for EPA not to conduct a thorough evaluation of the impacts of the exclusion before proposing it. EPA needs to estimate the amount of wastes that are currently being recycled and reused that may be burned for energy recovery because of this provision. Such information is not only crucial for companies like ours to understand the impacts of the provision, but also seems vital for EPA to determine the overall environmental impacts of the exclusion.

We believe that there is the potential for a comparable fuel proposal to have detrimental impacts on waste minimization. Many solvents currently being collected and recycled are more likely to be used as fuel under a comparable fuel program. Larger facilities currently recycling their solvents either on-site or off-site may find it more economical to use them as a fuel in their on-site boilers. Similarly, we successfully work with small businesses to recycle mineral spirits, which may be undercut by a comparable fuel exemption. In addition, we anticipate that generators of various comparable fuel solvent wastes may mix them with used oil, which both precludes the recycling of the solvents and inhibits the cost-effective re-refining of the use oil. With regard to this later point, we remain both perplexed and concerned that EPA continues to not only allow this behavior but to encourage it, as demonstrated by their comments in the June 28, 1996 used oil Federal Register notice. (61

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FR 33692)
EPA must collect and evaluate information on waste minimization impacts and provide it for public review prior to finalizing a comparable fuel exclusion. Safety-Kleen is committed to assisting in this effort by analyzing the waste streams we collect. This is information we will have in time for the DSW rulemaking.

Response:
EPA's investigations of current patterns in recycling and combustion found that about 75% of hazardous wastes likely to meet the comparable fuels specifications for constituent concentration levels and for energy value are already being combusted. Given this high proportion already being combusted, the comparable fuels exclusion is unlikely to significantly tip the balance further away from recycling and towards combustion. EPA's analysis is contained in the docket.

WM4.083(commenter 126)

6. COMMENTS RELATING TO THE COMPARABLE FUEL EXCLUSION

6.1 Effect on Pollution Prevention

EPA should consider whether establishing the comparable fuels exemption will not hamper pollution prevention efforts. If "clean" hazardous waste can be burned for disposal in a local industrial boiler under EPA's rules, such a policy may undercut solvent recycling and other pollution prevention efforts. EPA should specifically analyze this issue before issuing a comparable fuels policy.

Response:
EPA's investigations of current patterns in recycling and combustion found that about 75% of hazardous wastes likely to meet the comparable fuels specifications for constituent concentration levels and for energy value are already being combusted. Given this high proportion already being combusted, the comparable fuels exclusion is unlikely to tip the balance further away from recycling and towards combustion. EPA's analysis is contained in the docket.

WM4.084(commenter 128)

14. Having a workable comparable fuels specification will promote waste minimization.
In the proposed rule on page 17464, EPA solicits comments on the effect of the comparable fuels proposal on facilities' efforts to promote source reduction and environmentally sound recycling (excluding burning for energy recovery). CMA believes that EPA should establish a comparable fuels specification because it will encourage facilities to move up the waste management hierarchy by burning wastes for energy recovery instead of burning them for destruction or using other treatment or disposal practices that do not involve any resource recovery. Burning clean fuels for energy recovery recovers resources and conserves nonrenewable fossil fuels. It also creates environmental, health, and safety benefits by

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reducing the use of dirtier fossil fuels such as coal and, when burned on-site, by reducing the transport of waste fuels. EPA needs to strongly support these outcomes.

As CMA recommended to the Agency in 1991 ["Comments of CMA on EPA’s Notice and Request for Comment on Waste Minimization Incentives." January 18, 1991], waste minimization efforts must never lose sight of the overall goal to reduce risk to human health and the environment. The comparable fuels specification win provide an important incentive for facilities to move up the waste management hierarchy. CMA believes that facilities will still have an adequate incentive to pursue source reduction and recycling options (notwithstanding barriers that exist, such as the absence of meaningful hazardous waste identification (HWIR) exemption criteria and definition of solid waste reforms).

Establishing a comparable fuels specification is consistent with the waste management hierarchy established by Congress and with Congress' expectations about how facilities will move up that hierarchy. Congress hoped that generators would choose the highest level possible on the hierarchy, depending on what is "feasible" and "economically practicable." Congress recognized the potential costs to the generator of moving up the hierarchy, as well as the limitations of technology, and has allowed the generator flexibility in choosing that waste minimization strategy most suitable for any given waste stream. The comparable fuels specification does not dilute the clear preference for source reduction.

Furthermore, it is clear that most stakeholders recognize the importance of supporting the entire hierarchy. CMA, the National Roundtable of State Pollution Prevention Programs, and the Business Roundtable "recognize that other elements of the hierarchy remain necessary in order to manage waste which cannot be prevented feasibly with existing technologies and techniques." Letter to Carol Browner, January 6, 1994.

Response:

EPA clearly indicates in the preamble to the MACT proposal (61 FR 17459) that burning hazardous wastes for fuel provides benefits of “energy recovery in the form of diminished use of petroleum-based fossil fuels.” However, since the EPA regulations include burning for energy recovery in the definition of treatment, EPA does not include burning for energy recovery in the definition of waste minimization (which includes source reduction and recycling).

WM4.085(commenter 136)

Conduct evaluations of the risk and pollution prevention/waste minimization impacts associated with the comparative fuels proposal;

WM4.086(commenter 136)

2. Failure to Assess Potential Impact of Exclusion on Pollution

Prevention As discussed above,- Section 6604(b)(2) of the Pollution Prevention Act requires EPA to consider the effect of its existing and proposed regulations on source reduction efforts and review regulations of the Agency prior and subsequent to their proposal to determine their effect on source reduction." Notwithstanding this clear statutory mandate, and the potentially substantial effect a combustion-based exclusion from RCRA regulation may

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have on source reduction efforts, EPA did not perform even the most limited assessment of the potential impact of the proposed comparative fuels exemption on source reduction. There is no information in the record on the types or volumes of waste streams that would be eligible for the exemption as generated or after treatment, nor is there an analysis of the source reduction activities potentially available for such wastes and the potential effect of an exclusion on such activities.

In addition to the PPA directive, the Agency's own waste minimization strategy may be profoundly affected by the comparative fuels exclusion. A 50% waste minimization goal within the next nine years may be difficult to reach if RCRA-exempt combustion becomes the management option of choice. Given the level of effort EPA devotes to pollution prevention and waste minimization, it would be a profound mistake to proceed with an exemption so potentially large without a complete understanding of its ramifications.

Response:

Today's rule does not address risk. Therefore, that portion of the comment is deferred to the upcoming MACT standards rule, which will discuss risk issues.

Regarding the impact of today's comparable fuels specifications on waste minimization, EPA's investigations of current patterns in recycling and combustion found that 75% of hazardous wastes likely to meet the comparable fuels specifications for constituent concentration levels and for energy value are already being combusted. Given this high proportion already being combusted, the comparable fuels exclusion is unlikely to significantly tip the balance further away from recycling and towards combustion.

WM4.088(commenter 174)

3 Waste Minimization Approaches:

We feel EPA's proposal would not discourage pollution prevention or waste minimization efforts. We feel the costs of these types of Virgin products, (i.e. solvents, etc.) is high enough that waste source reduction efforts will continue due to the economics of business. For instance, re-use of a solvent stream would still probably be an overall less expensive way to handle the waste than to burn it for many larger facilities. This may not be the case for very small facilities. However the lower costs for disposal under this proposal for very small facilities (such as automotive repair type facilities) will encourage less improper handling and dumping which will further benefit human health and the environment.

We also feel as we have seen in the used oil industry that once the specification is made many hazardous waste streams will become "cleaner" due to the generator trying to meet the exclusion. In addition we feel that this proposal will result in some streams being "cleaned up" to the point that they would pass the Hazardous Waste Characteristic Tests with the exception of possibly flash point. After all when a waste stream is Hazardous due to only one characteristic it gives the generator no incentive to keep that stream "clean"if going to a cement kiln or incinerator. This proposal will give the generators an incentive to clean up their streams in an effort to meet the Fuel Exclusion. As stated, we in the industry, have seen it happen in used oil streams. Prior to the used oil burning specifications, used oil was a

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dumping ground for anything the generator could disguise in and dispose of in it. After the specifications were put into place and the generators realized that if they adulterated the oil it would have to be handled as a hazardous waste and disposal would cost more, they started cleaning up their streams. They started properly segregating their wastes. We have also seen many generators switching to non-hazardous alternative products in their facilities that may come in contact with their used oil, such as alternative nonchlorinated solvents, etc. We have actually seen Large Quantity Hazardous Waste Generators become Exempt Small Quantity Generators or even totally eliminate all hazardous waste generation with the only incentive being "They don't want that stuff getting into the used oil". This same scenario will happen to some degree under this proposal if promulgated in a usable, sensible way, as were the used oil regulations.

Response:
EPA agrees with the commenter that the comparable fuels exclusion offers incentives, paralleling those offered by the used oil regulations, for generators to reduce the toxicity of their waste streams through source reduction in order to burn these wastes for fuel in non-RCRA-permitted combustors by meeting the comparable fuels specifications.

WM4.89(commenter 192)

Waste Minimization Approaches
The EPA requests comment on whether a comparable fuels exclusion would discourage pollution prevention/waste minimization opportunities to reduce or eliminate the generation of wastes in favor of burning "waste"s as comparable fuels. UCC believes that a comparable fuels exclusion would not discourage pollution prevention/waste minimization opportunities. The use of comparable fuels (which avoids the mere destruction of a fuel for destruction sake) is in itself a pollution prevention/waste minimization activity.
EPA further requests comment on the effect of the comparable fuels proposal on facilities' efforts to promote source reduction and environmentally sound recycling. EPA points that recycling in the RCRA waste management hierarchy scheme does not include burning for energy recovery. UCC believes that this restriction does not make sense and conflicts with the underlying intent of resource conservation under RCRA. UCC urges EPA to change its position to incorporate the real intent of RCRA.

Response:
EPA disagrees with the commenter’s statement that burning for energy recovery is a form of pollution prevention/waste minimization. In its waste management hierarchy, EPA defines waste minimization as source reduction and recycling, which are preferred over waste treatment and disposal. EPA regulations define burning for energy recovery as treatment, which is a separate activity entity from either recycling or source reduction.

WM4.088(commenter 198)

19. A Comparable Fuels or Clean Fuels exclusion will promote waste minimization and provide an incentive for facilities to move up the waste management hierarchy.
A clean fuels or comparable fuels specification will encourage facilities to move up the waste management hierarchy by burning wastes for energy recovery instead of burning them for destruction via incineration or using other treatment or disposal practices that do not involve any resource recovery. In addition, an exemption will result in more on-site use and reduce risks inherent in the additional handling and transportation associated with moving material to off-site waste management facilities.

Response:
EPA's waste management hierarchy expresses Agency policy that source reduction is encouraged as the waste management practice of choice, followed by recycling and then treatment, with disposal as the least desirable option. Furthermore, EPA fully recognizes that there are limits to source reduction for any process stream and that there are waste streams which are too difficult to recycle economically. Treatment and disposal are appropriate for these streams and the RCRA regulations provide a framework for carrying them out safely. The Waste Management Hierarchy expresses support for making treatment and disposal the last options after seeking out opportunities for source reduction and recycling.

WM4.091(commenter 203)
Part Six I. C. 3. Waste Minimization Approaches.
Proposal: Waste Minimization Approaches. The EPA does not want to discourage Pollution Prevention/waste Minimization by allowing a comparable fuel to be burned in place of customary fuels. EPA solicits comments on the effect of a comparable fuels proposal on facilities' efforts to promote source reduction and environmentally sound recycling.
Comment: HWP proposes that in order to claim the comparable fuels exclusion, information on waste minimization should be provided by the generator. HWP recommends that comparable fuels combustion be allowed in all hazardous waste regulated stationary sources. While the use of a comparable fuel as a main fuel source is unlikely due to supply problems, the MACT hierarchy favors monitoring stack emissions while placing less emphasis on the waste fed to the unit. Requiring a unit to install extensive stack gas monitoring equipment and then not allowing the use of a comparable fuel seems contrary to this goal. Additional Comment: HWP proposes the definition of "new source" be modified so that facilities not under construction, but currently under review by the Agency be considered an existing source This would allow facilities that had submitted their RCRA application to the Agency up until the date of promulgation of this rule to continue with permitting and construction processes without the added delays of re-engineering and second-guessing future limits imposed under this rule. HWP does not anticipate a large influx of permit applications due to this change. HWP notes that EPA has already created one exception for new sources that began construction after April 19, 1996 but before the final rule is promulgated. In this case, if the final rule is more stringent than the proposed rule, the facility will be allowed the three year compliance time to meet the MACT standards. HWP requests leniency for facilities

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currently under review by the Agency.

Response:
The commenter suggests that generators seeking the comparable fuels exclusion for their wastes should have to provide information on waste minimization, but does not specify what type of information. EPA does not believe would be an appropriate requirement. Today's requirements for the comparable fuels exclusion focuses on the physical properties of wastes as the basis for setting comparable fuels exclusion specifications. The manner in which the comparable fuel waste is generated is not a factor.
The commenters points on new source regulation is deferred to the upcoming MACT standards rule, since today's rule does not address that issue.

WM4.090(commenter 215)
AOCA Agrees with EPA's Effort to Promote Recycling
To the extent that EPA's proposed inherently comparable fuels exemption for small generators promotes recycling through burning for energy recovery, AOCA is in favor of it. Used solvent, like used oil, is a valuable commodity which may be easily recycled as a fuel. It is a waste of resources for industrial burners to buy virgin oil rather than used oil or used solvents which meet the appropriate fuel specifications. However, it is equally wasteful to ignore those who reclaim used solvent for reuse. AOCA believes that the two methods of recycling should be given equal emphasis. Otherwise, those who engage in reclamation activities, i.e., source reduction, may be regulatorily disadvantaged and, therefore, discouraged from reclaiming used solvent.

Response:
The commenter encourages a similar exclusion for solvent reclamation, but does not discuss how such an exclusion might work. However, a reclaimed solvent exclusion is outside the scope of today's final rule since the proposal only considered a comparable fuels exclusion. The commenter also implies that solvent reclaimers will face regulatory disadvantage. EPA's analysis concluded that about 75% of the wastes that would be eligible for the comparable fuels exclusion are already combusted. Therefore, there is not expected to be a significant shift in this market away from recycling.

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COMPARABLE FUELS: ALTERNATIVE APPROACHES

1. Adopt alternative approach.

CFCMA.2(commenter 099)

V. Additional Approach in Defining Comparable Fuels

A. Introduction

In addition to EPA's proposed comparable fuel specification, Dow recommends that the Agency promulgate an additional and expanded specification that would be based both on the composition of the material, as well as a requirement that the material be burned in devices that meet certain operating conditions. That is, Dow would urge the agency to promulgate an additional comparable fuel specification that would: (1) place restrictions on the amount of certain toxic constituents allowed in comparable fuels and (2) require the comparable fuel to be burned in boilers or other such devices that meet certain conditions. Dow believes that such a specification would also achieve EPA's overall goal in promulgating a comparable fuel exclusion, that is, to develop a specification which is of use to the regulated community, but assures that an excluded waste would pose no greater risk than burning of fossil fuels.

More specifically, Dow would encourage the Agency to adopt the basic approach suggested by CMA in its Clean Fuel Proposal. Dow believes that such an approach has a number of advantages over EPA's currently proposed approach in defining a comparable fuel.[20]

[Footnote 20: While Dow believes that the additional specification has a number of advantages over the Agency's proposed approach, Dow also believes it appropriate to provide a specification that is based solely on the composition of the material to provide the regulated community with some flexibility in determining whether a material is a comparable fuel. However, if the Agency believes it must promulgate a single approach in defining comparable fuels, Dow would urge the Agency to Promulgate the alternative specification that Dow describes in this section.]

In particular:

- Would Allow Additional Materials To Be Excluded From RCRA Subtitle C Control Without Increased Risk To Human Health And The Environment: The expanded comparable fuel specification would allow additional materials to be excluded as comparable fuels, without increased risk to human health and the environment. In fact, such a specification is likely to reduce the emissions to the environment, particularly if these materials are used to replace coal.
- Would Streamline/Reduce the Testing and Recordkeeping Burden: EPA's proposed approach would require the generator to conduct detailed compositional analysis of the material for several hundred hazardous constituents. The alternative approach would simplify and reduce the analytical testing burden imposed on the generator, as well as reduce any recordkeeping requirements.

CFG.19(commenter 099)

At the same time, Dow is suggesting that the Agency adopt alternate limits and conditions for several of the parameters. In so doing, Dow believes that the public, as well as the

Agency can be assured that burning of such materials would not present a significant risk to human health and the environment, while providing a beneficial resource to the regulated industry. The remainder of this section identifies the criteria for defining the additional comparable fuel specification, as well as provides the rationale for the various criteria.

B. Summary of Additional Comparable Fuel Specification

Dow recommends that the Agency adopt an additional comparable fuel specification that meets the following criteria:

1. The material must meet a minimum heating value of 5,000 BTU/lb;
2. The material must meet the specification of toxic metals that EPA proposed in its comparable fuel proposal;
3. The material must meet a total halogen content of 250 mg/kg or less (as corrected for heat content);
4. The material must be burned on-site or in a unit that the generator has control over;

5. The material must be burned in units that have their air emissions controlled by a federal, state or local entity or where the regulators have determined that the emissions from the unit need not be subject to control;
6. The material must be burned in a unit that monitors continuously for carbon monoxide (CO) and must meet a CO level of 100 ppm; and
7. The material must contain no more than 20 percent of Appendix VIII hazardous constituents that are not typically found in fossil fuel.

(See Table I for a comparison between EPA's proposed comparable fuel specification and Dow's additional approach.)

CFG.20(commenter 099)

C. Specific Discussion of Each of the Criteria

1. <u>The Material Must Meet A Minimum Heating Value of 5,000 BTU/lb:</u> As EPA described in its proposal, it is necessary to specify a minimum heating value to assure that the material has legitimate energy recovery value. EPA first addressed this issue in its Statement of Enforcement Policy issued on January 18, 1983 (and published in the Federal Register on March 16, 1983). Since that time, the Agency has generally maintained a consistent position and adopted a minimum heating value of 5,000 BTU/lb, including in the proposed comparable fuel.[21] For example, the 5,000 BTU/lb value was used by the Agency to determine whether exclusion. a material would qualify for the energy recovery exemption available prior to promulgation of the February 21, 1991, boiler and industrial furnace (BIF) rule, as well as used it as a limit on wastes that could be burned in a BIF for legitimate energy recovery until the owner/operator certified compliance with the emission limits in the BIF rule. (see 40 CFR 266.103 (a)(5) and (6)). Therefore, Dow recommends that the additional comparable fuel specification include a requirement that the material must have a 5,000 BTU/lb minimum heating content.

[Footnote 21: The Agency does not consider the 5,000 BTU/lb as a definitive test. That is, a material with a heating value of less than 5,000 BTU/lb could still be considered a legitimate fuel; however, the generator or owner/operator has the burden of demonstrating that the

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material has legitimate energy value. The Agency also indicated that any material with a heating content of 5,000 BTU/lb or more was of legitimate energy value.]

2. The Material Must Meet The Specification For Toxic Metals That EPA Proposed In Its Comparable Fuel Proposal: Dow would agree with EPA that limiting the extent of metals in the comparable fuel is appropriate so as to minimize the potential release of toxic metals into the environment. As EPA correctly notes in the preamble to the comparable fuel specification, metals are not destroyed in the combustion process. Thus, Dow would support and recommends that the additional comparable fuel specification include a requirement that the level of toxic metals be those proposed by EPA in its comparable fuel proposal.

However, because Dow is suggesting a single specification, Dow also recommends that the toxic metal levels be those proposed by EPA for the composite fuel specification set at the 90th percentile. In particular, since the composite specification was developed by EPA as a single specification that all generators would use, it is consistent with Dow's approach of developing a single specification that all persons would evaluate in determining whether their material would be excluded as a comparable fuel. Moreover, Dow would urge the Agency to set the specification at the 90th percentile.[22] [Footnote 22: EPA is also taking comment on setting the composite specification at the 50th percentile.] Dow's basis for this is several-fold. First, the 90th percentile has the advantage of providing maximum flexibility to the regulated community and is representative of a range of fuels that are burned nationally in combustion devices. In fact, Dow believes that the 50th percentile would under-represent many fossil fuel-like materials, and would likely exclude many actual fossil fuels (i.e., No. 6 fuel oil) on which the specification is based. While the Agency speculates in the preamble that the 90th percentile may allow for higher amounts of toxic constituents than a lower percentile, this is extremely unlikely, as the Agency itself recognizes, since no excluded fuel is likely to contain all the toxic metals at or near the 90th percentile composite specification level. Therefore, Dow would recommend that the toxic metal limits in the additional comparable fuel specification be as follows:

- Antimony: 5.8 mg/kg at 10,000 BTU/lb;
- Arsenic: Non-detect (detection limit 0.22 mg/kg);
- Barium: Non-detect (detection limit 22 mg/kg);
- Beryllium: Non-detect (detection limit 1. 1 mg/kg);
- Cadmium: Non-detect (detection limit 1. 1 mg/kg);
- Chromium: Non-detect (detection limit 2.2 mg/kg);
- Cobalt: Non-detect (detection limit 4.4 mg/kg);
- Lead: 22 mg/kg at 10,000 BTU/lb;
- Manganese: Non-detect (detection limit 1.1 mg/kg);
- Mercury: Non-detect (detection limit 0. 18 mg/kg);
- Nickel: 18 mg/kg at 10,000 BTU/lb;
- Selenium: 0. 12 mg/kg at 10,000 BTU/lb;
- Silver: Non-detect (detection limit 2.2 mg/kg); and
- Thallium: Non-detect (detection limit 22 mg/kg)

3. The Material Must Meet A Total Halogen Content Of 250 mg/kg Or Less (As Corrected For Heat Content): Dow recommends that the additional comparable fuel specification

include a requirement that the total halogen level be less than 250 mg/kg (as corrected for heat content). (See Section IV. A. and B. for the justification of the 250 mg/kg level.)

4. The Material Must Be Burned On-site Or In A Unit That The Generator Has Control Over: Dow is recommending that the additional comparable fuel exclusion be limited to situations where the material is burned on-site or in a unit that the generator has control over, including where a contractual arrangement exists between the generator and the burner. Dow is suggesting such a limitation to assure that the operating requirements proposed in the specification are met by the party certifying compliance. This clearly can be assured where the generator is also the burner, whether or not the material is burned at the site of generation.

However, Dow also believes that such assurance can be guaranteed where there is a contractual arrangement between the generator and the burner that would specify conditions that must be met to qualify for the exclusion. In fact, the Agency has previously recognized the utility of contractual arrangements in promulgating the hazardous waste generator requirements. For example, a hazardous waste manifest is not required for the shipment of hazardous waste by small quantity generators to recyclers where the generator and recycler have a contractual arrangement which specifies certain conditions. See 40 CFR 262.20(e). As in that situation, Dow believes that a contract would bind the burner (and provide assurance to the generator) that the material would be burned for energy recovery in units that meet certain operating conditions.

5. The Material Must Be Burned In Units That Have Their Air Emissions Regulated By A Federal, State, or Local Entity or Where the Regulators Have Determined That the Emissions From the Unit Need Not Be Subject To Control: While Dow supports the Agency's effort to establish limits for toxic constituents in a comparable fuel specification, Dow does not support a comparable fuel specification that would include criteria pollutants or other parameters that are adequately controlled under other statutory authorities. As already discussed, EPA has ample authority under the CAA to control criteria pollutants, as well as other parameters. Thus, Dow does not understand (nor support) the need to establish a specification for parameters that are adequately controlled under the CAA; this is just the type of duplicative regulation that the Clinton Administration has indicated it wants to avoid and do away with. Furthermore, this position is supported in Section 1006(b) of RCRA (Integration with Other Acts), where it states that "[t]he Administrator of EPA shall integrate all provisions of RCRA for purposes of administration and enforcement and shall avoid duplication, to the maximum extent practicable, with appropriate provisions of the Clean Air Act (42 U.S.C. 1857 and following)..."

However, Dow does understand that unless these excluded comparable fuels are burned in units that are controlled under the CAA by federal, state, or local officials, or in units where a decision has been made that such controls are not necessary, there is nothing that would mandate that such materials be burned in units whose emissions are appropriately controlled. Therefore, Dow is recommending that the additional comparable fuel specification include a requirement that any comparable fuel that is excluded from the definition of solid and hazardous waste only be burned in units that have their air emissions controlled by a federal, state or local entity or where the regulator has determined that the emissions from the unit

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need not be subject to control.[23] In this way, the Agency can be assured that criteria pollutants (and other parameters) are adequately controlled, while at the same time avoid needless duplicative regulation. [Footnote 23: Dow would also recommend placing this limitation in EPA's proposed approach and dropping the specification for nitrogen as previously discussed.]

6. The Material Must Be Burned In A Unit That Monitors Continuously For Carbon Monoxide (CO) And Must Meet A CO Level of 100 ppm: Generally accepted combustion theory suggests that low CO levels indicate a device (whether a boiler, industrial furnace or incinerator) that is operating at high combustion efficiency helps to minimize emissions of unburned (or incompletely burned) organics.[24] (See, for example, 52 FR 16998, May 6, 1987, where it states, "Low CO is an indicator of the status of the CO to C02 conversion process, the last, rate-limiting oxidation process. Since oxidation Of CO to C02 occurs after destruction of the POHC and its (other) intermediates (PICs), the absence of CO is a useful indication of POHC and PIC destruction.") In fact, EPA has been regulating CO levels for hazardous waste combustion units for many years as a way of assuring good combustion conditions. Therefore, Dow agrees with EPA that units that achieve low CO levels are destroying toxic organic constituents to a level that is protective of human health and the environment. [Footnote 24: The converse of this may not hold; that is when CO is high, the unit may or may not be minimizing PICS.]

Dow also believes that using CO as a surrogate for toxic organics is preferable to the approach the Agency has taken in its proposed comparable fuel specification -- that is, to require the comparable fuel to only contain hazardous constituents that are typically found in fossil fuel and to analyze such material for each toxic constituent and determine its content. Our primary basis for taking this position is that it would allow additional materials that are fuel-like to be excluded as comparable fuels (and thus, be of greater utility to the regulated industry), while still providing protection to human health and the environment. As the Agency itself recognizes, combustion units that achieve low CO levels minimize emissions. Thus, provided certain other contaminants (i.e., toxic metals and halogens) are adequately controlled, Dow believes that controlling CO at a combustion unit is as protective (if not more so because the Agency would have continual data on the emissions from the combustion device) as the approach that the Agency proposed in identifying comparable fuels. In addition, the alternative approach would streamline testing and recordkeeping requirements on the regulated community and thus, be consistent with the Administration's goal of reducing the burden imposed on the regulated community.

With respect to the specific limit, Dow is recommending that the additional comparable fuel specification adopt a CO level of 100 ppm, which is the value that the Agency has proposed and promulgated in previous regulations, including the proposed MACT emissions rule for hazardous waste combustors.[25] Such a level is indicative of steady-state (i.e., normal) efficient combustion conditions and one that most combustion units can easily meet. [Note: Because the Agency has routinely adopted a CO level of I 00 ppm, Dow believes it unnecessary to provide further support of a 100 ppm limit in our comments. However, if EPA believes that such support is needed, Dow would request the Agency to advise Dow so that such additional information can be provided.] In addition, given that CO is a sensitive

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indicator of overall combustion conditions, Dow believes that a time weighted-average limit be adopted as opposed to fixed limits. Thus, Dow would recommend that the CO specification be 100 ppm, monitored continuously using a one hour rolling average. In this way, the Agency can be assured that toxic organics are continually and adequately destroyed in materials that are fuel-like. [Footnote 25: Such a limit would be based on a flue gas oxygen content of 7 percent.]

7. <u>The Material Must Contain No More Than 20 Percent of Appendix VIII Hazardous Constituents That Are Not Typically Found In Fossil Fuel:</u> As discussed in the previous sub-section, Dow believes that any combustion unit that hums a comparable fuel and maintains a CO specification of 100 ppm, monitored continuously using, a one hour rolling average is protective of human health and the environment.[26] However, Dow is mindful of the fact that burning such materials without putting a limit on the amount of Appendix VIII hazardous constituents that are not typically found in fossil fuel may be of concern to the Agency, as well as to the public. Therefore, as an additional limitation and precaution, Dow is suggesting that the additional comparable fuel specification include a maximum limit on the amount of Appendix VIII hazardous constituents that are not typically found in fossil fuel. [Footnote 26: This statement also assumes that the material meets the other criteria for the additional comparable fuel specification.]

In establishing such a limit, Dow was careful to balance a number of considerations, that would allow the level to be high enough to be of utility to the regulated industry, while at the same time, not so high that such a limitation would be meaningless. Therefore, based on a number of factors, Dow is recommending that the additional comparable fuel specification limit the amount of Appendix VIII hazardous constituents that are not typically found in fossil fuel to 20 percent.[27] Dow believes that such a limitation is reasonable considering: (1) the great majority of the comparable fuel (80 percent would still be comprised of non-hazardous constituents or hazardous constituents that are typically found in fossil fuel and (2) such a level would provide greater opportunities for the regulated community to burn fuel-like materials that are low in toxic metals and halogens. Moreover, as indicated above, this limitation is not necessary from a technical standpoint, but more from a public policy standpoint. Therefore, Dow would agree with a 20 percent limit being imposed collectively for those hazardous constituents that are listed on Appendix VIII of Part 261 that are not typically found in fossil fuel. [Footnote 27: This limitation would apply to all hazardous constituents that are listed on Appendix VIII of Part.261, unless there is another limitation contained in the specification. That is, any specific limitation (i.e., total halogen level) would govern.] In summary, Dow would strongly encourage the Agency to promulgate the additional comparable fuel specification. Dow believes that the additional approach would meet EPA's overall goal in developing a comparable fuel exclusion -- that is, to provide a specification that would be of greater utility to the regulated community, while still ensuring the protection of human health and the environment.

D. Implementation of the Additional Comparable Fuel Specification

Dow believes that the implementation scheme for the proposed comparable fuel exclusion is generally applicable (as revised per Dow's comments) to the additional comparable fuel specification recommended by Dow. However, a number of points should be noted:

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- Because the additional comparable fuel specification would not require the generator (or any other person) to conduct a detailed compositional analysis of the material and determine which hazardous constituents are present, the issue of testing (and what has to be tested for) becomes much easier to address. Thus, under this approach, Dow could support an annual testing requirement for toxic metals, total halogen, and a general analysis to ensure that no greater than 20 percent of the comparable fuel is made up of Appendix VIII hazardous constituents that are not typically found in fossil fuel.
- Because the specification would allow the generator to enter into a contractual arrangement with the burner to qualify for the exclusion, Dow would suggest that the contract be retained by both the generator and burner for 3 years, in addition to any other information, such as analytical results required under EPA's proposed implementation scheme.
- To ensure that a person does not blend or dilute the comparable fuel to meet any of the specific toxicant limits (i.e., for toxic metals, total halogen, and the 20 percent limitation on non-fuel Appendix VIII hazardous constituents), Dow would support and recommend a provision that would prohibit any person from blending a material to meet the additional comparable fuel specification. [Note: Because the additional comparable fuel specification does not include specifications for the physical parameters, a total ban on blending would be appropriate.]

CFG.35.b(commenter 111)

However, we question whether EPA's suggested approach best meets its stated objective of real usability with no greater risks and believe that an alternate but similar approach might meet the twin tests of efficacy and assurance of no greater risk than fossil fuels more effectively.

CFG.36(commenter 112)

A. The fuel specifications should be based on a total Appendix VIII constituent mass approach

EPA's petroleum-based, constituent-by-constituent approach does not work, because it does not account for the different composition of various candidate fuels compared to petroleum-based benchmarks. Consequently, the proposed benchmarks do not satisfy EPA's "desir[e] to provide constructive relief to the regulated community by having a comparable fuel specification that can be used in practice." 61 Fed. Reg. 17,463.

Instead, EPA should use a "total mass" approach in which the combined mass of Appendix VIII constituents in benchmark fuels is compared to the combined mass of such constituents in candidate fuels. This approach accommodates differences in fuel composition, while insuring that the total mass of UCs introduced into combustion devices by candidate fuels is no greater than with commercial fossil fuel. The total mass approach achieves EPA's goal of limiting the amount of hazardous constituents in alternative fuels to that in virgin fuels and, at the same time, avoids the petroleum-centric problem discussed above, which is created by using only liquid fossil fuels as benchmarks. This maximizes flexibility for the regulated

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community, without any increase in potential risk to human health and the environment.

In fact, EPA's discussion of "environmental loading" in connection with its discussion of normalizing heating values to 10,000 BTU/lb presaged AF&PA's suggested total mass approach. In the preamble, EPA explained that the 10,000 BTU normalization requirement insures that "a facility that burns a comparable fuel would not be feeding more total mass of hazardous constituents than if it burned fossil fuels." 61 Fed. Reg. 17461 (emphasis added). AF&PA's total mass proposal merely extends the concept introduced by EPA to the entire comparable fuels benchmark approach.

The data in Tables 1 and 2, below, illustrate how the total mass approach would work using turpentine (Table 1) and methanol-based kraft mill condensates (Table 2) as candidate comparable fuels. Table 1 compares the mass of Appendix VIII, constituents in turpentine and condensates to that found by EPA in its analysis of gasoline, No. 2 fuel oil, and the 90th percentile composite benchmark. The turpentine and condensates analytical data are derived from sampling and analytical work performed by NCASI. The complete data set and QA/QC details for these analyses are attached to these comments in Appendices A (turpentine) and B (condensates). The data about gasoline, No. 2 fuel oil, and the 90th percentile composite fuel are taken from Tables l (gasoline), 2 (No. 2 fuel oil), and 6 (composite fuels-90%) in the proposed rule. 61 Fed. Reg. 17481 (gasoline), 17483 (No. 2 fuel oil), and 17492 (90th percentile composite fuel).

Table 1 sums the Appendix VIII metals, organics, and non-detects (reported at the detection limit) found in five samples of turpentine and compares them to the same values for EPA's analysis of gasoline, No. 2 fuel oil, and the composite fuel 90th percentile benchmark. Table 2 shows the same values for three samples of condensates. All results are normalized to 10,000 BTU/lb.

The total metals plus non-detects in turpentine are from one to three orders of magnitude lower than each of the EPA benchmarks; the condensates are two to four orders of magnitude lower than EPA benchmark fuels. Similarly, the Appendix VIII organics plus non-detects in turpentine range from one to two orders of magnitude below those in the EPA's benchmarks; the condensates are two to three orders of magnitude lower than EPA benchmarks. In addition, Tables 1 and 2, [see hard copy of comment RCSP-112 for Tables 1 and 2], show that turpentine and condensates contain fewer Appendix VIII constituents than any of the EPA benchmarks discussed above. Thus, if a facility uses turpentine or condensates as a comparable fuel, it "would not be feeding more total mass of hazardous constituents than if it burned fossil fuels." 61 Fed. Reg. 17,461. In fact, use of turpentine or condensates substantially lowers the mass of Appendix VIII constituents introduced into a combustion device compared to the fossil fuels EPA proposed as benchmarks.

Nonetheless, neither turpentine nor condensates would satisfy the petroleum- centric, constituent-by-constituent approach proposed by EPA, because -- to state the obvious -- turpentine and condensates are not fossil fuels. Both are wood-based and naturally contain materials not found in fossil fuel, and vice versa.2 But this doesn't mean that turpentine or condensates are less worthy of an exclusion than are benchmark fuels; it means merely that they are different from benchmark fuels. In fact, use of turpentine of condensates should pose less risk than burning fossil fuel, because they contain less mass of Appendix VIII constituents

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and fewer of them than do EPA's benchmark fuels.

Moreover, the total mass approach does not suffer from the statistical flaw that invalidates EPA's constituent-by-constituent comparison.

In short, the total mass approach suggested by AF&PA better achieves EPA's desire "to insure that the release of toxic compounds is not increased significantly by burning comparable fuels in lieu of fossil fuels," than does EPA's approach. 61 Fed. Reg. 17,463. EPA should, therefore, adopt a total mass-based exclusion in the final rules.

[Footnote 2: For example, the five turpentine samples analyzed by NCASI have acetophenone concentrations ranging from 78 mg/l to 603 mg/I. Acetophenone is rich in fuel value and contributes substantially to the Btu content of turpentine. EPA reports that the gasoline it sampled does not contain this chemical, at least at the detection limits used by EPA. Significantly, the detection limit reported by EPA for acetophenone is 670 mg/kg, which far exceeds the highest concentration of this chemical reported for turpentine.]

Response:

At this time, EPA is unable to consider an alternative approach to the proposed comparable fuels approached. In particular, EPA is concerned about the total mass approached described in both the Dow and AF&PA alternative approach. Under the total mass approach, the combined mass of Appendix VIII constituents in benchmark fuels is compared to the combine mass of such constituents in candidate comparable fuels. EPA is concerned that the total mass approach could lead to situations where one or more highly toxic compounds found in the benchmark fuel at low concentrations could dominate the total mass of the candidate fuel because it had low concentrations of the other Appendix VIII constituents. EPA would be unable to determine the risk associated with this situation because the candidate comparable fuel would no longer be comparable to the benchmark fuel.

EPA is also concerned about any approaches that would require the monitoring of CO. If the Agency were to develop an alternative approach that is based on monitoring emissions, the implementation details to ensure proper combustion of the candidate comparable fuel would be numerous. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste. This eventuality is viewed as both potentially unworkable and very difficult to implement and enforce.

Therefore, EPA is not inclined at this time to consider developing an alternative approach. At some future point, EPA may be able to address aspects of the commenter's recommendations if appropriate and feasible.

2. Should consider alternative risk-based approaches.

CFAP.04.a(commenter 110)

IV. EPA CAN AND SHOULD PROMULGATE AN ALTERNATIVE EXEMPTION THAT MORE DIRECTLY CONSIDERS RISK AND OTHER FACTORS IN COMPARING A HAZARDOUS WASTE FUEL TO A GIVEN FOSSIL FUEL

The published analyses for the benchmark fossil fuels indicate that only a very limited number

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of Appendix VIII constituents are present (i.e, above detection limits in a given fossil fuel). Similarly, analyses of the Coalition members' streams also found only a very limited number of Appendix VIII constituents above their respective detection limits. However, in almost all cases, the detected constituents in the candidate streams are not the same constituents found in the benchmark fossil fuels. Thus, under EPA's proposed exemption, any detected constituent concentration in the candidate stream will disqualify that stream from the comparable fuels exclusion except in the relatively rare case where that same constituent also is found in the benchmark fossil fuel. Consequently, under the proposed comparable fuels exemption, a given candidate stream must represent a significantly lower risk than (not just the same risk as) a benchmark fossil fuel. This ultra- conservative and overly simplistic approach results in severely limiting the usefulness of the proposed exemption to the regulated community.

For example, the Coalition's members have candidate streams that generally have very low levels of Appendix VIII constituents and would be expected to pass any clean fuels exemption that would have significant use and meaning to the regulated community. However, of the CCF streams which have been fully tested and compared to the six proposed benchmarks, it is not clear that any will qualify under EPA's current proposal.

As a means of broadening the usefulness of the proposed comparable fuels exemption to the regulated community while protecting human health and the environment, the Coalition for Clean Fuels has offered above a number of specific suggestions to revise the agency's proposed approach. However, in addition to those suggestions, the Coalition offers the following approaches to framing an exemption that draw on the agency's approach to the comparable fuels exclusion. EPA has accepted the concept of comparing-the approximate relative risk of a candidate clean fuel to that of a benchmark fossil fuel or composite. The agency has adopted the concentration of Appendix VIII constituents as the sole basis for comparing relative risk. In the approaches recommended below, the Coalition for Clean Fuels has included in one case additional factors that increase the accuracy of the relative risk comparison. In the other approach, actual stack emissions and their risks are compared, thus avoiding the need to make numerous assumptions concerning what theoretically might occur in the combustion process. The CCF believes that both approaches are practical, environmentally protective and useful to the regulated community.

CFAP.04.b(commenter 110)

Approach 1: Bridging the analysis of a candidate stream to a comparable fossil fuel based on individual Appendix VIII constituent's (a) concentration,(b) incinerability, toxicity, and (d) bioaccumulation tendency.

With this approach, EPA would publish a score for each fossil fuel using the procedure outlined below. The regulated community would score each candidate comparable fuel using the same procedure. If the candidate stream has the same or a lower score, then the candidate stream would qualify as an exempted comparable fuel.

A significant advantage of this approach is that it is based on relative risk, not absolute risk, i.e., any inaccuracies in the method would apply equally to both the candidate stream score and the benchmark fossil fuel score. Further. it is not necessary to define what the score means (i.e., in terms of absolute risk, chemistry, physics, or biology) other than to say that the scores represent a generic comparison of risk.

The procedure for calculating the score is largely based on the concepts and approach provided in EPA's draft Guidance: "Implementation of Exposure Assessment Guidance for RCRA Hazardous Waste Combustion Facilities" (revised April 15, 1994), pages B-15 and B-16. A copy of the document is attached as Exhibit F for convenience and incorporated in these comments by reference.

On Page B-15 the following equation is provided:

QCB= (FR) (SF) (Log Kow)

Where: QCB= Quantity/carcinogenic potency/bioaccumulation potential score

FR= Feed rate (or annual quantity burned)

SF= Slope factor (oral or inhalation, whichever is higher)

Log Kow = The logarithm of the octanol-water partition coefficient, which is related to a chemicals bioaccumulation potential in milk and meat.

This scoring procedure was developed by EPA to rank waste streams for inclusion in a worst-case trial burn waste mix, the streams with the highest ranking would be fed during a trial burn in which stack emissions data would be collected for use in a comprehensive risk assessment. (A similar equation is provided at the bottom of Page B-15 for non-carcinogenic constituents.) We propose to modify this approach slightly to better represent the circumstances that would apply to a comparable fuels exemption:

QCB= (CC) (SF) (Log Kow)

Where: QCB=Quantity/carcinogenic potency/bioaccumulation potential score

CC=Constituent concentration, ppmw

SF=Slope factor (oral or inhalation, whichever is higher)

Log Kow= The logarithm of the octanol-water partition coefficient, which is related to a chemicals bioaccumulation potential in milk and meat.

The same revision would be made to the equation for non-carcinogenic constituents given at the bottom of Page B- 15. A score would be calculated for each constituent for which a concentration was detected; non-detects would be taken as zero for both fossil fuels and wastes. The individual constituent scores would be totaled to produce an overall score. Also, a term to reflect the relative incinerability of each constituent could be added if necessary to reflect the relative fates of each organic constituent as it passes through the combustion process. The University of Dayton Research Institute Incinerability Ranking System would be a suitable basis for this factor because: (a) it exists today and is widely known by both the Agencies and the regulated community, (b) data are available on many Appendix VIII compounds and can be readily calculated for constituents for which rankings are not already available, and since this is also a relative ranking approach inaccuracies, if any, would occur with both benchmark fuels and candidate streams and, thus, would cancel out.

CFAP.04.c(commenter 110)

Approach 2: Stack testing/risk assessment model. In this approach EPA would develop a generic comprehensive risk assessment model. Each generator would qualify his/her candidate stream by conducting two stack tests at the same test conditions but with two fuels: (a) the

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candidate stream, and (b) the benchmark fossil fuel of interest. Other test conditions such as feed rate, temperature, etc., would be agreed by the generator and the Agency and would apply to both the fossil fuel and the candidate stream tests.

The emissions from the fossil fuels test would be used to calculate a benchmark risk. Then the emissions data for the candidate stream test would be used in the model to calculate the candidate stream risk. If the risk with the candidate stream is less than or equal to the fossil fuel based risk, then the candidate stream would pass and would be exempted from RCRA Subtitle C.

The Coalition for Clean Fuels believes that the two approaches outlined above are illustrative of how EPA could, with relatively modest expenditure of time and effort, develop and implement an exemption for the burning of clean hazardous waste fuels that take account of relative risks and other pertinent comparative information in a more meaningful way than the current proposal.

Both approaches draw on EPA's concept of assessing the comparative risk of a given candidate clean fuel in relation to one or more benchmark fossil fuels. However, both approaches suggested in these comments reduce the uncertainty in this comparison by introducing additional aspects of a legitimate comparison of risk or by reducing the number of stated or implied assumptions. The first approach incorporates constituent-specific estimates of toxicity/bioaccumulation potential and incinerability. The second approach incorporates actual emissions data into a comprehensive risk assessment model.

The Coalition recognizes that any such approach, which differs from the Proposed comparable fuels exemption, would require further pre-proposal work by the agency and an opportunity for public comment. However, for the reasons discussed in the preamble and in Section II of these - comments, it is appropriate, and important, for an exemption providing meaningful relief to be promulgated now. Therefore, the Coalition believes that while it is working on an a more comprehensive risk-oriented approach to an exemption, it also must proceed to complete the rulemaking it has initiated and promulgate a comparable fuels exemption with the specific changes recommended in Section III of these comments, as soon as possible.

Response:

The Agency maintains that a risk-based alternative would be inappropriate and infeasible at this time. EPA is declining to adopt an alternative approach that is based on a comparison of either emissions or the risk from emissions. This is because of a number of technical and implementation problems with using a purely risk-based approach, such as the technical complexity and inability to adequately model the risks from all potential burners of an unregulated hazardous waste fuel.

An alternative approach that is based on a comparison of either emissions or the risk from emissions would likely be both technically unwarranted and administratively infeasible. This would put EPA administratively in the position of attempting to create a defensible and consistent set of specifications based on considerations of comparative emissions and risk, a position that EPA has indicated is infeasible at this time. EPA has chosen the comparable fuel approach precisely to avoid having to base an exclusion from RCRA regulation on the risks

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associated with burning individual hazardous compounds in a host of uncontrolled settings. If the Agency were to develop an alternative approach that is based on a comparison of either emissions or the risk from emissions, the implementation details to ensure proper combustion of halogenated wastes would be numerous. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste. This eventuality is viewed as both potentially unworkable and very difficult to implement and enforce.

The Agency notes that it has not foreclosed individual risk determinations, and indeed have recently finalized such an exclusion in the pulp and paper MACT standard. However, such determination involve knowledge and consideration of a lot of site specific factors (i.e., combustion temperature and residence times, risks associated with different combustion options, overall emission of criteria-pollutants), and thus pose highly resource-intensive determinations. EPA believes it is more appropriate at this time to implement a scheme that can be feasibly applied on a national basis, and to devote further effort at the longer-term goal of a risk-based exclusion for certain fuels (or potentially, a national risk-based exclusion).

Therefore, EPA is not inclined at this time to consider developing an alternative approach that is based on a comparison of either emissions or the risk from emissions as part of its final deliberations on the comparable fuel exclusion. At some future point as the state of risk science evolves and as our understanding of emissions from a wider variety of sources grows, EPA may be able to address aspects of the commenter's recommendations if appropriate and feasible.

3. Emissions testing program

GEN1.188(commenter 204)

Fina offers these comments to EPA on the proposed technical standards for hazardous waste combustors for the following three reasons:

1. APS is a very clean burning fuel that poses less risk to the environment than does the combustion of comparable commercially available fuels. Thus, combustion of APS should not be subject to the hazardous waste combustion regulations. However, APS does not meet the proposed fuel specification for several reasons. Fina hopes to convince EPA through these comments to revise the clean fuel specification so it includes APS.
2. Train B is considered an incinerator subject to the proposed MACT standards. If EPA does not amend the comparable fuel specification, then Fina will have to spend significant resources to upgrade the monitoring and control systems to comply with the rule. Since the Atactic Combustion System emits virtually no hazardous air pollutants, none of these upgrades will reduce pollution. Further these upgrades will be infrequently operated. EPA's board proposal that all hazardous waste incinerators are major sources regardless of emission rate disturbs Fina.
3. Train A is considered a boiler subject to the BIF rule. If EPA does not amend the comparable fuel specification, then Fina will have to spend significant resources to upgrade the monitoring and control systems of Train A to comply with the technical amendments to the BIF rule. Fina believes that some of the proposed technical amendments appear to be

inappropriate. For the reasons described previously, DRE presents the following comments on behalf of the polypropylene production facility of Fina Oil and Chemical Company in La Porte, Texas.

CFG.65(commenter 204)

2. Comparable Fuels Comments

Fina believes the proposed comparable fuels exclusion does not include a number of waste derived fuels that pose little danger to human health and the environment. The APS burned by Fina does not meet EPA proposed exclusions for the following reasons:

1. APS contains chloride levels that exceed the 10-25 ppm criteria in the proposal.
2. APS does not meet the viscosity limit under the conditions EPA has proposed for measurement.
3. APS has a low flash point due to its content of propane, propylene, ethane, and ethylene. In a desire to respond positively and constructively to EPA's proposal, Fina has undertaken an extensive analysis of the APS combustion process in order to demonstrate that APS meets the goals EPA has established for the comparable fuels exclusion. EPA presents its goals on page 17459 as following:

EPA's goal is to develop a comparable fuel specification which is of use to the regulated community but assures that an excluded waste is similar in composition to commercially available fuel and poses no greater risk than burning fossil fuel.

Towards the end of supporting EPA's goal, Fina has conducted an extensive series of emissions tests for organic products of incomplete combustion on both APS and #2 fuel oil. The results of this testing demonstrate that APS is a cleaner fuel than #2 fuel oil. In this way, Fina demonstrates that combustion of APS poses no greater threat than combustion of #2 fuel oil. In fact, the combustion products of APS contain significantly lower levels (i.e., an order of magnitude) of hazardous air pollutants than do the combustion products of #2 fuel oil.

GEN1.189(commenter 204)

2.1 Background

Fina promptly reviewed the proposed comparable fuel specification when it was made available to the public over the Internet. Laboratory analysis reconfirmed that the total chloride limit would disqualify APS from the proposed comparable fuels specification. Fina then planned an extensive emission testing program that would conclusively demonstrate that combustion of APS presented less risk than combustion of a comparable commercial fuel.

This testing plan was presented to EPA by a letter to Mr. Larry Denyer dated June 4, 1996 (see Appendix 2 on page 47). [See hardcopy of Comment RCSP-204 for Appendix 2 on Page 47] This letter prompted a meeting with Mr. Robert Holloway and Mary Krolewski at EPA Headquarters in Crystal City, Virginia on June 26, 1996. The agenda for this meeting is presented in Appendix 3 (see page 51). In addition, a summary of waste analysis data was presented to EPA (see Appendix 4 on page 54).

Ron Copeland of Fina and Rich Hill of DRE attended this meeting. Mr. Steve Lanier of EER Corporation participated in the meeting via speaker phone. EER is one of EPA's technical contractors on the proposed rule. This face-to-face meeting was followed up with a

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telephone conference call the following day that included Russell Diraimo of Maxim Technologies, who was Fina's stack testing contractor for this project. Mr. Holloway was unavailable for the follow- up conference call.

This meeting produced the following results from Fina's perspective:

1. EPA would neither encourage nor discourage Fina's efforts in this matter.
2. Mr. Holloway personally considered as plausible Fina's contention that combustion of APS produced little or no environmental risk.
3. EPA did not believe that crafting a comparable fuels exclusions of use to Fina was reasonably possible due to problems of administration and policy.
4. Mr. Holloway also allowed that further testing of the APS combustion process for the presence of dioxins/furans was unnecessary.
5. Given the current state of Fina's knowledge of the combustion by-products of APS, testing for the other organic products of incomplete combustion (i.e., VOST and semi VOST) would be appropriate.
6. Comparison testing of a commercially available fuel and APS for PICs may provide an interesting juxtaposition.
7. Several technical issues including sampling interval, detection limit, and reference methods were also discussed.

As a result of these meetings, Fina amended its sampling plan and conducted the emissions testing over the weeks of July 1 and July 22. These comments present the results of this sampling and analysis.

CFG.66(commenter 204)

Fina has analyzed #2 fuel oil as part of its comparable fuel testing program. Table 1 [See hardcopy of Comment RCSP-204 for Table 1] contains a listing of those compounds found in the #2 fuel oil that was burned during the emission testing program. Appendix 6 [See hardcopy of Comment RCSP-204 for Appendix 6} contains a printout of the analytical sampling report for #2 fuel oil. Note that the reported levels of organics are far in excess of those found in APS.

CFG.67(commenter 204)

2.2.3 Kerosene

In the preamble, EPA requested data on commercially available fuels such as kerosene. Fina is supplying the results of recent analysis of kerosene used by the plant. This analysis can be found in Appendix 6. Since Fina uses kerosene to flush feed lines and reaction vessels throughout the plant, the APS feed will contain small amounts of kerosene. The kerosene contributes the greatest source of hazardous organics to the combustor with its elevated levels of naphthalene, methyl naphthalene, toluene, and ethyl benzene. The fluorine concentration of 69 ppm appears consistent with EPA's proposed fluorine specification. [See hardcopy of Comment RCSP-204 for Table 2 Kerosene Analytical Results]

Response:

EPA recognizes that the commenter’s waste stream is unlikely to meet the comparable fuels

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exclusion due to the inorganic halogen content of the waste. EPA has reviewed the commenter's emissions testing program and has drawn the following conclusions. Very complete combustion was achieved for both the APS and No. 2 fuel oil conditions (low CO, no detectable semi-volatile organics (SVOCs), and detection of only a couple of volatile organic (VOCs) at low levels). A small amount of PICs were generated from either of the feed types.

However, EPA had some concerns about the analysis. The reported detection limits for each of the SVOCs of around 20 µg/dscm were on the high side. Less than 3 µg/dscm per SVOC is typical (readily achievable) with the SW-846 8270 analytical technique. Sampling train time and volume were sufficient, therefore the analytical method is not as sensitive as possible. The SW-846 8270 SVOC scan was not comprehensive. There are many other SVOCs that are typically including in the SVOC analysis, including PAHs (including fluorene, anthracene, pyrene, and methyl-naphthalene, and acenapthanes), oxygenated PAHs (such as fluorenone and benzophenone), and other compounds including dioxane, nitrobenzenes, quinone, quinolines, nitrophenols, and chlordane.

EPA notes that VOCs were detected for the APS, thus supporting EPA's position for the need for a total halogen specification because inorganic chlorides can lead to the formation of products of incomplete combustion (PICs) (see total halogen comment response for further discussion). For APS tests, three VOCs were detected: chloromethane, 1-2 dichloropropane, and benzene. For the No. 2 fuel oil tests, four VOCs were detected: chloromethane, benzene, allyl chloride, and hexane. Chloromethane during the fuel oil testing was detected at a level of about 0.5 of that of the APS testing. Alternatively, benzene was detected at a level of about 100 times higher during the fuel oil tests compared with the APS testing. The VOC scan was comprehensive and detection limits were adequate.

Thus, based on the data received, the APS has been shown to burn similar with No. 2 fuel oil when good combustion conditions are being achieved. Under good combustion conditions, the higher chlorine level of APS does not have an apparent impact on the emissions of chlorinated PICs compared with lower chlorine No. 2 fuel oil, which is not unexpected. However, if a comparable fuel exemption was granted and the facility had no limits on operating conditions, there is no guarantee that these optimum combustion conditions will be maintained at all times. Under less optimum combustion conditions (higher CO, insufficient oxygen and mixing, etc.), the higher chlorinated APS may have higher chlorinated PIC emissions. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste.

The Agency maintains that a emissions comparison alternative would be inappropriate and infeasible at this time and is declining to adopt an alternative approach. This is because of a number of technical and implementation problems with using an emissions comparison approach. These implementation problems include how to ensure proper combustion to prevent PIC formation. EPA has chosen the comparable fuel approach precisely to avoid having to base an exclusion from RCRA regulation on the risks associated with burning individual hazardous compounds in a host of uncontrolled settings.

The Agency notes that it has not foreclosed individual risk determinations, and indeed have recently finalized such an exclusion in the pulp and paper MACT standard. EPA believes it

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is more appropriate at this time to implement a scheme that can be feasibly applied on a national basis, and to devote further effort at the longer-term goal of a risk-based exclusion for certain fuels (or potentially, a national risk-based exclusion).

4. CMA Clean Fuel Proposal

Response:

NOTE: The following responds to all of the comments below supporting or opposing the Chemical Manufacturing Associations "clean fuels" approach.

EPA considered using risk to human health and the environment as the way to determine the scope and levels of a "clean fuels" specification. However, the Agency encountered several technical and implementation problems using a purely risk-based approach to develop a national rule using a risk-based approach. Specifically, EPA has insufficient data relating to the types of waste burned and the risks they pose to develop a fully protective and complete "clean fuels" exemption. EPA also does not have sufficient data to determine the relationship between the amount of "clean fuel" burned and emissions, especially dioxins and other non-dioxin PICs. EPA also does not know how emissions (likely uncontrolled) at the multitude of actual facilities that would burn an exempt fuel would compare to emissions from the example facilities that EPA would use to derive a "clean fuel" specification. (Emissions and/or risks at a given facility could be higher than those of the example facilities given site-specific considerations.) Without considering all possible emission scenarios, which is not feasible for the Agency at this time, the Agency is not prepared today to address these potential risks[1].

Similarly, the Chemical Manufacturers Association (CMA) submitted a proposal to exempt certain "clean" liquid wastes from RCRA regulation. (61 **FR** at 17469) The CMA approach would establish "clean fuel" specifications for mercury, LVM, and SVM metals based on the technology-based MACT emissions standards proposed for hazardous waste combustors on April 19, 1996. Several commenters submitted data to substantiate the claim that "clean fuels" would not pose a risk. However, the Agency does not believe that this data alone, or in addition to data possessed by the Agency documents that emissions from burning a "clean fuel" would not pose a significant risk for the potential combustion and management scenarios in which the clean fuel exclusion from RCRA might be used. Therefore, EPA is not be adopting CMA's proposal in today's rule.

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[1] It is possible to determine on an individualized basis that particular waste-derived fuel should be excluded from RCRA on risk-based grounds. See 61 FR at 9396-97 (March 8, 1996) where EPA proposed such an exclusion for a waste fuel which could be generated by the pulp and paper industry. However, EPA cautions that making such a demonstration is difficult (because of potential uncertainties regarding combustion conditions and exposure patterns) and resource intensive for the Agency to evaluate and would still involve rulemaking.

Comments:

CFCMA.1(commenter 097)

IX. Miscellaneous

A. CMA's proposal adequately addresses organics.

1. A 100 ppmv CO limit is adequate to ensure destruction of organics.

EPA asks whether a CO limit (CMA's specification limits CO emissions to 100 ppmv) alone ensures adequate destruction of toxic organics in a clean fuel scenario (61 Fed. Reg. 17469). In preparing the emissions standards for hazardous waste burning boilers and industrial furnaces, EPA compiled and assessed data on typical PIC emissions from eight full-scale hazardous waste combustion sources (54 Fed. Reg. 43737, October 26, 1989). From this assessment, EPA concluded:

"Estimates of risk to public health resulting from PIC's based on available emissions data, indicates that PIC emissions do not pose significant risks when incinerators are operated under optimum conditions."

EPA reaffirmed this conclusion when it promulgated the final BIF rule n February 21, 1991 (56 Fed. Reg. 7150). However, EPA recognized that available PIC data was limited and that assessment of risks posed by PIC emission was difficult and incomplete. As result, EPA expressed continued concern over the health effects of PIC emissions and stated:

"Considering the uncertainties about PIC emissions and their potential risk to public health, it is therefore prudent to require that boilers and industrial furnaces operate at high combustion efficiency to minimize PIC emissions. Given that carbon monoxide (CO) is the best available indicator of combustion efficiency, and a conservative indicator of combustion upset, we are proposing to limit the flue gas CO levels to levels that ensure PIC emissions are not likely to pose unacceptable health risk" (54 FR 43737). (Emphasis added)

"By definition, low CO flue gas levels are indicative of boiler or industrial furnace (or any combustion device) operating at high combustion efficiency. Operating at high combustion efficiency helps ensure minimum emissions of unburned (or incompletely burned) organics." (54 Fed. Reg. 43737)

EPA's investigations indicate that organic emissions can be limited to levels that pose little risk to human health and the environment when combustion devices are operated at high combustion efficiencies, and that CO is the best indicator of combustion efficiency. EPA found that a CO emission level of 100 PPMV was indicative of good combustion efficiency:

"The Agency is confident that the BIF rule is protective because the Agency has determined that, when CO levels are less than 100 ppmv, PIC emissions do not pose significant risk. Thus, although the 100 ppmv limit is not a best demonstrated technology-based limit (many BIFs {and hazardous waste incinerators} readily operate at CO levels well below 100 ppmv), the 100 ppmv CO limit will ensure protection of human health and the environment." (56 Red. Reg. 7151-7152)

While the current proposal expresses new concern about the adequacy of CO in assuring good combustion. These concerns are unfounded as explained in section 4.a. above.

Vulcan Chemicals believes that proper destruction of organics is assured by (1) the 100 ppmv CO emission limit, (2) limiting the exclusion to fuels that are "clean" (e.g., limited chlorine,

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ash and metals content and no inherently waste-like or acutely hazardous wastes, and (3) other operational requirements specified in CMA's proposal that facilitate good combustion (e.g., liquids only, maximum viscosity limit, and minimum heating value). No additional controls are needed.

2. Neither DRE testing, HC limits, nor site specific risk assessment should be required for CMA's clean fuels approach, or any other.

EPA specifically asks for comment on the following additional controls:

a) DRE testing.

Vulcan Chemicals does not believe that DRE testing is needed for clean fuels. As part of its development of the February 21, 1991 BIF rule, the Agency conducted field tests on 11 full-scale industrial boilers and 12 industrial furnaces. Among the results of these tests (summarized at 52 Fed. Reg. 16995, May 6, 1987) were:

"Boilers and industrial furnaces can be operated to achieve 99-99 percent DRE of POHCs considered difficult to destroy-carbon tetrachloride, chlorobenzene, trichloroethylene, and tetrachloroethylene."

"Boilers co-firing hazardous waste fuels with fossil fuels where the hazardous waste provides less than 50 percent of the boiler's fuel requirements can achieve 99.99 percent DRE of POHCs under a wide range of operating conditions (e.g., load changes, waste feed rate changes, excess air rate changes)." (emphasis added)

"When boilers and industrial furnaces are operated at high combustion efficiency, as evidenced by flue gas carbon monoxide (CO) levels of less than 100 ppmv, DREs exceed 99.99 percent ..."

EPA's data indicates that a 99.99% DRE can be readily met by a variety of combustion units over a wide range of operating conditions, when stack CO emissions are less than 100 ppmv. Results of h numerous trial bum tests of incinerators and BIFs conducted and supplied to the Agency over the last 5-7 years also verify that the DRE standard can be met with a wide range of combustion unit/waste combinations, even under worst-case trial bum conditions (e.g., difficult-to-bum waste feeds, elevated levels of ash, chlorine, and metals feed, worst-case operating conditions, etc.). Historical data indicates that one can expect, with a high degree of certainty, that high destruction and removal efficiencies will be achieved when clean fuels (a limited subset of the universe of hazardous wastes) are combusted in units operating with flue gas CO emission of 100 ppmv or less. Expensive and time-consuming DRE test demonstrations for clean fuels are not warranted.

B) Hydrocarbon limits.

Vulcan Chemicals believes that a 100 ppmv CO emission limit and a 20 ppmv HC emission limit are adequately sufficient indicators of good combustion efficiency. Monitoring for both should not be required. In the BIF studies referenced above, EPA concluded that:

"Although some emissions data indicate a weak correlation between CO and PICs, the data generally indicate that there is a relationship between the two parameters: When CO is low, PIC emissions are relatively low. The converse may not hold: when CO is high, PICs may or may not be high." (56 Fed. Reg. 7150, February 21, 1991).

Recognizing that CO levels above 100 ppmv are not necessarily indicative of poor combustion efficiency, EPA states:

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"... EPA believes that the CO limits should be flexible to avoid major economic impacts on the regulated community since no direct correlation has been established between the 100 ppmv CO limit and increasing health risks from PIC emissions." (56 Fed. Reg. 7153)

To achieve the desired flexibility, EPA promulgated the Tier II PIC control limits, which allow a facility to operate with CO levels higher than 100 ppmv if they monitor and control HC emissions to 20 ppmv or less. Thus, HC monitoring was provided as an optional alternative to the 100 ppmv CO limit, not as an additional mandatory requirement. EPA's data show that stack emissions of requiring both HC and CO monitoring would be duplicative and unnecessary. Installing and maintaining continuous emission monitors is expensive and can cause more unit downtime (CEM malfunctions, calibrations, etc.) The additional costs associated with installing and maintaining both CO and HC monitors is not justified for any waste combustor, particularly combustors burning clean fuels.

CMA's proposed clean fuel specification sets a 100 ppmv CO limit. Vulcan Chemicals believes that an optional 20 ppmv HC limit, in lieu of CO monitoring, would also be appropriate.

c) Site-specific risk assessment.

Site-specific risk assessment should not be required. Comprehensive site-specific risk assessments are very costly, resource intensive, and often controversial. A requirement to conduct site-specific risk assessments will likely offset the advantages of a clean fuels exemption for many facilities, severely reducing the utility of such an exemption.

CFCMA.3(commenter 102)

III. NACR Opposes the CMA's Clean Fuel Proposal.

The Agency specifically requests comment on the clean fuel proposal submitted by the Chemical Manufacturers Association (CMA). NACR believes the clean fuel proposal is ill-advised, and will create an unlevel competitive playing field for small businesses. NACR does not believe that relying on technology-based MACT emission standards is appropriate for establishing an exclusion from RCRA. Any exclusion from RCRA Subtitle C must ensure that an increased risk to human health and the environment is not created through the exclusion. The proposed rule does not address the issue of RCRA risk created by the exclusion.

We strongly urge the Agency to ensure that any exclusion from Subtitle C is justified on a risk basis. NACR shares the Agency's concerns over the unknown risk impacts of a clean fuel approach to a comparable fuel specification as described on page 17460 of the preamble. It is clear that the Agency has not fully developed the necessary risk analysis for the clean fuel (or the comparable fuels) proposal.

An additional issue specific to the CMA "clean fuel" proposal is whether a carbon monoxide (CO) limit is adequate to ensure destruction of toxic organics in clean fuels. NACR is concerned that the Agency might advocate that carbon monoxide is an appropriate indicator of PIC emissions, despite the fact that the Agency has based much of the rest of the proposed MACT rule on its belief that carbon monoxide is not an appropriate indicator of PICS. The agency has provided no documentation that the material which might qualify for a clean (or comparable) fuel specification is any easier to combust or any has any less tendency to form

PICs than material which would not qualify for the exemption. In fact, the Agency requests data which would document that emissions from burning a clean fuel would not pose any increased risk under the management scenarios considered. It is clear that there is currently no justification for applying different regulatory controls on the combustion of these materials. Such distinction should be eliminated in the absence of technical support. This is particularly important since exempt materials could go to combustion devices not covered by any CAA MACT standards.

CFCMA.4(commenter 106)

J. CMA Clean Fuel Proposal

ENSCO found several portions of the clean fuel proposal that we support as highlighted in the discussion above. In particular we applaud EPA for limiting the specification to liquids, wastes with ash content below 0.1% and excluding acutely toxic wastes such as P codes. We do not feel, however, that the CMA proposal adequately addresses other Appendix VIII toxic organic and metal constituents. ENSCO encourages EPA to promulgate limits on individual Appendix VIII organic constituents and metals using a benchmark approach relative to fossil fuel oil, as we have commented above. In addition, we maintain our position that the heat content minimum must be 10,000 BTU/lb. Otherwise, it is not technically valid to call the waste a fuel, consistent with standard engineering handbooks (see for example Perry's Chemical Engineering Handbook)

CFCMA.5(commenter 110)

V. THE PROPOSAL OFFERED BY THE CHEMICAL MANUFACTURERS ASSOCIATION ("CMA") IS A VALID ALTERNATIVE TO EPA'S PROPOSAL, WITH CERTAIN MODIFICATIONS

The Coalition has carefully reviewed the "Revised CMA Proposal for Clean Waste Fuels Exemption to RCRA," dated March 15, 1996. Because EPA's proposed benchmark approach would be of such limited utility,(unless the agency adopts most if not all of the modifications suggested by the Coalition, which we have no assurance will be the case), the CMA proposal presents an attractive alternative deserving of serious consideration. However, as is the case with EPA's proposal, some aspects of the CMA approach are not technically justified and would seriously limit its availability, with no countervailing environmental benefit.

The Coalition believes that the CMA approach has a number of advantages which include:

(1) Simplicity. It would be easy to implement correctly. The analytical complexity of the agency's approach would be avoided.

(2) Environmental Protectiveness. This approach is more protective than the corresponding technology and risk-based performance standards.

(3) Wider applicability- This approach, while being protective, does qualify some streams for exemption from RCRA Subtitle C that EPA's proposed benchmark approach would not.

The only exception which CCF would take to the proposed CMA approach is that we believe that the physical form (liquid) and viscosity (26.45 cSt) requirements should apply to as-fired (including temperature). As discussed in section III. B. of these comments, we see no justification for setting a viscosity limit at a temperature which the waste does not experience

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at any time between the time of generation and the time at which it is fed to the combustion process. (Many potential candidate streams are generated, stored and fed at a temperature substantially above 25°C or 40°C specified in the CMA and EPA specifications, respectively). Thus, imposing a requirement that the stream meet a viscosity limit at a lower temperature than the stream experiences is not based on a realistic need. of the very clean candidate streams generated by the Coalition's members and which have been evaluated to date, half (two) would pass the CMA-proposed exemption as it is currently worded; the other two streams also would pass if the liquid form/viscosity requirement were dropped.

CFCMA.6(commenter 112)
Secondly, AF&PA supports the Chemical Manufacturers Association's (CMA's) proposal, with a few modifications. We believe that the units in which comparable fuels may be combusted should not be limited to boilers -- any appropriate combustion devise that uses the fuel for energy value should be eligible. We also believe that the operating conditions (that is, CO) proposed by CMA may not be appropriate for all legitimate combustion units. AF&PA offers some, alternatives which contemplate the different types of combustion units used in different industries.

CFCMA.7(commenter 112)
B. CMA proposal.

AF&PA supports, in concept, the CMA performance-based proposal as an additional way of obtaining an exclusion for comparable fuels. CMA's proposal is, however, too limited in that it would apply only to industrial boilers. Any such exclusion should also cover industrial furnaces and other combustion devices that use comparable fuels for their fuel value, rather than burning them for destruction.

In addition, the CMA proposal is too narrowly focused, because it does not account for variations in boiler operating practices among different industries. CMA suggests a stack CO limit of 100 ppm, on a one hour rolling average. This limit does not account for different operating points in non-chemical industry combustion devices, which may use non-fossil fuel boilers or furnaces for energy recovery activities.[3] These devices may require higher CO operating points to meet Clean Air Act - mandated emission limits for other pollutants.

[Footnote 3: The paper industry self-generates 55.9% of the industry's energy needs from non-fossil fuel sources such as biomass (e.g. wood residues and bark).]

For example, the paper industry commonly uses bark or wood residue ("hog fuel") boilers. The high moisture content typical of most wood-derived fuels imposes boiler design and operating points that address the characteristics of this fuel feed. For example, more "excess" or "secondary" air must be used than in fossil fuel devices. Sufficient secondary air must be supplied over the fuel bed to burn the volatiles that account for most of the combustible material in the wood-derived fuel. The fuel must be violently mixed and the resulting volatile gases burned in an oxygen-rich atmosphere for good combustion. If secondary air is increased to minimize CO, gas velocity could increase particulate emissions and hotter temperatures will increase NOx. A balance must be stricken to maintain overall best carbon burn-out at the lowest CO.

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Thus, even the best operated wood fired boilers may emit higher CO than fossil fuel-fired boilers because of the wet or solid nature of wood-derived fuels. Consequently, imposition of a 100 ppm CO limit on non-fossil fuel boilers may yield increased emissions of criteria pollutants such as NOX and reduced energy efficiency. AF&PA suggests that EPA resolve this problem by revising the CMA proposal to allow combustors the option of substituting temperature and retention time for CO limits. These parameters are already set, for all practical purposes, through Clean Air Act regulatory authorities on a case-by-case basis as appropriate for the fuel used, the combustion device employed, and site conditions.

Alternatively, EPA could (i) establish a default stack CO specification of 200- 300 ppm (one hour rolling average), and (ii) limit the feed of comparable fuels to 10% of the BTU input to the combustion device. This feed limit will insure that the amount of UCs in a comparable fuel will compose only a small fraction of those in the fuel mixture

CFFS6.8(commenter 122)

13. Clean fuels exemption should allow P listed wastes to be included.

Many P wastes burn as clean or cleaner than fossil fuels, so they should not be eliminated from the clean fuels exemption. A facility should be able to demonstrate satisfactory ongoing destruction of P waste by means of CO CEMs coupled with a one time destruction efficiency test. A facility burning P listed waste should be able to claim a clean fuels exemption from all the other provisions of the proposed rule (regarding additional CEMs for PM, Hg, HC, and additional AWFCO parameters).

CFCMA.9(commenter 128)

X. Clean Fuels

A. CMA fully supports the Agency's initiative to craft a clean fuels exemption.

CMA and its member companies have actively cooperated with personnel in EPA's Office of Solid Waste on the subject of a Clean Fuels exemption for waste-derived fuels. This initiative, now some two years in development, offers the promise of improved resource conservation and recovery, while also acting to reduce unnecessary regulatory and paperwork burdens. CMA applauds the Agency for the initiative that it has taken in this matter, and urges continued flexibility and openness in the effort to achieve these goals.

CMA has long been convinced that many of the hazardous waste streams burned in incinerators, furnaces and boilers have recoverable fuel value and are clean enough of metals, halogens and acutely toxic materials that they can be burned for fuel value with no more risk than that associated with the fossil fuels replaced. For such waste-burning operations, it is rational that they be managed, not under RCRA Subtitle C, but under Clean Air Act rules governing fossil fuel combustors. These rules are already extensive and in place, and MACT standards for fossil fuel-burners will be fully in place by the end of the decade.

The combustor permitting process under RCRA Subtitle C is time consuming and costly for both regulators and the regulated community. Owner/operators are experiencing costs in the range of $500,000 to $1 million and sometimes more to effect the application, trial burns and risk assessment. Intensive resource demands are placed on regulatory agencies by this process, so that progress has largely been limited (for boiler/furnace permitting to high priority burners. It makes good sense to remove low-risk combustors from this RCRA backlog.

At the same time, the added burdens of operating under the special requirements of the 40 CFR Part 266 rules (for BIFS) are estimated to be $250,000 per year or higher. These costs are avoidable if low-risk "clean fuels" can be removed from the reach of Subtitle C.

The Administration's March 16,1995 "Reinventing Environmental Regulation" initiative emphasized the need for common sense approaches that would relieve unnecessary regulatory burdens. The 25 efforts identified included a target for a 25% overall reduction in paperwork burdens imposed by environmental regulations. A "clean fuels" exemption would promote the reinvention effort.

The following section of these comments (section B) is a discussion of the CMA clean fuels proposal, explaining the validity of our proposed approach, as well as noting some inaccurate assumptions that the Agency made concerning the CMA proposal. Section C is a discussion of EPA's comparable fuels proposal, highlighting our concerns with the Agency's proposed approach and explaining why we believe it win allow few, ff any low risk hazardous waste streams to qualify for exemption. Section D illustrates how many CMA member waste streams would pass CMA's proposal, as opposed to EPA'S. Finally, section E explains that the Agency's proposed exclusion for synthesis gas is unnecessary, since uncontainerized gases cannot be hazardous wastes.

CFCMA.10(commenter 128)

B. CMA has proposed a definition of "clean waste fuels" which is practical, useful and protective.

1. Introduction

CMA has developed and submitted to the Agency a robust proposal for defining a "clean waste fuels" exemption in 40 CFR Part 261 which would act to set aside Subtitle C requirements for non-halogenated waste fuels. These waste fuels can be expected to burn as cleanly as the fuels that they displace.

The CMA proposal, which draws heavily on the MACT standards for incinerators and furnaces developed in the current rulemaking, is attached as Attachment 1. It involves specifications which must be met by the waste fuel, in addition to certain operating and pre-conditions. The overall impact of the CMA proposal is to support exemption criteria that are restrictive enough to insure that risks associated with waste fuel combustion are, on their face, no more than the risks that might be expected from the combustion of fossil fuels.

The CMA proposal is robust in that it considers not only the possible pass-through of stable elements but also the potential formation of PICs by the combustors. To be assured that the waste minimization and energy recovery objectives of the proposal are realized, the CMA approach would require that energy recovery in an industrial boiler be a limiting condition. CMA further proposes that the industrial boiler be at an "associated facility," using a term paraphrased from a similar definition in the Petroleum Process Waste listing rule (60 Fed. Reg. 57747, Nov. 20,1995): "a physically co-located facility or another facility under common ownership with the generating facility." This requirement would assure that the generator had knowledge and control of the conditions for combustion, an important element of the CMA

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proposal.

CFCMA.11(commenter 128)

2. The proposal's discussion of the CMA proposal is not accurate.

In the discussion at 17469, the Agency briefly describes the CMA proposal, referencing a draft dated March 1, 1996 (see footnote, same page). That document was subsequently revised and a version dated March 15, 1996, was placed into the Docket for this rulemaking in mid-March. (See Attachment 0.)

The Agency incorrectly states that the CMA proposal for metals is based on an assumption of "a given gas flow rate." (17469) In fact, the proposal is insensitive to gas flow rate. The approach begins with a MACT-based concentration in the stack, and calculates a metals concentration in the waste fuel that would achieve those limits without removal by pollution control devices. To be most conservative and protective in this calculation, the feed limits are expressed on a "per million BTU" basis and the very conservative value of 20,700 BTU per pound (for n-hexane) was used for the calculation, covering essentially the full range of fossil fuels.

The Agency also incorrectly states that the CMA proposal appears to rely solely on adequate thermal destruction of organics to control potential organic combustion and risks therefrom. (Id.) Certainly a broad set of requirements are included to assure good combustion. These include stipulations that only liquids be included, maximum limits on viscosity, and controls and limits on CO formation. But the specification would also preclude the presence in the waste of chlorinated organics[17], acutely toxic RCRA wastes or "inherently waste-like" dioxin-related waste codes. CMA also supports a limitation on the maximum temperature to the inlet of a dry air pollution control device to control dioxin emissions, as discussed later in these comments.

[Footnote 17: CMA's proposed prohibition on chlorinated organics is motivated by the fact that these compounds are among the most thermally stable, and hence hard to destroy, organics. The prohibition is not motivated by concerns regarding dioxin formation since (as the Agency recognizes, 17426), dioxin formation does not correlate with chlorine in the waste feed.]

Finally, the chlorine limit in feed, per the revised CMA proposal, is not based on a level typical of coal, as the Agency states, but is derived (as for metals) from the proposed MACT standard for C4/HCl, back-calculated to an in-fuels basis.

The Agency asks for comment on these questions, also at 17469:

- "Does CMA's proposal adequately address new facilities?"
- "Would it be appropriate to allow off-site shipment to a facility not owned by the generator ... ?"
- "If so, how would EPA be able to ensure compliance regarding the CO emissions (and possibly other testing and operational conditions) of a combustion device not owned by the generator?"

As the CMA proposal focuses on the intrinsic properties of the "clean waste fuel" (as does the EPA "comparable fuels" approach) it is equally applicable to new facilities or to existing facilities operating today. An analysis of the "clean waste fuels," coupled with installation and

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operation of CO controls and interlocks, would implement compliant operations under the exemption.

The CMA proposal does not reach to permission under the exemption for shipment of exempted waste fuels to off-site facilities not owned by the generator. Such an expansion of the exemption is feasible, but could possibly require certifications by the combustion site that the required conditions for combustion are met (CO controls; must use as a fuel with heat recovery in an industrial boiler). The generator should be required, ff this is done, to obtain and maintain such certification(s). Because of these complexities and the lack of direct generator controls, the CMA proposal did not reach to non-owned or non-controlled off-site facilities.

CFCMA.12(commenter 128)

3. Risk analyses conducted by EPA show that CMA's proposed clean fuels specifications are protective.

At 17469, EPA requests comments on CMA's proposed clean fuel specification. The Agency specifically asks for data documenting that emissions from burning a "clean fuel" would not pose a significant risk for the potential combustion and management scenarios in which the clean fuel exclusion from RCRA might be used.

The CMA specifications for mercury, semi-volatile metals, low-volatile metals, and HC1/Cl, are based upon the proposed MACT emission standards for existing incinerators. Feedrate concentration limits for these parameters were back-calculated from the proposed stack emission concentration limits, assuming n-hexane as the reference fuel, 7% oxygen, and no removal by the air pollution control device. Therefore, CMA's proposal limits the clean fuels exemption to hazardous waste fuels containing levels of mercury, semi-volatile metals, low-volatile metals, and HCl/Cl, that would result in stack emissions no greater than the proposed technology-based MACT standards, when they are burned in an uncontrolled combustion unit. Thus, the environmental impact of burning clean fuels should be equal to or less than that allowed by the proposed MACT emission standards.

The Agency has evaluated the potential risk impact of the proposed MACT standards:

In order to satisfy the Agency's mandate under the Resource Conservation and Recovery Act to establish standards for facilities that manage hazardous wastes and issue permits that are protective of human health and the environment, the Agency conducted an analysis to determine ff the proposed MACT standards satisfy RCRA requirements, or whether independent RCRA standards would be needed. These analyses were designed to assess both the potential risks to individuals living near hazardous waste combustion facilities who are highly exposed and risks to other less exposed individuals living near such facilities. The Agency evaluated potential risks both from direct inhalation exposures and from indirect exposures through deposition onto soils and vegetation and subsequent uptake through the food chain. The Agency evaluated a variety of exposure scenarios representing various populations of interest, including subsistence farmers, subsistence fishers, recreational anglers, and home gardeners. In characterizing the risks within these populations of interest; both high-end and central tendency exposures were considered. 17388- 89.

Results of this risk analysis for incinerators are summarized in table III. C.l. 17389. Results

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for semi-volatile metals, low-volatile metals, hydrogen chloride and chlorine at floor levels are tabulated below.

Cancer Risk	
(Lifetime Excess Cancer Risk)	
Semi-Volatile Metals	5 X 10-7 to 5 X l0-8
Low-Volatile Metals	8 x 10-6 to 5 x 10-8
Non-Cancer Risk	
(Hazard Quotient)	
Semi-Volatile Metals	<0.001 to 0.01
Low-Volatile Metals	<0.001 to 0.09
Hydrogen Chloride	0.02 to 0.05
Chlorine	0.07 to 0.3

These results show that, even for the worst-case high-end risk scenario, the levels of emissions allowed by the proposed MACT standards are amply protective of human health and the environment. CMA's proposed clean fuel specification offers an equal level of protection, even when exempted clean fuels are burned in combustors having no air pollution controls.

As is discussed in subsequent comments, CMA is willing to strengthen its clean fuel proposal by placing a limitation on the maximum temperature to the inlet of a dry air pollution control device. This will ensure that risks associated with dioxin/furan emissions from combustors burning clean fuels are minimized.

In section 3 of EPA's Draft Technical Support Document for -HWC MACT Standards; Volume III, the Agency presents emissions data for existing hazardous waste incinerators. Table 3.1 presents PCDD/PCDF TEQ data. This data shows that dioxin/ furan emissions are relatively low when the inlet temperature to the particulate matter (PM) air pollution control device is maintained below 400oF. While there are a few exceptions in the data base, they seem to be associated with facilities that are burning high levels of dioxin/furan precursors or that are equipped with heat recovery boilers. Neither of these factors is pertinent to the burning of clean fuels under CMA's proposal since (1) burning is limited to on-site industrial boilers and (2) the clean fuels specification prohibits burning of waste codes F020, F021, F022, F023, F026, and F028.

EPA evaluated the D/F emission potential for BIFs burning hazardous wastes when it promulgated the February 21, 1991 BIF rule. The Agency concluded that D / F emissions from normal BIF operations are low:

The Agency has reviewed the available data on the theory of CDD/CDF formulation as well as CDD/CDF emissions from BIFS. Based on this review, the Agency agrees that most, but not necessarily all, BIFs burning hazardous waste have low CDD/CDF emission rates. 56 Fed. Reg. 7163.

EPA found that BIFs having high D/F emissions were often characterized by a high inlet temperature to a dry air pollution control device and concluded:

For a given HC concentration in the flue gas, the available data suggest that the potential for elevated CDD/CDF emissions is low if the PM control device operates at temperatures of less than 45OoF or above 75OoF. Consequently, today's rule does not require BIFs with PM

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control devices operating at temperatures outside of the 450-750"F window to determine CDD/CDF emission rates (unless it is an industrial furnace with HC levels greater than 20 ppmv).

The limitations on burning of fuels containing dioxin/furan precursors, requirements to maintain good combustion control, and limitation on inlet temperature to a dry APCD provide a high level of assurance to the Agency and public that D/F emissions from the burning of dean fuels will pose no significant threat to human health and the environment.

CFCMA.13(commenter 128)

4. CMA's proposal adequately addresses organics.

a) For clean fuels, a 100 ppmv CO limit is adequate to ensure destruction of organics.

EPA asks whether a CO limit (CMA's specification limits CO emissions to 100 ppmv) alone ensures adequate destruction of toxic organics in a clean fuel scenario 17469. In preparing the emission standards for hazardous waste burning boilers and industrial furnaces, EPA compiled and assessed data on typical PIC emissions from eight full-scale hazardous waste combustion sources (54 Fed. Reg. 43737, October 26, 1989). From this assessment, EPA concluded:

Estimates of risk to public health resulting from PIC'S, based on available emissions data, indicate that PIC emissions do not pose significant risks when incinerators are operated under optimum conditions.

EPA reaffirmed this conclusion when it promulgated the final BIF rule on February 21, 1991 (56 Fed. Reg. 7150). However, EPA recognized that available PIC data was limited and that assessment of the risks posed by PIC emission was difficult and incomplete. As a result, EPA expressed continued concern over the health effects of PIC emissions and stated:

Considering the uncertainties about PIC emissions and their potential risk to public health, it is therefore prudent to require that boilers and industrial furnaces operate at high combustion efficiency to minimize PIC emissions.. Given that carbon monoxide (CO) is the best available indicator of combustion efficiency. and a conservative indicator of combustion =set, we are proposing to limit the flue gas CO levels to levels that ensure PIC emissions are not likely to pose unacceptable health risk. (54 Fed. Reg. 43737) (emphasis added)

By definition, low CO flue gas levels are indicative of a boiler or industrial furnace (or any combustion device) operating at high combustion efficiency. Operating at .high combustion efficiency helps ensure minimum emissions of unburned (or incompletely burned) organics. (54 Fed. Reg. 43737)

EPA's investigations indicate that organic emissions can be limited to levels that pose little risk to human health and the environment when combustion devices are operated at high combustion efficiencies, and that CO is the best indicator of combustion efficiency. EPA found that a CO emission level of 100 ppmv was indicative of good combustion efficiency:

The Agency is confident that the BIF rule is protective because the Agency has determined that, when CO levels are less than 100 ppmv, PIC emissions do not pose significant risk. Thus, although the 100 ppmv limit is not a best demonstrated technology-based limit (many BIFs (and hazardous waste incinerators) readily operate at CO levels well below 100 ppmv), the 100 ppmv CO limit will ensure protection of human health and the environment. (56 Fed.

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Reg. 7151-7152)
While the current proposal expresses new concern about the adequacy of CO monitoring in assuring good combustion, these concerns are unfounded, as explained in Part III. D above. CMA believes that proper destruction of organics is assured by (1) the 100 ppmv CO emission limit, (2) limiting the exclusion to fuels that are "clean" (e.g., limited chlorine, ash and metals content and no inherently waste-like or acutely hazardous wastes, and (3) other operational requirements specified in CMA's proposal that facilitate good combustion (e.g., liquids only, maximum viscosity limit, and minimum heating value). No additional controls are needed.

CFCMA.14(commenter 128)
b) Neither DRE testing, HC limits, nor site specific risk assessment should be required for CMA's or any other clean fuels approach.
EPA asks whether additional controls, other than a CO limit, should be required to ensure adequate destruction of toxic organics in a clean fuel scenario (61 Fed. Reg. 17469). EPA specifically asks for comment on the following additional controls:
(1) DRE testing.
CMA does not believe that DRE testing is needed for clean fuels. As part of its development of the February 21, 1991 BIF rule, the Agency conducted field tests on 11 full-scale industrial boilers and 12 industrial furnaces. Among the results of these tests (summarized at 52 Fed. Reg. 16995, May 6,1987) were:
1. "Boilers and industrial furnaces can be operated to achieve 99.99 percent DRE of POHCs considered difficult to destroy-carbon tetrachloride, chlorobenzene, trichloroethylene, and tetrachloroethylene."
2. "Boilers co-firing hazardous waste fuels with fossil fuels where the hazardous waste provides less than 50 percent of the boiler's fuel requirements can achieve 99.99 percent DRE of POHCs under a wide range of operating conditions (e.g., load changes, waste feed rate changes, excess air rate changes)."
3. "When boilers and industrial furnaces are operated at high combustion efficiency, as evidenced by flue gas carbon monoxide (CO) level of less than 100 ppmv, DREs exceed 99.99 percent.."
EPA's data indicates that a 99.99% DRE can be readily met by a variety of combustion units over a wide range of operating conditions, when stack CO emissions are less than 100 ppmv. Results of numerous trial burn tests of incinerators and BIFs conducted and supplied to the Agency over the last 5-7 years also verify that the DRE standard can be met with a wide range of combustion unit/waste combinations, even under worst-case trial burn conditions (e.g., difficult-to-burn waste feeds, elevated levels of ash, chlorine, and metals feed, worst-case operating conditions, etc.). Historical data indicates that one can expect, with a high degree of certainty, that high destruction and removal efficiencies will be achieved when clean fuels (a limited subset of the universe of hazardous wastes) are combusted in units operating with flue gas CO emission of 100 ppmv or less. Expensive and time-consuming DRE test demonstrations for clean fuels are not warranted.

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CFCMA.15(commenter 128)

(2) Hydrocarbon limits.

CMA believes that either a 100 ppmv CO emission limit or a 20 ppmv HC emission limit is a sufficient indicator of good combustion efficiency. Monitoring for both should not be required. In the BIF studies referenced above, EPA concluded that:

Although some emissions data indicate a weak correlation between CO and PICS, the data generally indicate that there is a relationship between the two parameters: When CO is low, PIC emissions are relatively low. The converse may not hold: when CO is high, PICs may or may not be high. (56 Fed. Reg 7150, February 21, 1991).

Recognizing that CO levels above 100 ppmv are not necessarily indicative of poor combustion efficiency, EPA states:

EPA believes that the CO limits should be flexible to avoid major economic impacts on the regulated community since no direct correlation has been established between exceeding the 100 ppmv CO limit and increasing health risks from PIC emissions. (56 Fed. Reg. 7153)

To achieve the desired flexibility, EPA promulgated the Tier H PIC control limits, which allow a facility to operate with CO levels higher than 100 ppmv ff they monitor and control HC emissions to 20 ppmv or less. Thus, HC monitoring was provided as an optional alternative to the 100 ppmv CO limit, not as an additional mandatory requirement. EPA's data show that stack emissions of 100 ppmv CO or 20 ppmv HC are both indicative of good combustion efficiencies. Therefore, requiring both HC and CO monitoring would be duplicative and unnecessary. Installing and maintaining continuous emission monitors is expensive and can cause more unit downtime (CEM malfunctions, calibrations, etc.) The additional costs associated with installing and maintaining both CO and HC monitors is not justified for any waste combustor, particularly combustors burning clean fuels.

CMA's proposed clean fuel specification sets a 100 ppmv CO limit. CMA believes that an optional 20 ppmv HC limit, in lieu of CO monitoring, would also be appropriate.

CFCMA.16(commenter 128)

(3) Site-specific risk assessment.

Site-specific risk assessment should not be required for units burning clean fuels. Comprehensive site-specific risk assessments are very costly (as much as several hundred thousand dollars), resource intensive, and often controversial. A requirement to conduct site-specific risk assessments will likely offset the advantages of a clean fuels exemption for many facilities, severely reducing the utility of such an exemption.

Only a small subset of the hazardous waste universe will qualify for a clean fuels exemption. By definition, wastes qualifying for the exemption win be easily combusted and will be managed in combustion units that are properly operated. Therefore, the environmental impact of burning clean fuels will certainly be in the lower percentile of risks posed by the complete universe of hazardous wastes that are currently combusted. As discussed in other comments, EPA's own worst-case risk assessments indicate that wastes combusted in compliance with the proposed MACT standards (the basis for CMA's clean fuel proposal) present an acceptable risk to human health and the environment. CMA's proposal is very limiting, not only in the types of fuels that can qualify for an exemption, but also in the way those fuels are to be managed. Costly, time-consuming site-specific risk assessments for these fuels aren't warranted.

CFCMA.17(commenter 128)
c) CMA does not oppose a limitation on the maximum temperature to the inlet of a dry air pollution control device as a part of its clean fuels specification.
CMA believes that its proposed clean fuel specification provides adequate protection of human health and the environment by limiting the exemption to fuels that are easily combustible and requiring that they be managed in on-site units that are operated properly. CMA believes that its limitations on ash and chlorine content, CO, and waste physical properties will minimize the emissions of products of incomplete combustion (PICs). However, CMA recognizes that the Agency is concerned with the formation of dioxins in dry air pollution control devices (APCD). At 61 Fed. Reg. 17469, EPA asks whether a limit on the inlet temperature to a dry PM APCD should be added to CMA's clean fuel specification. While CMA is not convinced that this additional control is needed, it does not oppose expanding its proposed specification to include this additional measure of conservatism. In the proposed MACT rule, EPA identified temperature control to below 400oF at the inlet to the PM control device as the MACT floor. Combustion units operating with APCD inlet temperatures below 400oF consistently had low dioxin emissions. This temperature limit, along with the many other restrictions provided in CMA's proposed specification, provide a high level of assurance that exempted clean fuels can be managed outside of subtitle C in a fully protective manner.

CFCMA.18(commenter 128)
5. CMA amends our March 15,1996 Clean Fuels proposal to make a correction to the CMA viscosity specification.
The March 15,1996 CMA Clean Fuels proposal includes a viscosity specification based on the ASTM specification for No. 4 fuel oil to help assure adequate atomization. The temperature (259C) included in CMA's specification is the temperature of the test found in the ASTM specification.
Further evaluation of the CMA Clean Fuels proposal since March has lead CMA to conclude that maintaining fuels at higher temperatures is a proven method of assuring adequate atomization. Member company data on CO and DRE performance for burning candidate clean fuels in an industrial boiler shows CO emissions less than 100 ppm and DREs better than 99.99% when adequate atomization has been assured through maintaining the fuel feed at elevated temperatures (e.g. 10OoF to 20OoF). CMA sees providing an alternate for evaluating viscosity at the as-fired temperature of the fuel as a more proper way of satisfying the viscosity specification.
Therefore, CMA amends our March 15, 1996 proposal to make the following addition as a correction to our proposed specification for viscosity:
"Viscosity can be evaluated at the temperature at which the fuel is fed to the boiler"

CFCMA.19(commenter 128)

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D. The CMA Clean Fuels proposal will provide relief.

The Clean Fuel Data tables (Attachment Q) represent waste streams, provided to CMA by member companies, that may be likely candidates for a clean fuel exclusion. For this data table, CMA looked the following values, and after conversions, was able to predict whether or not they would pass CMAs proposed clean fuels specification. The results for the 115 wastestreams are as follows:

Specification	Number that failed
Btu	10
Ash	69
Chlorine	17
Semi-volatile Metals	28
Low-volatile Metals	37
Mercury	11
Halogens	11

Number passing all specifications: 25

CMA's specification does provide relief for a meaningful number of streams. By contrast, it appears that only a few, and perhaps none, of these waste streams would pass EPA's proposed benchmark approach.

CFCMA.21(commenter 130)

J. CMA Clean Fuel Proposal

The ETC found several portions of the CMA clean fuel proposal that we support as highlighted in the discussion above. In particular we applaud EPA for limiting the specification to liquids, wastes with ash content below 0.1% and excluding acutely toxic wastes such as P codes. We do not feet, however, that the CMA proposal adequately addresses other Appendix VIII toxic organic and metal constituents. The ETC encourages EPA to promulgate limits on individual Appendix VIII organic constituents and metals using a benchmark approach relative to fossil fuel oil, as we have commented above. In addition, we maintain our position that the heat content minimum must be 10,000 BTU/lb. Otherwise, it is not technically valid to call the waste a fuel, consistent with standard engineering handbooks (see for example, Perry's Chemical Engineering Handbook).

CFCMA.22(commenter 134)

Moreover, Ciba recommends that EPA promulgate an additional specification (based on the approach suggested by the Chemical Manufacturer's Association (CMA) Clean Fuel Proposal) that would not only put restrictions on the amount of certain toxic constituents that are allowed in comparable fuels, but would also require that the comparable fuel be burned in boilers (or other such devices) that meet certain operating conditions. Such an approach would streamline testing and recordkeeping requirements and allow additional materials that are fuel-like to be excluded from RCRA Subtitle C control as comparable fuels and thus, be of greater utility to the regulated industry, while still providing protection to human health and the environment.

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CFCMA.23(commenter 134)

2. EPA Should Promulgate A Specification That Is Based on the Chemical Manufacturer's Association (CMA) Clean Fuel Proposal-CMA submitted a "Clean Fuel" proposal to EPA that would exempt certain materials from Subtitle C of RCRA.[5] The approach taken by CMA is different from the one proposed by EPA in that it would not only put restrictions on the amount of certain toxic constituents that are allowed in comparable fuels, but would also require that the comparable fuel be burned in boilers (or other such devices) that meet certain conditions. For example, CMA's proposal would rely on the adequate destruction of organics by requiring the material to be burned in a boiler that meets a 100 ppm hourly rolling average for carbon monoxide (CO), instead of basing the specification on which specific hazardous constituents are contained (and at what level) in the material.

Although Ciba does not believe either the CMA or EPA specification should include a nitrogen, ash, viscosity or solids limit, we support the basic approach taken in CMA's proposal, that is, to set the specification both on the materials composition, as well as a requirement that the material be burned in a boiler that meets a 100 ppm hourly rolling average for CO. This regulatory framework is preferable and has a number of advantages over EPA's proposed approach in defining comparable fuels. First, as the Agency itself recognizes, generally accepted combustion theory suggests that low CO levels indicate a device that is operating at high combustion efficiency and helps minimize emissions of unburned (or incompletely burned) organics (see, for example, 52 FR 16998, May 6, 1987). In fact, EPA has been regulating CO levels at 100 ppm[6] for hazardous waste combustion units for many years as a way to assure good combustion conditions. Thus, such an approach would allow additional materials that are fuel-like to be excluded from RCRA Subtitle C as comparable fuels and be of greater utility to the regulated industry, while still providing protection to human health and the environment. By coupling this assurance of good combustion with controls for certain other contaminants (e.g. toxic metals) the CMA proposal is as protective (if not more so) than the approach that EPA has proposed. In addition, the alternative approach would streamline testing and recordkeeping requirements on the regulated community and thus, be consistent with the Administration's goal of reducing the burden imposed on the regulated community. Ciba urges the Agency to use this approach in defining comparable fuels. By doing so, the Agency would assure that toxic organics are continually and adequately destroyed in materials that are fuel-like.

[Footnote 5: Revised CMA Proposal for Clean Waste Fuels Exemption to RCRA dated March 15, 1996.] [Footnote 6: Because the Agency has routinely adopted a CO level of 100 ppm as a requirement for good combustion conditions, Ciba believes it unnecessary to provide support of a 100 ppm in our comments. However, if EPA believes that such support is needed, Ciba would request that the Agency advise Ciba so that additional information can be provided.]

CFCMA.24(commenter 139)

FMC and FCC would also like to express support for the clean fuel standards proposed by The Chemical Manufacturers Association (" CMA"), and we recommend that EPA adopt CMA's proposal. Appendix III shows Table 1 which compares the emission factors derived from incinerator source testing data and compares them to factors associated with standard fossil fuels, natural gas and number 2 fuel oil. The data shows that wastes incinerated by FCC have emission characteristics that are cleaner than natural gas with the exception of particulate matter (No SOx data was obtained, but sulfur is not present in waste feeds). The waste feeds in this analysis meet the standards proposed by CMA. Please refer to FCC trial burn data in Appendix I.

CFCMA.25(commenter 139)
Many on-site incinerators have the necessary heat recovery and integral design requirements to be regulated as an industrial boiler under RCRA. FMC and FCC recommends that on-site incinerators meeting these requirements for an industrial boiler be included in any clean fuels exemption.

CFCMA.26(commenter 142)
V. Comparable or Clean Fuels
A. Full Consideration and Support Should be Given to the Chemical Manufacturers Association Proposal for a Clean Waste Fuels Exemption To RCRA.
In meetings with the Agency, we have commented that the Comparable Fuels proposal that is included in this combustor rulemaking will have limited value. The Agency has characterized fossil fuels in terms of metals, halogen and, hazardous constituent concentrations and is proposing to craft limiting specifications based on the contaminant levels found. Not surprisingly, all but a very few of the limits for organic contaminant levels derived by this approach are "non-detect," due to the nature of fossil fuels: fossil fuels are comprised generally of hydrocarbons. It is not expected that many real-world, process-derived waste fuels will meet this specification, even though they would otherwise be judged to be clean enough to burn as cleanly as the fossil fuels they replace.
Monsanto Company has participated with CMA in the development and proposal to the Agency of a Clean Fuels exemption proposal. (See "Revised CMA Proposal for Clean Waste Fuels Exemption to RCRA," March 15, 1996, in the docket for this rulemaking.) While we will not comment extensively here on that proposal, we urge the Agency to read and respond favorably to the comments submitted on this subject by the CMA.

CFCMA.27(commenter 142)
The Agency should give consideration to one modification to the CMA proposal as it considers this exemption. This consideration relates to the proposed limitation that would withhold the exemption from "P" listed wastes. CMA included this feature as one more feature of a "belts and suspenders" approach to reducing the potential for formation of organic products of incomplete combustion (PICS) during the burning of exempted clean waste fuels. We note, however, that this concern is addressed apply by proposed limits on BTU content, viscosity, physical form (liquids only), chlorine/HCL, and CO. We also note that the "P" listed wastes do not appear to be any more difficult to burn than the "U" listed wastes.
Monsanto has employed the Agency's commonly used incinerability index to review the

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relative ease of combustion of "P" and "U" listed wastes, using "Table 1. Ranking of Organic Hazardous Constituents from Appendix VIII, 40 CFR 261, by Incinerability, Adapted from Ackerman and Others, 1983." In this exercise, we focused on the 50 compounds on the "top" of the list, those with the poorest Heat of Combustion. Of these compounds, 14 were not listed in 40 CFR 261.33, 27 were listed on the 261.33(f) or "U" list, and 9 were listed on the 40 CFR 261.33(e) or "P" list. Clearly, the acute hazardous "P" wastes are no more difficult to burn than the toxic "U" wastes.

CFCMA.28(commenter 157)

8) Olin supports the concept of a Clean Fuels Exemption. Olin does not believe that EPA has adequately defined its benchmark fuel in the proposed regulation. Olin supports the Clean Fuel definition proposed by the Chemical Manufacturers Association which has been shown to be protective of human health and the environment.

CFCMA.29(commenter 159)

V. The CMA Alternative Similarly Limits the Benefits Achievable with the Byproduct Fuel Exemption By Maintaining a Narrow Comparative Fuel Definition and An Inappropriate CO Emissions Limitation

The Chemical Manufacturers Association (CMA) has recommended an alternate clean fuel specification which would specify waste properties for byproduct fuels, combustion process requirements and fuel feed specifications. CMA also recommended a 5,000 BTU/lb fuel value specification as part of their alternative.

The CMA proposal is broader than EPA's and although it does not have the hydrocarbon fuel bias of the rule proposal, it does have inherent limitations. For instance, the CMA proposal would limit carbon monoxide stack emissions to 100 ppm as a measure of products of incomplete combustion. A major problem with this approach is that many industrial combustion units currently operating at sufficient temperatures and gas residence times for pollutant destruction have CO emissions exceeding 100 ppm.

If the 100 ppm CO limit were part of a byproduct fuel provision, many industrial combustion units could not beneficially use byproduct fuels and the environmental benefit of the rule would not be fully realized. The issue of incomplete combustion products can better be addressed through combustion unit gas residence time and operating temperature standards.

CFCMA.30(commenter 169)

We strongly reject the suggestion that "Clean Fuels" exemption be self-implemented and request that EPA compile a list of waste codes for manifesting in order for violations and compliance enforcement to be simplified.

CFCMA.31(commenter 178)

2. Comparable Fuel Exclusion

We strongly support a comparable fuels exclusion in the rules and believe the "Clean fuels" option is superior and of more value than the proposed benchmark approach.

BP Chemicals would like to commend the EPA for proposing an exclusion for low risk combustion units burning " clean fuels" from the onerous and burdensome RCRA combustion and permitting requirements. An exclusion like this allows both the permitting authorities and regulated community to focus scarce resources in regulating those activities that pose greater risk. However, we have serious doubts about the utility of the EPA's proposed benchmark fuels option, and believe the proposed CMA "clean fuel" option has more technical merit and greater utility to BP Chemicals and the regulated community as a whole.

BP Chemicals has two boilers that are eligible for the exemption under the CMA Clean Fuel approach. The boilers have a low risk waste feed that is not eligible for the proposed benchmark fuels approach. These units burn for energy recovery, a single waste stream that contains non-detectable amounts of chlorine and de minimis amounts of metals and ash in the waste feed. Steam generated in the boilers is used to produce -both plant required steam and electricity that is fed to a rural co-op electric utility distribution grid. We truly believe the risk posed by these units is minimal. Since these feeds do not contain chlorine, no dioxin/furans are produced. Metal concentrations in the waste feed are well below the BIF Tier I screening levels. We have tested our units for particulate emissions and the data clearly confirms that these emissions are well below the stringent MACT standards proposed in this rule making. Captive industrial boilers such as these do not have a wide variability in waste feed make-up and are subject to close process controls including CO monitoring. Yet, our boilers would not be eligible for the exclusion under the benchmark fuels approach.

Since these units are not eligible for the EPA's benchmark fuels exclusion, they will have to undergo RCRA permitting in the near future. The cost of complying with the RCRA Part B Permit including the compliance testing, recordkeeping, and reporting for this "clean fuel"(i.e. not containing any chlorine and metals) is almost $1,000,000. Besides the cost of compliance, our site has forecasted additional costs of $50,000 annually in hazardous waste fee assessments. This cost is an encumbrance for using this feed for energy recovery for the site. The permitting of these clean units also consumes considerable EPA resources best spent elsewhere.

CFCMA.32(commenter 178)

In conclusion, we recommend adoption of the CMA clean fuel approach. This allows alternative materials, which are not any more hazardous than the fossil fuels they replace to continue to be managed in these low risk units while focusing resources to higher environmental priorities.

CFCMA.33(commenter 181)

II. Eastman Supports the Clean Fuels Exemption Proposed by the Chemical Manufacturers Association

Eastman helped develop the clean fuels proposal that was submitted to the Agency by the Chemical Manufacturer's Association (CMA). This proposal is briefly described at 61 FR 17469. It specifies a number of pollutant constituent concentrations and physical specifications that a fuel must meet to qualify for an exemption as a "clean fuel". The CMA exemption is limited to waste fuels that are burned in industrial boilers for energy recovery. CMA's proposal is very restrictive and limits the exemption to those wastes that can be safely

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burned in industrial boilers, without the impediments that are posed by RCRA Subtitle C regulations. The proposal is much more applicable to chemical industry wastes than EPA's proposal.

Eastman strongly encourages the Agency's consideration and adoption of CMA's proposal.

CFCMA.34(commenter 192)

CMA Comments

1. CMA's comments focus on emissions from the combustion process, which should be the overriding determinant guiding clean fuels relief. The clean fuels exclusion could be granted notwithstanding the fact that the fuel may be an Appendix VIII substance, may contain Appendix VIII constituents or exhibit the characteristic of ignitability. Regulations attaching to the management and burning of excluded clean fuels should be the minimum necessary to assure that they pose no more risk to human health and the environment than the fossil fuels or other fuels they displace. This is the correct approach and it should be strongly supported.

CFCMA.35(commenter 192)

2. CMA's approach seems to presume the employment of a continuous emissions monitor (CEM) for carbon monoxide (CO) emissions. There should be some small quantity threshold for the burning of excluded clean fuels, below which it is not necessary to employ a CEM. The cost and burden of employing a CEM is sufficient to preclude small quantity burners from achieving the benefits of the clean fuels exclusion. Certain clean fuels, such as vegetable-based fuels and other fuels where products of incomplete combustion are of no greater concern than for fossil fuels, should not be subjected to controls that are not required for fossil fuels.

CFCMA.36(commenter 192)

3. The clean fuels exclusion should attach at the point of generation to the maximum extent possible. Very substantial benefits derive from not having to classify a clean fuel as a hazardous waste in the first place. The necessary treatment or blending of a raw clean fuel to meet the exclusion criteria or to enhance its properties should not preclude the exclusion from attaching at the point of generation of the raw fuel, provided that the fuel is managed and blended according to the terms of the exclusion. In other words, raw clean fuels should not be considered to be a solid waste if they are destined for further processing to become exempted clean fuels and burned at the site of generation as described in CMA's comments. Any "waste" stream generated by the blending or treatment would be potentially subject to RCRA under existing regulations. A typical example would be dewatering of a raw clean fuels by decanting or other means. For example, a raw clean fuel that is an aqueous solution of a hydrophilic substance (such as an alcohol) could be blended with another clean fuel that is hydrophobic (such as a hydrocarbon) to precipitate the water. This process should not cause loss of exclusion of either raw fuel stream at the initial point of generation. The resulting wastewater or any other waste stream would be subject to a hazardous waste determination at its point of generation.

4. The need for a viscosity specification is questioned, since combustion would seem to be

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adequately regulated by the 100 PPM CO stack gas limit.

CFCMA.37(commenter 198)

2. ECA supports the Clean Fuels proposal developed by CMA.

CMA has developed a Clean Fuels Exemption as an alternate to EPA's proposed Comparable Fuels Exclusion and forwarded it to the Agency. CMA's Clean Fuels Exemption has the same overall objectives as EPA's proposal. However, the CMA proposal is more straightforward and is expected to achieve the desired objectives; EPA's proposal, for the reasons discussed in this comments package, is administratively burdensome and unworkable.

The CMA proposal includes specifications for the waste fuel, in addition to certain operating limitations. The overall impact of the CMA proposal is to support exemption criteria that are restrictive enough to insure that risks associated with waste fuel combustion are essentially no more than the risks that might be expected from the combustion of fossil fuels. The CMA proposal considers not only the possible pass-through of stable elements but also the potential formation of products of incomplete combustion (PICs) by the combustors. To ensure that the waste minimization and energy recovery objectives of the proposal are realized, the CMA proposal would require that energy recovery be a limiting condition. In addition, the proposal recommends that the combustor for the exempt waste fuel be located at an associated facility (physically co-located or another facility under common ownership with the generating facility). This requirement would assure that the generator has knowledge and control of the conditions for combustion. While it can be argued that this is too narrow an exemption, the CMA proposal is designed to achieve some regulatory relief. ECA supports this approach from a practical standpoint; a broader approach, while defensible, may bog down in the regulatory process and result in no regulatory relief.

The CMA proposal references risk analyses conducted by EPA to show that the Clean Fuels specifications are protective. This is because it draws heavily on the MACT standards for incinerators as developed in the current rulemaking. Recognizing that carbon monoxide in a combustion device stack is an indicator of combustion efficiency, the CMA proposal adequately addresses the destruction of organics by establishing a 100 ppmv CO emissions limit.

CFCMA.38(commenter 198)

3. The CMA Clean Fuels Exemption will potentially provide regulatory relief for ECA.

ECA conducted a waste analysis program at one manufacturing facility to determine the applicability of both the CMA Clean Fuels proposal and the EPA Comparable Fuels proposal. The ECA facility is a petrochemical (plastics) manufacturing facility with ethylene as the principal feedstock. ECA currently has two industrial boilers at the manufacturing facility that burn hazardous waste. The hazardous waste feed consists primarily of hexane, isooctane, and vinyl acetate, which are hydrocarbon compounds and have a waste fuel BTU content of approximately 20,000 BTU/lb. More details on the facility are included in Attachment 1.

The results of the sampling program on the largest volume stream, as compared to the CMA Clean Fuels Exemption, are shown in Table 1. [see comment page 4 for data table]

The ECA sample passed the CMA specification. Comments on analytical results are as

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follows:

- The waste stream easily passes the physical properties tests, including physical form and viscosity.
- The heat content of the sample, 20,100 BTU/lb, makes the stream very attractive for energy recovery.
- The ash content, semi-volatile metals, low-volatile metals, and mercury levels are all well below the specification.
- The chlorine/HCL content is less than half of the specification.
- The stream is not inherently waste-like or acutely hazardous.

In summary, the stream passes all the CMA Clean Fuels specifications and is clearly desirable for energy recovery. However, without a clean fuels exclusion, burning of this stream on-site for energy recovery has triggered the RCRA permitting process for the ECA facility.

CFCMA.40(commenter 205)

In general, TCC supports CMA's proposed approach to "clean fuels" as opposed to EPA's comparable fuels. However, TCC would like to make the following additional comments about CMA's proposal.

CMA's proposal is limited to on-site units burning only on-site generated waste. TCC believes that a comparable fuels specification could be appropriately established to allow the fuels to be used on- or off-site.

TCC further believes that CMA's proposal could be broadened to include units other than boiler - as long as the use is as a "fuel".

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COMPARABLE FUELS: MISCELLANEOUS

Comparable Fuels: General

1. Clarify existing definition of solid waste.

CFG.01(commenter 084)
III. D. Comparable Fuel Exclusion
The fuel exclusion provisions are written so tightly that extreme efforts may have to be expended to obtain a blended comparable fuel. The problem originated when the "characteristic waste" definition, because of ignitability, created a large list of hazardous wastes which were once easily handled. What is needed is clarification of the "characteristic waste" definition rather than an exemption that barely excludes anything.

CFG.57(commenter 172)
On its own merits, excluding materials that have a useful application as fuels from regulation as solid wastes is consistent with other regulatory provisions. These provisions include the used oil management standards at 40 CFR Part 279 and the use of off-specification commercial fuel products as fuels without regulation as waste at 40 CFR 261.2(c)(2)(ii). This exclusion has the potential to provide significant relief to facilities generating materials that possess the same physical and chemical characteristics as many virgin product fuels. However, there are other uses for these types of materials, such as beneficial reuse/product substitution, that are more desirable and more appropriate than use as a fuel. In fact, EPA's discussion of acceptable recycling activities in the April 4, 1983 Federal Register mentions the use of spent solvents in roofing materials. This a perfect example of a more desirable use of materials that otherwise would have been managed in a combustion process, likely fuels. Heritage feels EPA's efforts would be better spent simplifying exemptions for these more desirable end uses, than promoting use as a fuel. Making reuse/product substitution exemptions easier to understand and administer would make them better available to smaller generators and should enhance waste minimization at facilities.

Response:
At this time, EPA is not clarifying the "characteristic waste" definition or the reuse/product substitution exemptions. EPA notes, for example, that ignitable wastes typically contain substantial concentrations of underlying hazardous constituents (constituents listed on Appendix VIII of Part 261 which are present but are not the reason the waste is identified as hazardous), which could make the waste unsuitable for burning as fuel. See Chemical Waste Management v. EPA, 876 F, 2d at 2, 16-17 (D.C. Cir. 1992). Thus, EPA rejects any suggestion that ignitable wastes should always be excludable fuels. EPA has chosen the comparable fuels approach over other possible approaches because it is a relatively uncomplicated and legally justified approach. The final rule is consistent with EPA's goal to develop a comparable fuels specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available

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fuel and therefore poses no greater risk than burning a fossil fuel. This rationale applies to secondary materials which are ignitable, as well as those that are potentially identified or listed as hazardous wastes for other reasons. The rationale for the Agency's approach is that if a hazardous waste-derived fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has discretion to classify such material as a fuel product, not a waste.

EPA believes its benchmark approach promotes beneficial energy recovery and resource conservation, reduction of unnecessary regulations, and demonstration of common-sense approach to regulation. The comparable fuels exclusion should provide regulatory relief to some generators. Furthermore, it is expected that the final rule will primarily apply to wastes with certain waste codes. The rule should apply primarily to wastes that classified as hazardous only because they exhibit the hazardous characteristic of ignitability (D001) and/or corrosivity (D002).

2. Comparable fuels should not be self-implementing.

CFG.02(commenter 085)

11. CLEAN FUELS PROPOSAL

11. A. IMPLEMENTATION IN OKLAHOMA

The State of Oklahoma has recently passed a "Clean Fuels" provision. Problems in the implementation of this new law may be instructive.

Oklahoma passed a law Title 27A O.S. Suvo. 1993 Section 2-7- 118 requiring that hazardous waste recycling units will not accept fuel made, in Dart from blending of low Btu (>5000 BTU/pound) wastes (Doc I and 2). Under this rule the State of Oklahoma contacted Holnam Inc. a cement company which had submitted a Part B RCRA permit application to "recycle" hazardous waste in Ada. Oklahoma, with a Notice of Deficiency (Doc 3) on Holnam's application regarding their compliance with this state law. Holnam issued a brief reply (Doc 4). however. at no point did Holnam ever modify their list of proposed waste codes in their permit application to conform with the new state law. Common sense would instruct one that, for instance. under Oklahoma state law, leachate would not be considered a "fuel" since contaminated water runoff does not burn. Holnam, however, never deleted waste code F039, leachate from land disposed waste, from their application.

Oklahoma stakeholders notified the Oklahoma Department of Environmental Quality (ODEQ) of the deficiency in Holnam's application which included waste codes for waste streams identified by EPA as low BTU waste streams (Doc 5). Oklahoma stakeholders utilized historic Federal Register guidelines (Doc 6) defining waste which may be recycled for energy content to make their case to ODEQ. Prior to the implementation of the final BIF rule, BIFs were allowed to burn only energy-yielding waste of specific BTU value. The old guidelines in the Federal Register listed certain waste streams and their BTU values. Stakeholders derived a list of proscribed waste codes based on this information. We recommend that EPA utilize this list as a starting point.

Since Holnam, Ada, has recently withdrawn their application, it remains unclear whether

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ODEO or Oklahoma's courts would have modified Holnam's proposed waste code list if a draft permit had been issued.

What is evident is that under Oklahoma's "Clean Fuels" law, Holnam displayed an inability or unwillingness to identify prohibited waste streams or waste codes.

* Given this demonstration that at least some segments of industry are unable or unwilling to conform to "Clean Fuels" guidelines, the EPA's suggestion that the "Clean Fuels" exemption should be self-implementing must be rejected.

* We recommend cradle-to-grave manifesting of all waste.

* We recommend that EPA generate a list of waste codes proscribed under the "Clean Fuels" program including metal waste, chlorinated solvents, and leachate. EPA's list of proscribed waste codes should be more extensive than that Supplied by Oklahoma stakeholders because EPA's "Clean Fuels" requirements are more stringent.

With specific waste codes prohibited and cradle-to-grave manifesting in place, detection of violations and enforcement would be simplified. If a facility is found burning F039. a proscribed waste code, then the facility may be cited for illegal disposal. a serious offense which can be proven with paperwork even though the waste has gone up in smoke.

<u>Response:</u>

Under this final rule, EPA is excluding from the definition of solid waste hazardous waste-derived fuels that meet specification levels comparable to fossil fuels for concentration of toxic constituents and physical properties that affect burning. The exclusion would apply to the comparable fuel from the point it is generated and would be claimed by the person generating the comparable fuel. Although self-implementing, these generators would have to comply with sampling and analysis, notification and certification, and recordkeeping requirements in order for their fuel to be excluded. These requirements include certifying that the comparable fuel is burned in a regulated combustion unit. Because the comparable fuel is being classified as a fuel product and not as a waste, the comparable fuel will be handled under current DOT and OSHA regulations for fuels. This ensures proper handling of the comparable fuel.

In the final rule, EPA is not identifying specific waste codes that qualify as a comparable fuel. Instead, the Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. However, it is expected that the final rule will primarily apply to wastes with certain waste codes. In the preamble of the final rule, EPA has identified wastes codes likely to meet the comparable fuels exclusion.

<u>3. Risk assessment for accidental releases.</u>

CFG.03(commenter 085)

II. B. ACUTE RISKS POSED BY "CLEAN FUELS"

In the case of a facility utilizing. a special category of "Clean Fuels" deemed less hazardous than the usual hazardous waste mixtures. in no case should any acutely hazardous waste be permitted on-site. Further, EPA should review the toxic characteristics of all waste codes

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proposed to be included as "Clean Fuels" for acute toxicity in the case of accidental release through soil, fire. or explosion. in the event of a fire involving hazardous material. emergency responders must remain outside the area known as the Immediate Danger to Life and Health Zone (IDLH) unless specially equipped with chemical suits and self-enclosed breathing apparatus for chemical fires. Most hazardous wastes of the type burned by cement kilns require a ½ mile IDLH Zone.

Currently, EPA is very lax about allowing hazardous waste management facilities to operate at locations where a single accident could result in thousands of casualties. For example, EPA granted federal interim status to allow Holnam Inc.. a cement plant. in Ada, Oklahoma to incinerate hazardous waste. Holnam shares shared a chain link fence with a public ball park. a day care facility, and a Boys and Girls Club. Within the IDLH zone. an area within ½ mile of Holnam, there are three grade schools housing 1,500 children ages 4-14, a nursing home. several churches, and a densely-populated residential neighborhood. An accident involving a single tanker truck could have proved catastrophic (DOC 7).

* We recommend that all acutely hazardous waste be deleted from the "Clean Fuels" list.

* We recommend a risk assessment for accidental releases of hazardous waste resulting in spill, explosion. or fire. We recommend that the EPA consider using the Ada, Oklahoma location for such a risk assessment given the sensitive location of the Holnam, Inc. facility and the interest which this facility has demonstrated in waste burning. Any waste streams which would result in damage to property or in casualties upon accidental release should be deleted from the list of "Clean Fuels EPA must be able to honestly assure citizens that "Clean Fuels" do not pose either high chronic risk or an immediate danger to life and health in the case of accidental fire or explosion.

* We advise EPA that any attempt to "sneak" hazardous waste into a communities for treatment. disposal, or recycling as has been done under the "interim status" policy will result in public mistrust and anger. If the "Clean Fuels" program is to succeed, EPA must require public notice.. set up public meetings upon request. and provide the public with an Opportunity to participate in the planning and permitting of the "Clean Fuels" program.

CFG.54(commenter 170)

EPA'S COMPARABLE FUEL EXCLUSION MAKES A MOCKERY OF EPA'S HISTORICAL RANKING OF RELATIVE RISKS

In its November, 1989 "Comparative Risk Project," (OSWER Comparative Risk Project, EPA/540/1-89/003, November 1989) EPA's OSWER listed hazardous waste storage and treatment in tanks, drums and containers among the five high-risk "problem areas" in its regulatory purview. EPA ranked transportation of hazardous waste third on its list of medium risk activities. Hazardous waste combustion was listed thirteenth on the medium risk list of sixteen activities. That relatively low risk ranking predated EPA's permitting of many hazardous waste incinerators and its implementation of the Boiler and Industrial Rules. It is truly astonishing that the Agency, in 1996, several years after imposing and enforcing

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these stringent controls over hazardous waste combustion, remains intent upon yet further regulation of this relatively low-risk waste management technology. That astonishment is exceeded only by EPA's downright bizarre proposal to exclude from RCRA controls higher-risk activities such as transportation, storage, and treatment of hazardous wastes that are supposedly "comparable" to fossil fuels.

Response:
In the final rule, EPA is not pursuing a "clean fuels" approach, but rather a comparable fuels approach. Thus, deleting acutely hazardous waste is not necessary. The Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. Under the comparable fuels exclusion, most Part 261, Appendix VIII constituents could not be detectable if the fuel is to be excluded as “comparable”. These include the specifications for organic halogens, organic nitrogens, PCBs, and cyanides.

A risk assessment for accidental releases of a comparable fuel are not necessary. Comparable fuels are being classified as products, not wastes. EPA expects that the comparable fuel poses no greater risk when handled and burned than a fossil fuel and would at the same time be physically comparable to a fossil fuel. Comparable fuels will be handled under current DOT and OSHA regulations for fuels. This ensures proper handling of comparable fuels.

EPA is also requiring public notice under the comparable fuels exclusion. This public notice provides the public with opportunity to participate in the comparable fuels exclusion. Under the final fuel, the comparable/syngas fuel burner must submit for publication in a major newspaper of general circulation local to the site where the comparable/syngas fuel will be burned, a notice entitled "Notification of Burning of Comparable/Syngas Fuel Excluded UNDER RCRA" containing the following information: 1) name, address, and RCRA ID number of claimant's facility; 2) name and address of the unit(s) that will burn the comparable/syngas fuel; 3) a brief, general description of the manufacturing, treatment, or other process generating the comparable/syngas fuel; 4) an estimate of the average and maximum monthly and annual quantity of the waste to be excluded; and 5) name and mailing address of the State Commissioner or Regional Director to whom the claim is being submitted. This notification must be published in the newspaper prior to the burning of the comparable/syngas fuel.

4. Make exclusion as widely applicable as possible.

CFG.04(commenter 086)

I. EPA Should Make the Comparable Fuels Exclusion as Widely Applicable as Possible

USWAG strongly supports EPA's proposal to develop an exclusion from the definition of solid and hazardous waste for materials that have fuel value and levels of hazardous constituents similar to those found in commercial fuels. 61 Fed. Reg. at 17459-60. USWAG believes that this common sense reform is long overdue. Materials that, based on fuel value and composition, can substitute for commercial fuels are products and should be regulated

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as such, rather than as wastes. This proposal makes sense both economically and environmentally.

Economically, it allows generators of these materials to extract the residual economic value that remains in the materials after they have been used for their original purpose, rather than expending resources to have them managed as hazardous wastes, which would generally require combustion in an incinerator. Environmentally, these materials can substitute for other fuels, therefore conserving natural resources. Moreover, because these materials have levels of hazardous constituents nor greater than the fuels they replace, their management as fuels will not lead to increased air emissions.

However, to achieve the full benefits of this proposal, the Agency should eliminate many of the proposed restrictions on the management of comparable fuels and regulate them as a product rather than as a waste. Specifically, USWAG urges the Agency to:

(1) establish a liquid waste benchmark for hazardous constituents at the 90th percentile of the combined fuels;
(2) establish an analogous benchmark for solid fuels;
(3) permit blending of waste materials to meet the comparable fuels standard;
(4) rely on existing Department of Transportations instead of developing new transportation standards for comparable fuels; and
(5) allow the use of brokers and other intermediaries between the generator and the burner.

In short, once a material is determined to be a "comparable fuel," it is a product and should exit the RCRA system completely. The proposed restrictions on these materials are not only unnecessary, but may increase the cost of managing these materials to the point where it would not make economic sense to utilize them as fuels, therefore making the proposed exclusion a nullity.

<u>Response:</u>

EPA agrees that the comparable fuel exclusion is beneficial. With regards to the commenter's specific points, EPA agrees with some of the issues raised by the commenter. See later comment responses for discussion of rationale on each point. 1) EPA is establishing a specification based on the composite, at the highest value. 2) EPA is establishing a benchmark based on liquid fossil fuels, and not solids. 3) EPA is allowing blending only to meet the viscosity specification. 4) EPA is relying on the existing DOT regulations for transportation standards. 5) EPA is allowing the use of brokers and other intermediaries between the generator and the burner.

<u>5. Support comparable fuel exclusion.</u>

CFG.05(commenter 086)

A. A Comparable Fuels Exclusion Makes Economic and Environmental Sense.

There has long been a tension in the RCRA program over the status of wastes with significant fuel values. On the one hand, EPA has recognized that the use of these materials as fuel

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furthers the statutory goal of resource conservation and recovery, while on the other hand the Agency has been concerned that the burning of certain hazardous wastes in inappropriate units could pose a risk to human health or the environment. The Agency has tried various approaches to this problem, including the sham recycling policy and its permitting rules for boilers and industrial furnaces ("BIFs").

The comparable fuels concept represents an important step forward by the Agency in solving this problem. Secondary materials that have significant fuel values and levels of hazardous constituents comparable to those in commercial fuels represent a resource that should not be forced out of the stream of commerce by regulation. The Agency's comparable fuels proposal correctly recognizes that because these materials retain value they remain commercial products and should be classified and regulated accordingly.

Indeed, it makes little sense for generators to be forced to pay to have a material incinerated when they can receive economic value from using the material as a fuel. Moreover, many electric utilities and other companies have adopted integrated material management approaches that attempt to minimize the generation of wastes by choosing materials at the front end that can be reused or recycled. The proposed comparable fuels exclusion complements that approach by increasing the range of materials whose full value can be extracted during its life cycle -- i.e., a solvent that meets comparable fuel specifications can be used once for its solvent properties and used again for its fuel value.

The proposed exclusion is also environmentally beneficial. The use of secondary materials as fuel reduces the use of fossil fuels and thus not only conserves these resources but avoids the environmental costs associated with their extraction and processing. Moreover, because the levels of hazardous constituents in comparable fuels will be no greater than that in the fuel they replace, combustion of these materials will not increase emissions of hazardous air pollutants.

CFG.08(commenter 086)

D. USWAG Supports the Proposed Exclusion of Comparable Fuels from the Definition of Solid Waste.

USWAG strongly supports EPA's proposal to exclude comparable fuels from the definition of "solid waste," rather than merely excluding them from hazardous waste regulation. Because comparable fuels are products and are never discarded, they never become solid waste, and therefore the Agency's proposed exclusion is appropriate. Moreover, it is important that they be excluded from the definition of "solid waste" because many state regulations are triggered by "solid waste" and application of these state requirements could substantially undermine the usefulness of the proposed exclusion.

CFG.11(commenter 092)

Systech support EPA’s attempt to reduce unnecessary regulatory burdens provided there is no additional risk. Some less stringent regulatory program should be crafted creating the proper control mechanisms to ensure the proper handling of such wastes. The approach that EPA has proposed in this package, however, does not reflect the requisite degree of control that should be imposed.

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EPA states that "hazardous waste is burned for energy recovery in boilers and industrial furnaces in lieu of fossil fuels. There are benefits to this energy recovery in the form of diminished use of petroleum-based fossil fuels." This statement directly supports the policies that Congress espoused in RCRA, e.g., "the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources," and "conserve valuable material and energy resources." The "cradle to grave" approach to waste management system that is designed to implement these policies of resource recovery and conservation while simultaneously protecting human health and the environment.

Processing hazardous waste through regulated off-site treatment, storage, and disposal facilities (TSDFs) is an integral part of this overall scheme. While Systech and other members of NACR work with generators to reduce the amount of hazardous waste generated and to encourage the recycling and reuse of as much of the waste that is generated, energy recovery through the combustion of the remaining wastes in cement kilns is an integral part of the overall process. Generators are comfortable with the environmental protection afforded by the combustion of these wastes in cement kilns and find this relatively low cost management option preferable since it assists them in their efforts to remain competitive in the global marketplace.

EPA's efforts to establish additional environmental controls at significant increased costs without demonstrated environmental benefits may, in fact, result in a net loss to the environment. The loss will occur because the hazardous waste will be thermally treated in an incinerator with its attendant emissions and the cement kilns will continue to produce cement using fossil fuels with its attendant emissions. Moreover, additional fossil fuels will have to be produced with the environmental costs that the substitution of hazardous wastes could have been avoided.

CFG.15.b(commenter 099)

By moving forward in this fashion, EPA would take a leadership position in recognizing that both streamlining and reforming of Subtitle C of RCRA can be accomplished to reduce the burden on both the regulated community, as well as the regulators, while ensuring protection of human health and the environment, and at the same time minimizing costs to individuals, businesses, and governmental agencies. This action also supports the Agency's pollution prevention efforts by promoting beneficial energy recovery and resource conservation, while minimizing the amount of waste that is disposed.

As Dow described in its Rulemaking Petition for the Exclusion of Comparable Fuels (dated August 10, 1995)[2] and as the Agency recognized in its preamble discussion on comparable fuels, -there are benefits that the regulated community, the public, and the regulators would realize in promulgating a generic comparable fuel exclusion. While these are described in detail in Dow's rulemaking petition, they are briefly summarized below: [Footnote 2: In addition to the petition submitted on August 10, 1995, Dow also submitted additional analytical data for the CCF material and various fossil fuels.]

- Directly Supports a Major Goal of RCRA by Promoting Beneficial Energy Recovery and Resource Conservation While Ensuring Protection of Human Health and the Environment: Promulgating a comparable fuel exclusion from the definition of solid waste and hazardous waste will allow companies to burn secondary materials as fuels and thus conserve the nation's dwindling energy supply, and achieve one of the major objectives of RCRA. In fact, burning less virgin fossil fuel would likely decrease (in many cases) the emission of certain criteria pollutants (i.e., NOx, SO2, etc.). Moreover, since these materials are comparable to fossil fuel, the substitution of these materials for fossil fuels would pose no greater risk than burning of fossil fuel.

- Reduces Unnecessary Regulatory Burden and Allows Industry and EPA to Focus Their Finite Resources on Higher Priorities: Because these materials are comparable to fossil fuels and because EPA is scheduled to promulgate MACT emission standards for these same types of units by the end of the decade, it would allow EPA (and the regulated community) to focus their finite regulatory and permitting resources on those higher priority areas that present the greatest risks.
- Supports the Clinton Administration's Common Sense Approach: The idea of a comparable fuel exclusion is consistent with the Administration's goal of developing common sense rules, both from an environmental and regulatory point of view. In fact, the Agency's existing hazardous waste rules already embody the concept of comparable fuel. Therefore, this proposal would simply allow additional materials that are comparable to fossil fuels to be excluded from RCRA Subtitle C control.

Consequently, Dow would encourage the Agency to promulgate a generic comparable fuel exclusion as soon as possible to begin to realize these benefits.

CFG.35.a(commenter 111)

RES supports the concept of a Comparable Fuel Exclusion (p.17459-69) and believes it should be implemented on a timely basis in the same rulemaking that promulgates rules for MACT standards for hazardous waste incinerators, hazardous waste-burning cement kilns, and hazardous waste-burning lightweight aggregate kilns. We concur in the EPA's observation that there is benefit to burning hazardous waste for energy recovery in boilers and industrial furnaces in lieu of fossil fuels in the form of diminished use of petroleum based fossil fuels. EPA's stated objective is to develop a comparable fuel specification which is usable but assures that it is similar in composition to commercially available fuel and poses no greater risk than burning fossil fuel. Accordingly, the Agency's goals to promote beneficial energy recovery and resource conservation, reduce unnecessary regulation, and adopt common sense approaches are buttressed.

CFMISS.30(commenter 164)

General Comments on the Comparable Fuel Specification Proposal

Valvoline does not have any data on the average constituents of waste fuels, such as waste gasoline, waste kerosene, waste diesel fuel or other like waste fuels that could or probably would have to be managed as hazardous. First Recovery currently receives many calls asking if it could handle these materials, and would support the development of a set of comparable fuel specifications that would allow First Recovery to manage certain of these waste fuels with current fuels management program. Such an approach makes sense from both an economic and an environmental standpoint and would benefit both the industry and the

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Agency. While Valvoline does not have any information to assist U.S. EPA in the development of a comparable fuels specification, Valvoline supports the Agency's approach and looks forward to the development of such a rule.

CFG.60(commenter 192)

Pollution Prevention Benefits

The use of comparable "waste" fuel instead of commercial fuel is a pollution prevention or pollution avoidance initiative. As we all know the burning of "waste" fuel in an incinerator (with controls) for destruction sake generates emissions. It makes no sense to burn a fuel just to get rid of it, when it could be destroyed while performing work. This is inefficiency at its ultimate. Using a "waste" fuel eliminates the emissions and other health and safety risks associated in having it incinerated for destruction sake at off site commercial incinerators. Further the ability to use the "waste" fuel on site saves transportation fuel resources.

As EPA correctly points out, "RCRA, as well as the Pollution Prevention Act of 1990 (PPA), encourage pollution prevention at the source". The proposed comparable fuel exclusion will allow this to happen, while still being protective of the environment and human health-. EPA additionally points out the substitution of materials, such as comparable fuel, follows Congress's definitions in Maximum Achievable Control Technologies (MACT) under Clean Air Act. UCC agrees that use of a comparable fuel conforms to MACT's defined material substitution.

CFMISS.41(commenter 192)

No impact to human health or environment is expected by this exclusion as the terms of the exclusion coupled with existing air pollution regulations will assure that products of combustion are no more hazardous than those from comparable fossil fuel.

EPA acknowledges that "there are benefits to this energy recovery in the form of diminished use of petroleum-based fossil fuels." Many of these "waste" fuels burn cleaner than the fossil fuels. However regulating these materials under normal hazardous waste regulations provides too big an obstacle to using them as fuels. EPA's says its goal is to develop a comparable fuel specification, which is of use to the regulated community. The proposed rule is a start, but does not go far enough to make this sufficiently attractive or beneficial to the regulated community.

CFG.64(commenter 201)

General Comments

In light of the above experience, Mayo wholeheartedly endorses the concept of a comparable fuel exclusion. If a comparable fuel exemption is to be meaningful, the rules must be flexible and not so stringent as to effectively preclude their use. Mayo would like to offer these brief observations on the draft comparable fuel proposal.

CFG.68(commenter 204)

Comparable Fuels: (Page 17459)

TCC applauds EPA's recognition that there are wastes that are very appropriate for use as

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fuel, and that such use is the spirit of "resource conservation and recovery" which is paramount to the RCRA statute. It is in the public's and regulated community' best interests to establish some regulatory language surrounding requirements for using waste streams as fuels; however, it is also appropriate that those regulations do not go too far into restricting fuels or unit operations or commerce such that waste generators would be deterred from choosing the best option for their wastes. We strongly encourage EPA to move ahead with finalization of some regulations on using wastes as fuels so that our companies can evaluate eligibility for qualification prior to any BIF MACT permitting or a BIF MACT proposal. We believe that many units will want to take advantage of the opportunity to ensure that their wastes meet a specification for fuel - thereby exempting them from the permitting/MACT process. This would allow EPA to use only the most appropriate facilities when calculating BIF MACT -and in evaluating data for inclusion. TCC estimates that 34 on-site BIFs in Texas may be interested in qualifying for a comparable or clean fuels exemption (with some modifications to proposed definitions).

CFG.72(commenter 214)
NORA commends the Agency for setting forth a worthwhile and thoughtful initiative. NORA regards the comparable fuels exclusion approach as an innovative regulatory reform effort which would add a healthy measure of common sense to RCRA's policy on fuels containing hazardous wastes. NORA is in complete agreement with the foundational premise for the proposed exclusion:

> ... if a secondary material-based fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of fuel, EPA has ample authority to classify such material as fuel product, not a waste .... Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel, classifying such material as a non-waste would promote RCRA's resource recovery goals without creating any risk greater than those posed by the commonly used commercials fuels." 61 Federal Register 17459 (April 19, 1996).

The following specific comments and suggestions are intended to improve upon a genuinely important proposal.

CFG.74(commenter 245)
Dow also supports EPA in its efforts to provide regulatory relief for RCRA combustion facilities burning waste fuels which are comparable to fossil fuels.

CFG.75(commenter 245)
With regard to the supplemental information provided on comparable fuels, Dow again encourages EPA to proceed with finalizing its response to Dow's August, 1995 Rulemaking Petition and also finalize the regulatory provisions for Comparable Fuels. This action will provide significant relief to a number of Dow facilities without compromising environmental performance.

Response:
As supported by commenters, EPA is promulgating the comparable fuels exclusion.

6. Agency has legal authority.

CFG.06(commenter 086)
B. The Agency Has Ample Legal Authority to Promulgate a Comparable Fuels Exclusion.

USWAG agrees that EPA has ample legal authority to exclude comparable fuels from regulation as solid waste. 61 Fed. Reg. at 17459. Several court decisions have confirmed that EPA has considerable discretion to determine which materials meet the statutory definition of "solid waste." The proposed comparable fuels exclusion clearly falls within this discretion. Section 1004(27) of RCRA defines "solid waste" in relevant part as "any garbage, refuse, sludge, . . ., and other discarded material." 42 U.S.C. § 6903(27). The D.C. Circuit, applying the familiar test of Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837 (1984), has held that this term is sufficiently broad that Congress intended EPA to exercise its discretion in defining its exact scope. American Minina Cona. v. EPA, 907 F.2d 1179,1186 (D.C. Cir. 1990) ("AMC 11"); American Petroleum Institute v. EPA, 906 F.2d 729, 741 (D.C. Cir. 1990). As the Court stated in AMC 11, "the term discarded' [is] marked by the kind of ambiguity demanding resolution by the Agency's delegated lawmaking powers." 907 F.2d at 1 1 86. Therefore, the Agency has considerable discretion to determine which materials have been "discarded" and thus fall within the statutory definition of "solid waste." The Agency's discretion is particularly broad in a situation like this where the regulatory decision must be based on the Agency's expertise and experience. Chevron, 467 U.S. at 845.

The proposed comparable fuels exclusion clearly falls within this discretion as a "permissible" interpretation of RCRA. Chevron, 467 U.S. at 843. First, materials that qualify as comparable fuels will be used as a product and therefore are never discarded. These materials never become part of "the waste disposal problem" RCRA is intended to address, American Minina Congress v. EPA, 824 F.2d 1177, 1186 (D.C. Cir. 1987) ("AMC I"), and thus do not fall within the scope of materials Congress intended to regulate under RCRA. Id. at ll9O ("In sum, our analysis of the statute reveals clear Congressional intent to extend EPA's authority only to materials that are truly discarded, disposed of, thrown away, or abandoned").

Second, in its findings on passage of RCRA, Congress stated that:

> The Congress finds with respect to energy, that --
> (1) solid waste represents a potential source of solid fuel, oil, or gas that can be converted into energy;
> (2) the need exists to develop alternative energy sources for public and private consumption in order to reduce our dependence on such sources as petroleum products, natural gas, nuclear, and hydroelectric generation; and
> (3) technology exists to produce usable energy from solid waste.
> 42 U.S.C. § 6901 (d).

Similarly, one of the objectives of RCRA is "establishing a cooperative effort among the

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Federal, State, and local governments and private enterprise in order to recover valuable materials and energy from solid waste." 42 U.S.C. § 6902(a)(11). The comparable fuels proposal, by providing a mechanism to recover fuel values from materials that would otherwise be managed as hazardous waste, is consistent with this statutory purpose. Therefore, the Agency's interpretation of the statutory term "solid waste" to exclude comparable fuels is a reasonable one that directly effectuates Congress' purpose in passing RCRA and is well within the Agency's legal authority.

Response:
EPA agrees that it has the legal authority to promulgate a comparable fuels exclusion. However, the Agency strongly disagrees with the commenter's suggestion that these fuels can be considered to not be discarded because they are not literally thrown away (citing AMC I). Fuels produced from hazardous wastes are clearly within the Agency's jurisdiction (see section 3004(q)), and combusting of hazardous wastes can be viewed as a type of discarding because the process so closely resembles incineration, as pointed out in the legislative history to section 3004(q)). See H. Rep. No. 198, 98th Cong. 1st ses., section 6 of report (1983). Accordingly, the Agency wishes to make clear that the exclusion in the final rule is based on the exercise of discretion, and is not compelled by the language of the statue.

7. Relationship to the used oil mixture rule.

CFG.07(commenter 086)
C. The Comparable Fuels Exclusion is Not a Substitute for the Used Oil Mixture Rule. The Agency has previously suggested that the proposed comparable fuels exclusion could function as a substitute for the used oil mixture rule. Safety-Kleen Corp. v. EPA, No. 92-1629 (D.C. Cir.), Status Report dated May 3, 1996. This assertion is simply untrue. Not only do the two provisions address different universes of wastes on their face, but the used oil mixture rule creates significant collateral benefits for used oil recycling that would not be provided by the comparable fuels exclusion.

The used oil mixture rule allows generators to manage small volumes of characteristic waste with used oil if the resulting mixture does not exhibit the characteristic. 40 CFR §279.10(b)(2). It thus applies to a completely different universe of wastes than the proposed comparable fuels exclusion. First, it applies only to characteristic wastes, whereas listed wastes may also qualify as comparable fuel. Second, it can be used by generators of relatively small volumes of hazardous waste that would not justify the expense of the testing and other requirements associated with the comparable fuel exclusion. Finally, it can apply to wastes that do not meet the comparable fuel specifications for physical properties or constituent concentrations, but which can nonetheless be safely burned for energy recovery or otherwise recycled in accordance with RCRA's used oil management standards (40 CFR Part 279).

Moreover, there are substantial practical constraints on which wastes can be managed under the used oil mixture rule. The mixture cannot exhibit the characteristic of the waste and the mixture must be recyclable. These constraints impose real limitations on the amount and

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types of hazardous waste that can be managed under the used oil mixture rule because mixing large quantities of hazardous constituents into the oil would cause it to either exhibit a characteristic or fail to meet the commercial specifications for use as a product or fuel.

In addition, the used oil mixture must be managed in accordance with an array of transportation, storage, and burning restrictions. Thus, the used oil mixture rule offers an environmentally sound and cost effective way of managing certain small volume waste streams.

In addition, the used oil mixture rule is important to the entire used oil management system. Because the rule ensures that mixtures of used oil and small quantities of characteristic wastes are not subject to RCRA requirements, including the land disposal restrictions, used oil dealers and other users of used oil can manage used oil without fear that they will incur RCRA liability. Revocation of the rule would act as a chill on the used oil market -- including many small businesses -- because dealers would have to require additional testing and certification of used oil and may refuse to handle certain classes of used oil entirely. See February 3, 1995 letter from L. Northrup, Convenient Automotive Services Institute (attached), describing the impact on quick oil change operations that would result from recision of the used oil mixture rule. For all these reasons, the comparable fuels exclusion would in no way serve the same purpose as the used oil mixture rule and cannot be used as a justification for revocation of that rule.

CFMISS.47(commenter 214)

Relationship to the Used Oil Mixture Rule

The used oil mixture rule, set forth in 40 CFR 279.10(b)(2)(ii),(iii), has in effect, already established specifications for a fuel that should be included in the exclusion. The used oil mixture rule allows used oil that has been mixed with ignitable-only characteristic hazardous wastes to be managed as used oil, provided the mixture does not exhibit the characteristic of ignitability. In developing the used oil mixture rule, the Agency recognized that "mixing to manage ignitable solvents appears to be acceptable, provided the characteristic of ignitability is removed." 57 Fed. Feg. at 41581 (September 10, 1992). AS the basis for this statement, EPA pointed out that "mixing the solvents in with used oil should not affect the chemical constituents or other properties of used oil" because the solvents are petroleum fractions. Id. Since its adoption by the Agency in September, 1992, the used oil mixture rule has resulted in the burning of used oil containing de minimis quantities of ignitable-only hazardous wastes -- primarily mineral spirits -- by boilers and industrial furnaces. Precisely how much used oil fuel contains de minimis quantities of mineral spirits or similar ignitable-only hazardous wastes is not known. Any attempt at a realistic quantification would be a formidable research task. NORA believes, however, that mixing by generators, particularly in the automotive service industry, in compliance with mixture rule is a common and widespread practice. Consequently, it is fair to say that most used oil that is burned in this country as industrial fuel contains mineral spirits or other ignitable-only hazardous waste in some concentration -- but at levels far below those which would render the mixtures ignitable. Despite such widespread use over the past four years, NORA is unaware of a single problem experienced by burners of used oil fuel containing de minimis quantities of ignitable-only hazardous waste. (It should be noted that compliance with the mixture rule by used oil fuel processors is virtually guaranteed because typical industrial burners, such as asphalt plants, are not capable of burning any fuel where the flashpoint is below 140 degrees F.)

The widespread use of used oil/mineral spirits mixtures (in compliance with the used oil mixture rule) over the past four years has established a benchmark for the comparable fuels exclusion. Although the precise specification (or specifications) for fuels created from used oil/ignitable waste mixtures has not yet been devised, NORA believes such specifications are readily ascertained and are appropriate for inclusion in the comparable fuels exclusion.

Although the Agency has not formally proposed a rulemaking that would rescind or modify the used oil mixture rule, NORA is aware that this is a direction the Agency is seriously considering. Moreover, the validity of the used oil mixture rule is presently the subject of litigation before the U.S. Court of Appeals in the District of Columbia Circuit (Safety-Kleen Corp. v. EPA, 92-1629). Thus, while the marketing of certain used oil/ignitable-only mixtures is currently legal, NORA recognizes the potential termination of the legal basis for this type of fuel. Therefore, NORA respectfully suggests that EPA examine this issue according to the criteria for a comparable fuel exclusion. In essence, such an examination would determine whether used oil mixed with de minimis quantities of ignitable-only hazardous wastes presents any risk greater than used oil that has not been mixed with such material.

It should also be emphasized that mineral spirits is a low flash petroleum product that can be expected to burn efficiently and cleanly. As an ignitable-only hazardous waste it would not contain sufficient contaminants to cause it to fail RCRA's toxicity tests and therefore would normally be "cleaner" than automotive used oil. Moreover, because such mixtures are typically burned in facilities such as asphalt plants, steel mills, cement kilns, utility boilers and other industrial furnaces that have pollution control equipment, NORA is confident that this fuel will not present any additional risk compared to specification used oil fuel.

Finally, the creation of a comparable fuels exclusion allowing the burning of used oil mixed with de minimis quantities of ignitable-only wastes would be consistent with the congressional mandate expressed in the Used Oil Recycling Act which requires EPA to ensure that its regulations governing used oil "do not discourage the recovery or recycling of used oil." 42 U.S.C. 6935(a).

CFMISS.33(commenter 174)

Relationship to the Used Oil Mixture Rule

The used oil mixture rule, set forth in 40 CFR 279.10(b)(2)(ii), (iii), has in effect, already established specification for a fuel that should be included in the exclusion. The use oil mixture rule allows used oil that has been mixed with ignitable-only characteristic hazardous wastes to be managed as used oil, provided the mixture does not exhibit the characteristic of ignitability. In developing the used oil mixture rule, the Agency recognized that "mixing to manage ignitable solvents appears to be acceptable, provided the characteristic of ignitability is removed, 57 Fed. Reg. at 41581 (September 10, 1992). As the basis for this statement, EPA pointed out that "mixing the solvents in with used oil should not affect the chemical constituents or other properties of used oil" because the solvents are petroleum fractions. Id.

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Since its adoption by the Agency in September, 1992, the used oil mixture rule has resulted in the burning of used oil containing de minimis quantities of ignitable-only hazardous wastes - primarily mineral spirits from automotive parts washers - by boilers and industrial furnaces. Precisely how much used oil fuel contains de minimis quantities of mineral spirits or similar ignitable-only hazardous wastes is not known. Any attempt at a realistic quantification would be a formidable research task.

We believe, however, that mixing by generators, particularly in the automotive service industry, in compliance with the mixture rule is a common and widespread practice. Consequently, it is fair to say that most used oil that is burned in this country as industrial fuel contains mineral spirits or other ignitable-only hazardous waste in some concentration - but at levels far below those which would render the mixtures ignitable. Despite such widespread use over the past four years, we are unaware of a single problem experienced by burners of used oil fuel containing de minimis quantities of ignitable-only hazardous waste. (It should be noted that compliance with the used oil fuel processors is virtually guaranteed because typical industrial burners, such as asphalt plants, are not capable of burning ant fuel where the flash point is below 140 degrees F.)

The widespread use of used oil/mineral spirits mixtures (in compliance with the used oil mixture rule) over the past four years established a benchmark for the comparable fuels exclusion. Although the precise specification (or specifications) for fuels created from used oil/ignitable waste mixtures has no yet been devised, we believe such specifications are readily ascertained and are appropriate for inclusion in the comparable fuels exclusion.

Although the Agency has not formally proposed a rulemaking that would rescind or modify the used oil mixture rule, we are aware that this is a direction the Agency is seriously considering. Moreover, the validity of the used oil mixture rule is presently the subject of litigation before the U.S. Court of Appeals in the District of Columbia Circuit (Safety-Kleen Corp. v. EPA, 92-1629) Thus, while the marketing of certain used oil/ignitable-only mixtures is currently legal. We recognize the potential termination of the legal basis for this type of fuel. Therefore, we respectfully suggest that EPA examine this issue according to the criteria for a comparable fuel exclusion. We believe that such an examination would confirm EPA's previous conclusion used oil mixed with de minimis quantities of ignitable-only hazardous wastes does not present any risk greater than those posed by pure used oil.

The creation of a comparable fuel exemption allowing the burning of used oil mixed with de minimis quantities of ignitable-only hazardous wastes would be consistent with the congressional mandate expressed in the Used Oil Recycling act which requires EPA to ensure that its regulations governing used oil "do not discourage the recovery of recycling of used oil" 42 USC S6935(a).

Automotive parts washer solvents and used oil mixed with these solvents are also ideal candidates for EPA's Targeted Legislative changes to RCRA (FR Apr 28, 1995).

Response:

Under this final rulemaking, EPA is not addressing comments concerning the used oil mixture rule. Any comments in this regard will be addressed in the used oil mixture rulemaking procedures.

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8. Excluded fuel should not be burned solely for destruction.

CFG.09(commenter 089)

I. Comparable Fuel Exclusion

Pg 17459 Webster's New World Dictionary (Warner Books Edition, 1987) defines fuel as " 1. Coal, oil, gas, wood, etc., burned to supply heat or power".

We note that the EPA Comparable Fuel proposal does not require comparable fuels to be burned for energy recovery to qualify as comparable fuels. The exclusion only requires that the fuels be burned. Given that this exclusion is proposed to forward EPA's goals of Resource Recovery and Conservation, the Comparable Fuels proposal as set forth in the April 19, 1996, *Federal Register* may not achieve the stated goal.

Pg 17460 "Note also that, because EPA is proposing to eliminate or amend other combustion-related exemptions in this rulemaking (i.e., the exemption for incinerators for wastes that are hazardous solely because they are ignitable, corrosive, or reactive and contain no or insignificant levels of Appendix VIII, Part 261, toxic constituents; and the low-risk waste exemption under BIF), the inclusion of a comparable fuels exemption may offset the effects of these changes at a number of affected facilities."

This statement represents a basic philosophical change in the regulations, namely, that the EPA will now allow, under RCRA/HSWA regulation, the burning of hazardous wastes in an incinerator without a hazardous waste permit requirement. While the TNRCC agrees with the concept of a comparable fuel specification, and a resulting exemption for comparable fuel materials, we do not concur that a material, exempted as a comparable fuel, being burned strictly for destruction should be exempted from the definition of hazardous waste. We note that in some cases, a comparable fuel designation may be reasonable when a material is burned to heat other hazardous waste materials in an incinerator; however, a material burned purely for destruction, without recovery of energy or materials, should be considered as a waste and regulated as such. We note that the proposed regulation will regulate low-risk incinerators under the MACT unless the wastes burned meet the comparable fuel specification, pursuant to provisions found in Part Six.Il.C., p. 17470.

Response:

The final rule requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators, along with a certification from the burner, would ensure that the fuel was burned in a unit subject to Federal/State/local air emission regulations. Industrial furnaces or boilers, or hazardous waste incinerators are believed to be a universe of units that are capable of handling comparable/syngas fuels and that would be subject to Federal/State/local air emission requirements. Although in most cases comparable fuels sent to an incinerator are burned solely for destruction, this would still be appropriate because the comparable fuel is combusted in an air regulated unit. In addition, the incinerator would be able to recover the energy value of the fuel (since, presumably, the device would burn less fossil fuel, since the comparable fuel would be supplying equivalent energy).

9. Comparable fuels should be separated from the MACT rule.

CFG.10(commenter 092)
The primary issue of concern to Systech is the comparable fuels exemption contained in the proposed rule. As a matter of policy and convenience, the comparable fuel provision does not belong in this rulemaking package. It creates an exemption to the hazardous waste identification regulations contained in Section 40 CFR Part 26 1. Part 261 is a complicated set of regulations that are founded upon many legal requirements and longstanding policies that go beyond the HWC MACT rules. These issues and rules should be separated from this rulemaking package and addressed separately. Separating the issue is even more compelling when EPA takes into consideration the overwhelming complexity of the rest of the rule package.

CFG.12(commenter 092)
Obviously, this issue is very complicated and deserves more individual attention than it will receive in this package. The combined RCRA/MACT provisions addressing three disparate RCRA Docket Information Center industrial categories is very complicated, covering a wide range of technical and policy issues. This emphasis on the RCRA/MACT issues only serves to distract the regulated community from the complexities of the comparable fuels provisions. The issue will not receive the full and complete review it deserves. Therefore, Systech urges EPA to separate the comparable fuels provisions from this rulemaking and make it a part of the (re)definition of solid waste or the hazardous waste identification rule.

CFG.15.a(commenter 099)
II. Benefits of Promulgating a Comparable Fuel Exclusion
Dow supports the Agency's effort to develop and promulgate a comparable fuel exclusion and encourages the Agency to finalize such an exclusion as soon as possible. In fact, Dow would urge the Agency to de-couple the comparable fuel exclusion from the proposed MACT rule for hazardous waste combustors, since it may be some time before the Agency promulgates the final MACT emission standards, and promulgate the comparable fuel exclusion in a more timely manner.

CFG.18(commenter 099)
D. Timing for Granting Dow's Rulemaking Petition with Respect to the CCF Material
As indicated in the previous section, Dow believes it has amply demonstrated that the CCF material meets several of the proposed specifications (i.e., specification for gasoline and composite specification at the 90th percentile) being considered by EPA for the comparable fuel exclusion. In fact, CCF is generally superior to fossil fuel in that it contains hazardous constituents at levels much lower than those found in fossil fuels, if present at all. Therefore, Dow believes that the Agency will agree with us that the petition should be granted.

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As we discuss in the next section, Dow is suggesting that a number of revisions be made to the generic comparable fuel specification, including the promulgation of an additional and expanded specification, that would allow more materials to be excluded from the definition of solid and hazardous waste in a way that would still protect human health and the environment. However, because it may be sometime before the comparable fuel exclusion is promulgated, Dow requests that EPA grant Dow's Rulemaking Petition with respect to the CCF material on a faster time track.[8] [Footnote 8: As indicated previously, Dow also believes that EPA should de-couple the comparable fuel exclusion from the MACT emission rule for hazardous waste combustors and promulgate the exclusion on a quicker time schedule. However, we would also urge the Agency to make an immediate decision to grant Dow's rulemaking petition with respect to the CCF material, rather than resolve all the issues with the comparable fuel exclusion.]

In EPA's preamble discussion on comparable fuels, EPA states that they may undertake a final rulemaking to provide an exclusion for syngas before promulgating the generic comparable fuel exclusion. Because Dow's petition would allow EPA to make a stand alone decision and because Dow has demonstrated that the CCF material would easily meet EPA's proposed comparable fuel specification, Dow believes it appropriate for EPA to exclude the CCF material as quickly as possible -- such as on the same schedule that EPA plans regarding the exclusion for syngas. Upon final Agency action, Dow would commit to carry out the proposed implementation scheme, including all testing and recordkeeping requirements. By doing so, Dow believes that it would benefit everyone -- Dow, the public, and the regulators --- and allow both Dow and the regulators to focus their limited resources on higher priorities.

CFG.22.a(commenter 102)

A. Comparable Fuels Should Not be Addressed in the Hazardous Waste Combustor MACT Proposal

We do not believe that comparable fuels is an appropriate issue for a rulemaking addressing emissions standards and control technologies for hazardous waste combustion devices. To us, comparable fuels is yet another in an emerging long list of EPA initiatives to get certain wastes out of full Subtitle C regulation, by either completely exempting the waste from hazardous waste regulations o subjecting the waste to some lesser contingent management standards. As such, we believe the concept is more appropriately handled in a separate, deregulatory rulemaking, such as the (re)definition of solid waste.

The definition of solid waste (DSW) activity is designed to streamline and simplify solid waste management practices, promote recycling and permit certain wastes to exit the Subtitle C system, subject to certain management standards. As part of the process, EPA is currently consulting with stakeholders to assist in the development of a rulemaking proposal that would amend the definition of solid waste. It is NACR's understanding that this rulemaking effort is intended to make the current definition more cost-effective and create incentives for hazardous waste minimization and recycling. It is the NACR's belief that comparable fuels issues should be fully aired as part of that effort. RCRA, not the Clean Air Act, is the fundamental statutory underpinning of the comparable fuels proposal; its resolution should be accomplished there, not within a rulemaking addressing hazardous waste combustor

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emissions.
Since the DSW proposal is not expected to be submitted to OMB until the end of this year, there should not be a conflict in timing for EPA to remove the comparable fuel proposal from the combustion rule and transfer it to the DSW proposal.

CFG.25(commenter 102)

L. The Comparable Fuels Proposal is Untimely With Respect to Other Combustion MACT Rules.

NACR questions why a comparable fuels provision, which is designed to benefit large industrial facilities with on-site boilers, needs to be addressed within the cement kiln/incinerator hazardous waste combustor MACT instead of the future MACT for boilers and other industrial furnaces. EPA has stated that a similar and subsequent MACT rulemaking effort which will address the remaining devices combusting hazardous waste will be proposed in the future. The combustion devices which the subsequent combustion MACT rule will impact will probably be the devices which will benefit from the current comparable fuel proposal. If a comparable fuels proposal is made concurrent with either combustion rule, it ought to be proposed with the future combustion MACT for boilers.

CFG.31(commenter 108)

VI. THE COMPARABLE FUEL PROVISION DOES NOT BELONG IN THIS PROPOSAL AND IS NOT SUPPORTED BY APPROPRIATE ANALYSIS

In addition to detailed standards on hazardous waste combustors, EPA's proposed rule also includes a proposal for exempting certain hazardous wastes from the DSW if they exhibit "comparable" characteristics to various benchmark fossil fuels. These characteristics include physical characteristics, such as viscosity, flash point, and heating value, and constituent levels for metals and organics. Safety-Kleen does not believe that this proposal is the appropriate place for addressing comparable fuels. In addition, EPA has not conducted sufficient analysis to understand the consequences of such a proposal and needs to conduct such analysis in any future efforts to address comparable fuels .

CFG.32(commenter 108)

A. The comparable fuel provision should be part of EPA's rulemaking on the Definition of Solid Waste, not Part of this rulemaking

This rulemaking is not the place to be developing a significant exemption from the DSW. Given the enormity and complexity of the emissions standards themselves, it is wholly inappropriate to attach to these proposed standards such a significant shift in the RCRA program. Developing a comparable fuel exclusion should more appropriately be developed as part of the Agency's ongoing revisions to the Definition of Solid Waste (DSW). That rulemaking effort is intended to make the current definition more cost-effective and to create incentives for hazardous waste minimization and recycling. Its overarching goal is to better define what is a product and what is a waste. Moreover, before EPA can complete that rulemaking, it must address a large number of issues, including the separation of sham recycling activities from legitimate recycling, the identification of what is a comparable

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product, the development of appropriate testing and enforcement systems for materials that are to be exempted, the development of management standards for exempted materials, and the creation of a more level playing field between large businesses and small businesses.
All of the issues being addressed under the DSW rulemaking are those that must be addressed in any comparable fuel proposal. It is inappropriate to set precedents in this rule because fuels are just one of many similar materials for which there are definitional questions regarding the waste or product status of the material. In Safety-Kleen's opinion, much of the current confusion surrounding the DSW is the result of piecemeal modifications to the definition over time which has resulted in convoluted and often ineffective regulation. One of the primary benefits of the current rulemaking on the definition is that it is taking a more holistic approach to identifying what should and should not be regulated under Subtitle C. The comparable fuel exclusion should be considered as part of this holistic regulatory change, not as part of a regulation addressing air emission standards for various combustion devices.

CFG.45(commenter 134)
II. Timing For Promulgation of the Comparable Fuel Exclusion
Before discussing our specific comments on the comparable fuel exclusion, Ciba urges the Agency to de-couple the comparable fuel exclusion from the proposed MACT emissions standards for hazardous waste combustors and promulgate the exclusion as expeditiously as possible. The proposed MACT rule raises a number of complex legal, policy and technical issues that will take time to resolve. Consideration of the complex issues raised by the proposed MACT rule should not delay promulgation of the comparable fuel exclusion.

CFG.52.a(commenter 170)
XIV. THE PROPOSAL'S COMPARABLE FUEL EXCLUSION IS PROBLEMATIC
EPA's proposal of its Comparable Fuels Exclusion is inappropriate within the context of the proposed MACT rule for HWC's which deals primarily with regulation of air emissions from hazardous waste combustors. The Comparable Fuels proposal has nothing to do with emissions regulations. It is essentially a deregulatory program better suited to currently active RCRA rulemakings such as the Hazardous Waste Identification Rule or the Redefinition of Solid Waste.

CFG.56(commenter 172)
Heritage's initial interest in this proposed rule was minimal due to the fact that we do not own or operate an incinerator or cement kiln. This proposed rule primarily addresses the application of Maximum Achievable Control Technologies (MACT) to incinerators and cement kilns and therefore would generally apply directly to only a small segment of the regulated community. Based on a review of the Federal Register preamble summary for this rule, however, Heritage was surprised to note a proposed RCRA exclusion for "comparable fuels". This exclusion has the potential to affect a much broader segment of the regulated community than the title of the proposed rule would suggest, including large and small quantity generators, chemical distributors, waste brokers, and fuel blenders, as well as the aforementioned combustion facilities.

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GEN2.39(commenter 172)

As proposed, the "comparable fuels exclusion" is buried among the details of a lengthy rulemaking that on its surface only affects certain combustion facilities. Heritage is concerned that many who will potentially be affected by this proposed exclusion, particularly generators, are not even aware that it has been proposed. This is a potentially significant change to current regulations governing the management of waste fuels and should be given full consideration as a separate rulemaking, not as one of many provisions in a large and complex proposed rule primarily addressing air emissions issues. Also, as proposed the "comparable fuels exclusion" is not well-defined. EPA has included too many options and not enough details (e.g., no comparable fuels specification values) to make concise comments. Therefore, Heritage strongly urges the EPA to propose the "comparable fuels exclusion" in a separate rulemaking where it will be subject to full consideration and comment by all of the parties potentially affected.

GEN2.40(commenter 172)

Also, Heritage reiterates its request for EPA to repropose the proposed "comparable fuels exclusion" as a separate rulemaking.

CFG.59(commenter 178)

Please note that the timing of this proposed rulemaking concerns us in regard to the real world value of comparable fuels exclusion. We are hearing reports that a final rule may not be issued by year-end and may be delayed until 1998. The exclusion would be of greatest value if it is promulgated before all of the industrial boiler Part B permits are called-in. If sites are forced to undergo the permitting process in 1997, prior to a final comparable fuels exclusion, than both the regulated community and the authorized agencies will commit significant resources best spent elsewhere. We strongly urge the Agency to finalize the comparable fuels exclusion as soon as possible and via a separate rulemaking package.

Response:

EPA is promulgating the comparable fuels exclusion on a separate and faster schedule from the Hazardous Waste Combustor MACT Rule. Although appropriately linked with the HWC MACT rule, EPA was able to resolve the issues for finalization of the comparable fuels exclusion on a faster schedule. The comparable fuels exclusion, which requires certification that the excluded waste is combusted, potentially affects the HWC universe identified in proposed HWC MACT rule and the second, unproposed HWC MACT rule (includes boilers). Proposing the comparable fuels exclusion with the HWC MACT rule made sense from both a time and resource perspective.

It should also be noted that, because EPA is proposing to eliminate or amend other combustion-related exemptions in the HWC rulemaking (i.e., the exemption for incinerators for wastes that are hazardous solely because they are ignitable, corrosive, or reactive and contain no or insignificant levels of Appendix VIII, Part 261, toxic constituents; and the low-risk waste exemption under BIF), the comparable fuels exclusion was included in the HWC MACT rule. The inclusion of a comparable fuels exclusion may offset the effects of these changes at a number of affected facilities.

EPA does not believe it is necessary to link the comparable fuels rulemaking with other amendments to the definition of solid waste. The final rule is consistent with EPA's goal to develop a comparable fuels specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available fuel and therefore poses no greater risk than burning a fossil fuel. The rationale for the Agency's approach is that if a hazardous waste-derived fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has discretion to classify such material as a fuel product, not a waste.

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10. Grant commenters' petitions.

CFG.13(commenter 099)

In addition, Dow generates secondary materials that should be considered comparable fuels and excluded from the definition of solid and hazardous waste under the Resource Conservation and Recovery Act (RCRA). In fact, in anticipation of EPA's comparable fuel proposal in the MACT proposed rule, Dow submitted a rulemaking petition that requested EPA: (1) to promulgate a generic comparable fuel specification and establish a benchmark that defines which materials would qualify for exclusion from the definition of solid and hazardous waste; (2) to specifically exempt Comparable Combustible Fuel (CCF), a material generated at Dow's Midland, Michigan; Joliet, Illinois; and Torrance, California plants, from the definition of solid and hazardous waste; and (3) to stop processing tile Part B permit applications that Dow submitted for the boiler units that solely burn the CCF material until EPA makes a determination on the rulemaking petition.

CFG.14(commenter 099)

Dow would like to commend the Agency for proposing a generic comparable fuel exclusion and for specifically taking comment on Dow's Rulemaking Petition. Nevertheless, Dow has a number of suggestions on EPA's proposed exclusion, as well as its implementation scheme. More specifically, Dow is requesting that EPA:

- Grant Dow's rulemaking petition immediately and exclude the CCF material which is burned for energy recovery from the definition of solid and hazardous wastes;
- De-couple the comparable fuel exclusion from the proposed MACT rule for hazardous waste combustors and promulgate the comparable fuel exclusion, as revised per Dow's comments, as soon as possible; and
- Promulgate an additional comparable fuel specification that would expand and streamline the approach taken for comparable fuels.

Dow is offering these comments in defining comparable fuels because it believes that it also achieves EPA's goal for a comparable fuel exclusion -- that is, to establish a comparable fuel specification which is of greater utility to the regulated community, but assures that the excluded material poses no greater risk than burning of fossil fuel.

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CFG.16(commenter 099)

III. Dow's Comparable Fuel Rulemaking Petition

A. Introduction

On August 10, 1995, Dow submitted a rulemaking petition to EPA pursuant to 40 CFR 260.20 entitled, "Rulemaking Petition for the Exclusion of Comparable Combustible Fuel." The petition requested that EPA:

- Promulgate a generic comparable fuel specification and establish a benchmark that defines which materials would qualify for exclusion from the definition of solid and hazardous waste[3] [Footnote 3: In requesting a generic specification, Dow did not suggest what the specification should consider or what the actual levels should be.]
- Specifically exclude Dow's Comparable Combustible Fuel (CCF) which is burned for energy recovery in its own on-site boilers from the definition of solid and hazardous waste; and
- Stop processing any Part B permit applications for Dow's boilers that solely burn CCF [4] material for energy recovery until a decision is made regarding the rulemaking petition. [Footnote 4 This request will not be discussed further in our comments.]

The remainder of this section presents Dow's comments on the CCF material described in its rulemaking petition, and why the Agency should grant Dow's petition, while the next section presents Dow's comments and suggestions on the proposed generic comparable fuel exclusion.

GEN1.030.a(commenter 099)

B. Summary of Dow's Rulemaking Petition With Respect to the CCF Material

Dow has maintained a strong commitment to properly manage hazardous wastes. In fact, Dow has established a program to manage its wastes consistent with the principles of the waste management hierarchy (i.e., source reduction, recycling, treatment and finally land disposal) and seeks whenever possible the opportunity to obtain the maximum value out of materials that would otherwise be considered wastes. To this end, Dow recovers the energy value from a number of secondary materials by burning them in on-site boilers. One material that is recycled for its energy value (and the subject of Dow's rulemaking petition) is referred to as CCF material and is generated from a styrene-based polymer process at Dow's manufacturing sites in Midland, Michigan, Joliet, Illinois, and Torrance, California.[5]

[Footnote 5: CCF is also generated at Dow's Gales Ferry, Connecticut and Ironton, Ohio manufacturing sites. However, this material is mixed with other streams from a different polymer process before being burned for energy recovery. Thus, the CCF and the boilers at these sites are not subject to the rulemaking petition.]

The CCF that Dow generates is a clear, yellowish organic liquid material. It is classified as hazardous for its ignitability (i.e., has a flash point less than 140° degrees Fahrenheit) and/or toxicity (i.e., exhibits the toxicity characteristic for benzene (D018)). It has very low ash levels (between 0.001 wt% and 0.01 wt%) and a Btu content of approximately 18,300 Btu/lb. The viscosity ranges from 12.7 cst to 3 1.0 cst at 25°C.

The chemical composition of CCF is primarily mineral oil, styrene, styrene dimers and trimers, stearic acid and ethyl benzene, none of which are considered toxic by EPA, as defined by

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Appendix VIII of 40 CFR Part 261; these materials comprise approximately 92% - 99% of the CCF material. With respect to the other compounds present in the CCF, they are either present at very low levels, in many cases are not detected, or are present at levels that are below those typically found in fossil fuels. For example, Appendix VIII non-metal constituents include benzene (5 - 4800 ppm), toluene (14 - 810 ppm) and formic acid (4- 200 ppm).[6] Other trace constituents in CCF include non-Appendix VIII organics such as n-propyl benzene, cumene, benzoic acid, styrene oxide, xyiene and t-butyl alcohol.[7] In addition, the Appendix VIH metals plus cobalt and manganese were not detected in CCF, while chlorine levels are very low, ranging from non detect to less than 20 ppm. (See Dow's Rulemaking Petition, including subsequent submissions, for more details on the composition of this material.)

[Footnote 6: While formic acid ... (response found in later comment responses)]

[Footnote 7: The CCF material has not been analyzed for all Appendix VIII hazardous constituents. However, based on the limited raw materials used in the process, raw material specifications, knowledge of process operations and quality control procedures, the CCF material does not contain any additional Appendix VIII hazardous constituents.]

CFG.17(commenter 099)

C. Comparison Between the CCF Material and EPA's Proposed Comparable Fuel Specification

The Agency proposed several options for its comparable fuel specification ranging from developing a suite of comparable fuel specifications based on individual benchmark fuels to basing the specification on composite values derived from the analysis of all benchmark fuels. Except in one case a comparison of the chemical and physical characteristics of the CCF against EPA's proposed comparable fuel specification demonstrates that the CCF material meets the fuel specification at the 90th exceeds the proposed Gasoline Specification and the Composite Fuel Specification. In that one instant, one percent sample of the CCF did not meet the gasoline comparable fuel specification for nitrogen by a small amount. (Nitrogen was not detected in the other two samples.) However, as discussed in Section IV.C. 1, Dow recommends that total nitrogen not be included in the comparable fuel specification since oxides of nitrogen are already controlled under the Clean Air Act (CAA). In particular:

[NOTE: Table. See page 6 of original comment.]

Consequently, EPA should grant Dow's request to specifically exclude the CCF material from the definition of solid and hazardous waste when burned for energy recovery.

CFG.58(commenter 177)

13. Cytec supports the Agency's efforts to recognize the benefits to the environment by burning waste in lieu of petroleum based fossil fuels. However, Cytec is concerned that the proposed Comparable fuel Exclusion provides too narrow a specification for comparable fuels which could lead to further withdrawal of entirely suitable fuel materials as substitutes for these valuable natural resources. Under EPA regulations, any material is a solid waste if it is burned or incinerated. Furthermore, any spent material, byproduct, byproducts exhibiting a characteristic of hazardous waste and commercial chemical products listed in 40 CFR 261.33

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is classified solid waste when burned for energy recovery. Yet, as EPA notes many of these materials are fuels themselves. EPA is suggesting that they would require a non-detect concentration of any Appendix VIII chemical if it were not specifically included in the "Fuel Specification". This would exclude for use as fuels many substances containing hydrocarbons such as allyl alcohol, formaldehyde, methyl ethyl ketone, etc., all of which would make excellent fuels with no adverse affect on human health or the environment if burned.

Cytec burns a mixture of methyl alcohol, butanol, formaldehyde and water as fuel in a BIF unit at its Kalamazoo facility. This material is a substitute for natural as or No. 6 fuel oil and provides energy to operate the plant's processes. When this mixture is burned, the concentration of CO in the flue gas drops to 30 ppm versus the 100 ppm CO level EPA properly notes is a level "that ensure that PIC emissions are not likely to pose unacceptable health risk". In addition, the substitute mix does not contain sulfur, ash, chlorides, or heavy metals as typically found in No. 6 fuel oil. To ensure that this mixture would qualify under the exclusion Cytec requests that an exemption be added to the Comparable Fuels specification that would allow recovery of energy from clean waste derived fuels.

Response:

DOW Chemical Company (Dow) and Cytec Industries, Inc. have submitted a petition to the Administrator, dated August 10, 1995, specifically requested that the Agency develop a generic exclusion for materials that are burned for energy recovery in on-site boilers which do not exceed the levels of fossil fuel constituents. This final rule responds to both petitions. If the wastes petition by Dow and Cytec meet the individual physical and chemical comparable fuels specifications, then both of these candidate comparable fuels will be excluded from the definition of solid wastes. It remains the authority of the implementing officials in the states that incorporate this rule into their State RCRA regulations to exclude wastes under the comparable fuels exclusion, provided all of the requirements of today's rule are satisfied.

11. Oppose comparable fuel proposal.

CFG.21(commenter 102)

IV. NACR Opposes EPA's Comparable Fuel Proposal.

In addition to detailed standards on hazardous waste combustors, EPA's proposed rule also includes a proposal for exempting certain hazardous wastes from the definition of solid waste if they exhibit "comparable" characteristics to fossil fuels used by combustors. EPA has tested four fossil fuels commonly used by combustion devices for the development of baseline levels of constituents in a so called "comparable fuel". Hazardous wastes that meet specific physical and constituent characteristics consistent with the proposed baseline levels would be eligible for an exemption from hazardous waste regulations as long as the waste is burned. These characteristics include physical characteristics, such as viscosity, flash point, and heating value; and constituent levels for metals and organics.

The NACR opposes the proposal of this exemption for comparable fuels. It is conceptually flawed and should not be part of a rulemaking that addresses the emissions from hazardous waste combustors. In addition to being out of place in an emissions standards rulemaking, the proposed comparable fuels concept is deficient from a public policy and technical perspective.

CFG.23(commenter 102)

B. Comparable Fuels Undermine the Existing RCRA Program.

Since 1980, the "cradle to grave" RCRA Subtitle C hazardous waste management system originally envisioned by Congress, of which chemical recyclers are a significant part, has provided waste management services to generators and protection to human health and the environment. The combination of EPA's land disposal regulations and stringent regulation of hazardous waste treatment, storage and disposal facilities, including combustion devices, has proven to be an effective means of accomplishing the national goals and policies set forth by Congress in RCRA.

Economics, liability concerns, regulatory mandates, legislative incentives, a "greening" of corporate America--these and other factors have resulted in a substantial environmental improvement. Considerable sums have been expended, both by hazardous waste generators and the waste management industry, to achieve that improvement. Procedures and regulated facilities are in place to ensure environmental compliance and enhancement.

The processing of hazardous wastes through regulated TSDFs is an integral part of the overall RCRA regulatory framework. While NACR members are obligated, according to the tenets of 5 Responsible Recycling SM, to work with generators to minimize the generation of wastes and to look to materials recovery as the first option in processing waste streams, energy recovery through combustion at regulated cement kilns is an integral part of the overall waste management system which has resulted in so much environmental improvement.

The system is working. This is a message that cannot be overemphasized, particularly to an administration that, on one hand, seems predisposed to deregulate at every possible opportunity (without adequate regard, we believe, to the environmental risks inherent in such an approach), while, on the other, seeks to tighten controls in some areas for reasons equally without environmental foundation. On balance, we fear a net loss to the environment, while a technology we firmly embrace-energy recovery through combustion of HWDF at cement kilns--is sacrificed to an agenda unmindful of the marketplace and the environment it most certainly win affect.

PEER.026(commenter 241)

Regarding the Agency's notice of additional information on the comparable fuels specification, CKRC renews our objection to the proposed exclusion and calls to the Agency's attention our August 19, 1996 comments. We have enclosed our comments on the individual peer review panel reports with this letter.

<u>Response:</u>

In this final rule, EPA is promulgating the comparable fuels exclusion. The final rule is consistent with EPA's goal to develop a comparable fuels specification which is of use to the

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regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available fuel and therefore poses no greater risk than burning a fossil fuel. The rationale for the Agency's approach is that if a hazardous waste-derived fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has discretion to classify such material as a fuel product, not a waste.

12. Legal justification has not been provided.

CFG.26(commenter 102)

X. EPA's Comparable Fuel Provision is Not Legally Justified.

The Agency does not clearly articulate the statutory authority or the legal rationale which provide the basis for the comparable fuels portion of the proposed hazardous waste combustor rule.

The preamble includes extensive discussion on the applicable Clean Air Act and RCRA authorities with respect to combustor emissions limits and operating restrictions. However, the comparable fuel exclusion is solely RCRA related. Clearly the comparable fuel exclusion is not proposed pursuant to CAA authority and has no place in a typical technology based MACT rule.

The RCRA risk justification which is normally provided as a basis for a RCRA regulation is not provided in this proposal. In addition, the discussion of RCRA state authorization on page 17457 does not address the proposed changes to 40 CFR 261 addressing comparable fuels. The preamble states that the changes to 40 CFR 264, 265, and 266 are more stringent than existing regulations and are proposed pursuant to HSWA. Therefore, EPA states that these regulations will immediately be effective in all states upon promulgation. Conversely, the proposed comparable fuel provisions of 40 CFR 261 are deregulatory, less stringent, and modify the regulatory definition of solid and hazardous waste. This is a change to a base RCRA program regulation and therefore will not take effect in authorized states until adopted by the state. The EPA must address the statutory authority and legal rationale for the comparable fuel provision prior to promulgation.

CFG.40(commenter 130)

In addition, EPA's implementing approach is not consistent with the CAA or RCRA. Under RCRA 3004(q)-(s), EPA must promulgate standards for burning of hazardous wastes "as necessary to protect human health and the environment." As a legal matter, the clean fuel spec is an attempt to defer RCRA 3004(q)-(s) regulation of these hazardous wastes to the CAA in accordance with RCRA 1006(a) to avoid duplication, but without making the essential finding that such a deferral satisfies the objectives of RCRA. For example, EPA has not conducted any kind of technical or risk analysis showing how a blanket exemption from all RCRA Subtitle C controls for hazardous wastes that meet the comparable fuel spec somehow adequately protects human health and the environment. Thus, the proposal is legally deficient.

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Response:

EPA has legal authority to grant the comparable fuels exclusion. The final rule is consistent with EPA's goal to develop a comparable fuels specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available fuel and therefore poses no greater risk than burning a fossil fuel. The rationale for the Agency's approach is that if a hazardous waste-derived fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has discretion to classify such material as a fuel product, not a waste. Given that a comparable fuel would have legitimate energy value and the same hazardous constituents in comparable concentrations to those in fossil fuel (and satisfies other parameters related to comparability as well), classifying such material as a fuel product and not as a waste promotes RCRA's resource recovery goals without creating any risk greater than those posed by the commonly used commercial fuels. Under these circumstances, EPA can permissibly classify a comparable fuel as a non-waste. See 46 FR 44971 (August 8, 1981) exemption from Subtitle C regulation for spent pickle liquor used as a wastewater treatment agent in part because of its similarity in composition to the commercial acids that would be used in its place; see also 53 FR at 31164 (August 18, 1987) exemption for certain hazardous waste-derived fertilizers due to similarity to the commercial fertilizers that would be used in their place.

Furthermore, in the final rulemaking, EPA has addressed the RCRA state authorization issues associated with the comparable fuels exclusion. Under RCRA section 3006, EPA may authorize a State to administer and enforce the RCRA hazardous waste program. See 40 CFR part 271. After receiving authorization, the State administers the program in lieu of the Federal government, although EPA retains enforcement authority under RCRA sections 3008, 3013, and 7003. Because the new Federal requirements in the comparable fuels exclusion are promulgated under non-HSWA authority, they are not Federally enforceable in an authorized State until the State has adopted equivalent (or more stringent) standards under its authorized laws and regulations, and those changes have been approved by EPA. See RCRA section 3006, 42 U.S.C. 6926. Thus, upon their effective date, these requirements will be applicable only in those States that do not have authorization.

14. Oppose exclusion under 261.4.

CFI6.6(commenter 105)

Laidlaw recommends that rather than exempting the comparable fuel from Subtitle C requirements, EPA would exempt the burners of the comparable fuel from meeting the MACT standards for hazardous waste combustors. Burners of comparable fuels would still be subject to other applicable MACT and NSPS standards for the burners industry group, as well as any State-specific control requirements. The burner would also remain subject to the RCRA technical requirements for storage of hazard waste. Laidlaw would support a reduced set of notification, certification, and recordkeeping requirements as discussed in the proposed rule.

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CFG.29(commenter 106)

I. Comparable Fuel Exclusion

ENSCO is strongly opposed to the comparable fuel exclusion proposed by EPA on page 17459 through 17469, as an exemption from hazardous waste regulations under 261.4, simply because a hazardous waste happens to possess certain fuel like properties. Otherwise, mismanagement of the waste can occur, and hazardous constituents associated with the waste can cause harm to human health and the environment. Note, in particular, that once exempted under 261.4, these hazardous wastes will be allowed to be burned in any type of combustion unit, including not only industrial boilers, but also institutional and residential boilers. In effect, EPA will be inviting the sham fuel oil adulteration practices of the 1970s. EPA must keep in mind that the 40 CFR 261 and 262 standards do not require that generators test their waste, and allows reliance on generator "knowledge" of the waste. There is therefore substantial opportunity for highly toxic hazardous constituents to be present in a given waste for which the generator claims that comparable fuel exclusion.

Since the proposed 40 CFR 261.4 exclusion eliminates all RCRA controls on this waste, such waste can end up in residential, hospital, school, or any institutional boiler, resulting in substantial exposure to the general public. In fact, since 261.4 is a blanket exclusion, the waste does not necessarily have to be burned; it can be dumped anywhere.

ENSCO instead urges EPA to limit use of the clean fuel exclusion as a criteria to exempt hazardous waste combustion sources from the MACT emissions requirements. In effect, the clean fuel specification can be used like a source category, analogous to the exemptions or relaxed standards provided in numerous MACT rules for "small" sources. A hazardous waste combustion source that burns hazardous waste that meets the proposed comparable fuel criteria is essentially no different than a source burning fossil fuels, and should not be subject to the full regimen of emission standards for all HAPs that a hazardous waste combustion source must meet. This exemption must be written into the Air Regulations Section 63.1200 specific to MACT, and not be part of any blanket RCRA exclusion under 261.4.

In addition, ENSCO would support promulgation of the comparable fuel exclusion as an additional criteria for non- applicability under 264.340(b), similar to the current non-applicability language for waste that is hazardous solely because of ignitability. ENSCO would also support a similar non- applicability provision under Part 266. Promulgation in these sections is sufficient to provide regulatory relief to industry utilizing hazardous wastes as fuels, that are no different than fossil fuels. There is no need for a blanket exemption from RCRA for these wastes. There is great risk of environmental harm if a 261.4 exemption is promulgated for these wastes, as there will be inadequate control of the shipment, storage and blending of these wastes prior to use as fuel.

CFMISS.11(commenter 106)

F. Implemetation of the Exclusion (17466 - 17469)

ENSCO has major concerns with the implementation issues and problems presented by the Clean Fuel Exemption. The majority of these issues and problems are easily resolved, if EPA does not promulgate the clean fuel exemption under 40 CFR 261.4. If the scope of the exemption is limited to 40 CFR 264 and 265 Subpart O and Part 266, all of the generator, transportation and storage issues raised in this section of the preamble are eliminated. The only controls required would be on the burner, who would not to justify that the waste used for fuel meets the criteria for the exemption.

CFMISS.19(commenter 111)

With respect to the issue of no greater risk, we note that EPA's proposal is to amend 261.4(a) by adding a new paragraph (a)(13) to exclude material meeting the comparable fuel specification from the definition of solid and hazardous waste, and make existing paragraphs (b) and (c) of 264.340 inapplicable at the time a facility begins compliance with the MACT standards. We believe it is a mistake to exclude the comparable fuel from the definition of solid and hazardous waste altogether, because of the greater risks associated with removal of a waste from all of the protective provisions of the RCRA system.

For example, the proposed subparagraph (D) of 261.4(a)(13)(iii) provides that the comparable fuel shall be "(1)...burned on-site or shipped directly to a person who burns the waste;" "(2) No person other than the producer and the burner shall manage a comparable fuel other than incidental transportation..." Subparagraph (G) subjects producers and burners to the speculative accumulation test under 261.2(c)(4). However, if the cradle-to-grave RCRA tracking system no longer applies to this waste, we question whether effective enforcement of these provisions can take place. Further, the definition of "burner" appears to be wide open (and could be anyone: the comparable fuel "...may be blended with other materials without restriction") (261.4(a)(13)(iii)(F)). And since only an annual test by the producer that its fuel meets the comparable fuel specifications is required (261.4(a)(13(iii)(C)), there would no protective check on the quality of the comparable fuel under a RCRA facility's waste analyses plan; it does not appear that the WAP would have to apply, or even that comparable fuel would be directed to a RCRA facility at all. In short, the proposal would appear to allow the comparable fuel freely into commerce, subject only to annual testing by the producer to assure that it meets specs.

We believe a better approach would retain the comparable fuel under RCRA to assure that it is burned by RCRA permitted incinerators and BIFs, subject to relaxed conditions that relieve burdensome regulation and make it cost effective as an alternative fuel. We recommend that the comparable fuel specifications be made a part of 264.340 and be considered a low-risk waste under appropriate BIF regulations, with regulatory relief provided that it is consistent with its consideration as a true alternative fuel. In other words, the combustion standards applicable to the comparable fuel would be the same as the standards applicable to the burning of fossil fuel -- following the pattern of the existing provisions of 264.340(b) and (c).

Since other RCRA protections would continue to apply, we believe the EPA can be more generous in the definition of the specifications of the comparable fuel, and thereby make the proposal truly usable and cost effective for the regulated community. In this regard, we could support the CMA's specifications for a comparable fuel.

CFMISS.23(commenter 130)

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The ETC comments below on the remaining portions of the criteria for the comparable fuel specification, since these are relevant even if the scope is limited to exemption from Subpart O, Part 266 and MACT. The ETC notes that any supportive comments below are with regard to a limited exemption from 40 CFR 264 and 265, Subpart O and Part 266, and MACT. We are completely opposed to promulgation of this exemption under 40 CFR 261.4

CFMISS.24(commenter 130)
G. Implementation of the Exclusion
The ETC has major concerns with the implementation issues and problems presented by the comparable fuel specification (pages 17466-69). The majority of these issues and problems are easily resolved, if EPA does not promulgate this provision as an exemption under 40 CFR 261.4. If the comparable fuel specification is implemented under 40 CFR 264 and 265 Subpart O and Pert 266, as discussed above, all of the generator, transportation, and storage issues raised in this section of the preamble are eliminated. The only controls required would be on the burner, who would have to justify that the hazardous waste used for fuel meets the criteria for the exemption.

CFG.39.a(commenter 130)
I. <u>Comparable Fuel Exclusion</u>
A. <u>Overview of Concerns</u>
While the ETC supports the general concept of a comparable fuel exclusion from the MACT HWC standards, we must strongly oppose the blanket exemption from all hazardous waste regulation under 40 CFR 261.4 proposed by EPA in this rule (pages 17459-69).
A blanket exemption under 40 CFR 261.4 for hazardous wastes that meet the comparable fuel exclusion would be a serious mistake, because of the greater risks associated with removal of a waste from all of the protective provisions of the RCRA system. Such a broad exemption would allow mismanagement of the hazardous waste to occur, and hazardous constituents associated with the waste can cause harm to human health and the environment. Note, in particular, that once exempted under 261.4, these hazardous wastes will be allowed to be burned in any type of combustion unit, including not only industrial boilers, but also institutional and residential boilers. In effect, EPA will be inviting the sham fuel oil adulteration practices of the 1970's.
EPA must keep in mind that the 40 CFR 261 and 262 standards do not require that generators test their waste, and allows reliance on generator "knowledge" of the waste. There is substantial opportunity for highly toxic hazardous constituents to be present in a given waste for which the generator could claim the comparable fuel exclusion. Since the proposed 40 CFR 261.4 exclusion eliminates RCRA controls on this waste, such waste could end up in residential, hospital, school, or any institutional boiler, resulting in substantial exposure to the general public. In fact, since 261.4 is a blanket exclusion, the waste does not necessarily have to be burned; it can be dumped anywhere.
For example, the proposed subparagraph (D) of 261.4(a)(13(iii) provides that the comparable fuel shall be "(1) ... burned on-site or shipped directly to a person who burns the waste," "(2) No person other than the producer and the burner shall manage a comparable fuel other than

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incidental transportation...." Subparagraph (G) subjects producers and burners to the speculative accumulation test under 261.2(c)(4). However, if the cradle-to-grave RCRA tracking system no longer applies to this waste, we question whether effective enforcement of these provisions can take place. Further, the definition of "burner" appears to be wide open (and could be anyone: the comparable fuel "may be blended with other materials without restriction" peer 261.4(a)(13)(iii)(F)). Since only an annual test by the producer that its hazardous waste meets the comparable fuel specification is required (261.4(a)(13)(iii)(C)), there would be no protective check on the quality of the comparable fuel under a RCRA facility's waste analysis plan; it does not appear that the WAP would apply, or even that comparable fuel would be directed to a RCRA facility at all. In short, the proposal would appear to allow the comparable fuel freely into commerce, subject only to annual testing by the producer.

CFG.39.b(commenter 130)
The ETC instead urges EPA to limit use of the clean fuel exclusion as a criterion to exempt combustion sources from the MACT HWC requirements. In effect, the clean fuel specification can be used as the basis for an exemption or relaxed standards as provided in numerous MACT rules for "small" sources. A source that burns hazardous waste that meets the proposed comparable fuel criteria is essentially no different than a source burning fossil fuels, and therefore can be covered by other applicable CAA standards, but need not be subject to the full regimen of HAP emission standards that a hazardous waste combustion source must meet. This exemption must be written into the regulations at 40 CFR 63.1200 specific to MACT, and not be part of any blanket RCRA exclusion under 40 CFR 261.4.

CFG.39.c(commenter 130)
In addition, the ETC would support promulgation of the comparable fuel exclusion as an additional criterion for non-applicability under 40 CFR 264.340(b), similar to the current non-applicability language for waste that is hazardous solely due to ignitability. The ETC would also support a similar non-applicability provision under Part 266. Promulgation in these sections is sufficient to provide regulatory relief to industry utilizing hazardous wastes as fuels that are no different than fossil fuels. There is no need for a blanket exemption from RCRA for these wastes. There is a great risk of environmental harm if a 261.4 exemption is promulgated for these wastes, as there will be inadequate control of the shipment, storage and blending of these wastes prior ti use as fuel.

CFG.43(commenter 133)
ARTT particularly favors implementation of the "Comparable Fuel Specification" elements of the MACT standards as an energy recovery option for the kilns that is deregulatory in nature, although ARTT believes that those adopting such an approach should be exempt from MACT provisions but not from RCRA as a whole.

CFG.55(commenter 170)
CONCLUSION

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EPA introduces its Comparable Fuel Exclusion by noting that, "Hazardous waste is burned for energy recovery in boilers and industrial furnaces in lieu of fossil fuels. There are benefits to this energy recovery in the form of diminished use of petroleum-based fossil fuels." (61 FR p. 17459, col.2). We would remind EPA that there are benefits to energy recovery that results in diminished use of any fossil fuel. Whenever waste is burned for energy recovery, it has environmental benefits over burning for destruction because fossil fuel use is diminished and overall emissions are reduced. Accordingly, the conservation of coal-based fossil fuel by the cement industry's energy recovery practices are no less deserving of the Agency's recognition and encouragement than any other. In any event, after several years of combustion-bashing by EPA, it is refreshing to read a positive utterance by the Agency on the subject of burning waste for energy recovery.

While CKRC supports EPA's efforts to address the undue burden posed by its proposed HWC MACT rules, any exclusion from RCRA regulations should apply only to the actual combustion process and only to those stationary sources whose air emissions are regulated by a federally enforceable permit.

CFG.55.a(commenter 170)

CKRC believes that, after EPA ensures that waste generation is being minimized, the Agency should do whatever it can to encourage energy recovery over treatment or disposal of hazardous wastes. But parsing its RCRA regulations in the manner suggested in this proposed rule cannot be and has not been supported either scientifically or technically; and, for that reason, the Comparable Fuel Exclusion is arbitrary and capricious and should be dropped from this rulemaking.

CFG.62(commenter 194)

Norlite does not agree with the notion of excluding from the definition of solid and hazardous waste materials that meet specification levels for concentrations of toxic constituents and physical properties that affect burning. Should EPA like to grant "relief" to materials that are burned for energy recovery on-site (e.g. Dow Chemical, as the proposal states), such a broadly stated exclusion is totally unwarranted. EPA should exempt generator/on-site burners from certain MACT standards that are appropriate only to those facilities based on the waste material they are burning.

Response:

The comparable fuels exclusion is appropriately handled as an exclusion from the definition of hazardous waste under Part 261.4. The final rule is consistent with EPA's goal to develop a comparable fuels specification which is of use to the regulated community but assures that an excluded waste-derived fuel is similar in composition to commercially available fuel and therefore poses no greater risk than burning a fossil fuel. The rationale for the Agency's approach is that if a hazardous waste-derived fuel is comparable to a fossil fuel in terms of hazardous and other key constituents and has a heating value indicative of a fuel, EPA has discretion to classify such material as a fuel product, not a waste.

Comparable fuels exclusion provides for the proper handling of the excluded waste. The

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exclusion would apply to the comparable fuel from the point it is generated and would be claimed by the person generating the comparable fuel. Although self-implementing, these generators would have to comply with sampling and analysis, notification and certification, and recordkeeping requirements in order for their fuel to be excluded. The recordkeeping requirements allow for the effective enforcement of the comparable fuel exclusion. These requirements include certifying that the comparable fuel is burned in an air regulated combustion unit, and would not be eligible for institutional or residential boilers.

Under the sampling and analysis requirements, a comparable fuel generator would be required to develop a waste analysis plan prior to sampling and analysis of their hazardous waste to determine if the waste meets the exclusion specifications. This is consistent with the usual requirement throughout the Subtitle C rules that persons generating and treating hazardous waste must prepare a waste analysis plan. The final rule allows the use of process knowledge under certain circumstances. The rule requires testing for all constituents except those the initial generator of the hazardous waste determines should not be present in the waste. The following cannot be determined to "not be present" in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste.

In addition, because the comparable fuel is being classified as a fuel product and not as a waste, the comparable fuel will be handled under current DOT and OSHA regulations for fuels. This ensures proper shipment, storage and blending of the comparable fuel.

14. Fuel specification tables.

CFG.30(commenter 106)

D. Comparable Fuel Specification Tables

ENSCO has reviewed the various comparable fuel specification tables, and we reemphasize our comments above with regard to the data presented in these tables.

CFG.41(commenter 130)

E. Comparable Fuel Specification Tables

The ETC has reviewed the various comparable fuel specification tables, and we re-emphasize our comments above with regard to the data presented in these tables.

Response:

EPA has considered the commenters previous comments.

15. Speculative accumulation.

CFG.42(commenter 130)

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I. Speculative Accumulation

The ETC agrees with EPA's proposal (page 17469/1) that comparable waste fuels must remain subject to the speculative accumulation provisions of 261.2(c)(4).

Response:

Excluded comparable/syngas fuel generators, transporters and burners are subject to the speculative accumulation requirements under §261.2(c)(4). Thus, there must be turnover of a given percentage of comparable fuel stock each calendar year, and the persons holding such fuels must be able to demonstrate that such turnover is occurring. See §261.2(f). Since ultimate users are notified that they are receiving comparable fuels, they may feasibly comply with this requirement by documenting how much such fuel is received when it is burned.

16. Byproducts should be allowed as comparable fuels.

CFG.47(commenter 159)

II. Byproduct Fuels Should Be Allowed As "Comparable Fuels"

Current byproduct fuel use restrictions require off-site shipment to permitted disposal facilities or on-site management under RCRA rules for boilers and industrial furnaces (BEF standards). These restrictions result in a significant misallocation of regulatory agency and industry resources with no environmental or public benefit. Revising the existing rules to allow environmentally safe use of byproduct fuels benefits the environment, public and regulatory agencies.

CFG.48(commenter 159)

III. The Existing RCRA Boiler and Industrial Furnace Rules Create Unnecessary Regulatory Burdens With No Significant Environmental or Public Benefit

A significant regulatory burden with only a limited environmental benefit was created with the enactment of the existing BIF rules. These regulations resulted in the discontinuation of sound environmental practices for on-site use of byproduct fuels in boilers, furnaces and kilns. The RCRA BIF rules require facilities to comply with unjustifiable management system and permitting requirements which have little environmental or public benefit.

By ensuring proper on-site use of byproduct fuels, the proposed regulation has the potential to lessen regulatory agency and industrial "paperwork" requirements and personnel allocations. It will also reduce public exposure and the potential risks that currently exist with off-site management practices. Standards establishing environmentally safe on-site use of byproducts as comparative fuels are the key to maximizing the possible benefits of this rule revision.

The existing rule has resulted in cases where byproducts with significant fuel value have not been segregated and concentrated because of the regulatory burdens RCRA imposes on the concentrated byproduct fuel. This has resulted in materials being discharged to wastewater treatment systems as conventional pollutants, rather than concentrating the materials and making use of their fuel value in clean burning combustion processes. What had been an environmentally sound practice, which resulted in reduced fossil fuel use, became a wastewater treatment loading that consumes additional energy for treatment.

CFG.49(commenter 159)

VI. A Provision Based On Byproduct Combustibility, a 1,600°F Combustion Unit Temperature and a 0.75 Second Residence Time Will Maximize Benefits

An alternate regulatory approach to maximize the revised rule's benefits for the environment, public, regulatory agencies and regulated community is one which includes a general applicability criteria in combination with combustion temperature and residence time specifications. Additionally, a threshold fuel heat value criterion could also be established within the proposed RCRA rule at 5,000 BTU/lb to assure the material is being burned as fuel rather than for destruction. This approach will also facilitate integration with existing air standards and permitting programs.

Many industrial non-halogenated organic byproducts with significant fuel value are classified as "hazardous" because of they:

- Exhibit a hazardous waste ignitability characteristic (40 CFR 261.21);
- Exceed a non-halogenated organic component toxic characteristic leaching procedure standard (40 CFR 261.24); or
- Are a listed hazardous waste (40 CFR 261.31-33).

Many of these same materials, albeit at differing concentrations, are currently regulated in an environmentally sound manner under existing air standards and permit programs.

Therefore, the proposed rule should be integrated with existing air permitting programs and a combustion specification approach to ensure destruction. This would not arbitrarily restrict the environmentally beneficial use of non-halogenated organic byproducts as fuel. The proposed rule should be modified for compatibility with the following air regulatory programs and standards:

Program / Standard	Combustion specifications
Pulp and Paper NESHAP MACT Standards Proposal [40 CFR 63.444(b)(2)]	1,600°F, 0.75 sec. residence time
Pulp and Paper New Source Performance Standards (40 CFR 60.283)	1,200°F, 0.5 sec. residence time
Synthetic Organic Chemical Industry NESHAP MACT Standards (40 CFR 63.139(c)(1)(iii)]	1,382°F, 0.5 sec. residence time
EPA PSD Air Permitting Regulations (40 CFR Part 52)	Case-By-Case
State Implementation Plan (SIP) Permit Programs	Case-By-Case

Virtually every industrial combustion system is required to undergo professional review and permitting under existing state implementation plans and/or prevention of significant deterioration rules. In addition, most of the systems that would consume byproduct fuels have standards of performance set for them under EPA's New Source Performance Standards (NSPS) or MACT programs. Under these regulatory programs, atmospheric emissions from the combustion of materials with the same or similar components which result in a hazardous waste classification under RCRA are effectively destroyed. The EPA should establish RCRA byproduct fuel standards which are technically supported by these other regulatory programs.

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EPA has done significant work to define appropriate combustion requirements. In the pulp and paper industry, combustion requirements have been established under NSPS at 1,200°F and a 0. 5 second residence time for pulping gases containing methanol, turpentine and sulfur compounds. The pulp and paper industry's experience is that these combustion requirements are adequate for the destruction of hazardous constituents although more recent combustion standards have been promulgated with higher temperatures and longer residence times.

The EPA report Control Technologies for Hazardous Air Pollutants Handbook (EPA/625/6-91/014) specifies 1,600°F and 0.75 second residence time as combustion specifications for efficient destruction of non-halogenated organic compounds. The EPA has also completed additional hazardous air pollutant destruction evaluations during the development of the MACT standards listed above. The 1,600°F and 0.75 second residence time combustion specifications provide adequate assurance for the destruction of non-halogenated organics and is appropriate for inclusion in a RCRA byproduct fuel exemption standard.

RCRA byproduct fuel combustion requirements of 1,600°F and 0.75 second residence time in combination with a 5,000 BTU/lb fuel value requirement for non-halogenated organic components causing a hazardous classification would ensure environmentally safe byproduct fuels management. This approach implemented through the professional review required in regulatory agency emission permitting evaluations for combustion sources would be efficient in ensuring public health and environmental protection.

CFG.50(commenter 159)

VII. Pulp and Paper Industry Example of Rule Applicability for Methanol and Turpentine Byproduct Fuels

The pulp and paper industry processes generate byproduct materials that when concentrated can exhibit flash points below 140°F resulting in hazardous waste classifications. These materials are methanol and turpentine, and their derivatives. These materials when generated by the Kraft wood pulping process contain components which limit their ability to be sold as commercially pure products without additional distillation or refinement.

Pulp mill methanol and turpentine contain mercaptans and other reduced sulfur compounds (for a detailed explanation of these materials, see the AF&PA comments submitted to the docket). Both of these materials when concentrated exhibit heating values exceeding 5,000 Btu/lb and could be safely managed as byproduct fuels with a net environmental and public health benefit. This is also true for turpentine and byproduct derivatives when it is processed to produce a broad range of wood chemical products by distillation and other refinement processes.

These materials burn cleanly and, prior to the current RCRA BEF rule, were approved for fuel use by air permitting authorities. When the BIF regulations were promulgated, the industry in many cases had to discontinue use of these byproduct fuels because they became RCRA regulated byproducts solely due to their flash points being less than 140°F. The most serious burdens have been encountered with the methanol condensates.

The current industry practice for managing these materials is to discharge the dilute methanol process liquids to the wastewater treatment system rather than to concentrate them for use

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as a byproduct fuel. Not only is the fuel value of the material ignored, but wastewater treatment consumes additional energy. The overall effect of the current RCRA BIF rule has been a dramatic increase in energy consumption and associated environmental impact.

A RCRA byproduct fuel approach can only achieve full public, environmental and regulatory benefits possible by allowing all suitable byproducts to be classified as "approved fuels". We recommend allowing "approved fuel" status whenever a hazardous classification exists because of a non-halogenated organic component being a listed hazardous waste or causing an ignitability characteristic when the fuel value exceeds 5,000 BTU/lb. These stipulations in combination with a minimum 1,600°F combustion temperature and 0.75 second residence time and existing air permitting program requirements provide adequate assurance that byproducts would be properly used

Response:

EPA is not pursuing an alternative approach with regard to byproducts. The comparable fuels approach offers benefits for the regulatory community, while avoiding any complexities associated with an alternative approach. It should be noted that a byproducts that meet the comparable fuel physical and chemical specifications are eligible for the comparable fuel exclusion.

17. Limit cement and aggregate plans to burn comparable fuels.

CFG.51(commenter 162)

1.Encouraging Pollution Prevention.

A) Mandatory Application of Comparable Fuels Proposal to All Cement and Aggregate Plants Burning Hazardous Waste

We support wholeheartedly the "Comparable Fuels" proposal contained within the MACT rules. It is similar to a 1993 Texas Natural Resource Conservation Commission recommendation, tentatively endorsed by citizens, but never adopted by the state because of industry opposition.

However, if pollution prevention is a major goal as the EPA as repeatedly said it is - it is not good enough to only offer this as an option for cement and aggregate kilns burning waste.

The policy of the EPA should be that any hazardous waste burning at a cement or aggregate kiln that results in increased emissions of any hazardous air or priority pollutant should be prevented. The agency should only allow a kiln to burn waste if it has been shown through continuous monitoring and/or trial burns to emit no more pollution than it otherwise would burning the conventional fuels it traditionally used prior to waste-burning. Any increase in dioxins/furans, particulate matter, metals or any other Pollutant while burning, waste would automatically disqualify that kiln from becoming a commercial waste combustor.

Otherwise, EPA will be condoning increases, often large increases, in the amount of hazardous air pollutants allowed into the environment. For example, the agency's own data show a very large increase in dioxin emissions from cement plants burning hazardous waste as opposed to those that burn only conventional fuels. Although agency "risk assessments"

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may deem these emission rates to be currently "acceptable", the Pollution prevention goals of the Agency say that these releases can and should be prevented at the source. In allowing such increases, the agency is condoning larger emissions of one of the most environmentally persistent pollutants science has discovered, emissions which the agency itself says would be harmful to public health and the environment even in minute, single exposures.

Cement and aggregate kilns were not built to burn hazardous waste. Kilns that are now commercial hazardous waste incinerators were previously in operation for many years as only manufacturing plants. When EPA allows these kilns to become commercial waste combustors, it should guarantee citizens living downwind of these kilns that they will not be exposed to increases in any kind of hazardous air pollution as a result of the transformation. Moreover, as guardians of the national environment and public health, the EPA has an obligation to minimize and reduce the amount of hazardous air pollution being belched Out by kiln and incinerator smokestacks across the country in general.

How does EPA justify the permitting of kilns as hazardous waste combustors that will significantly increase the emissions of dangerous pollutants over the levels these kilns have emitted in the past? If pollution prevention is the goal, shouldn't the EPA at least be seeking the same level of emissions of these pollutants that cement and aggregate kilns have already produced, not adding more?

Downwinders At Risk strongly urges the EPA to make the MACT's "Comparable Fuels" proposal mandatory for all kilns burning hazardous waste. This is the only true pollution prevention combustion strategy for kilns that is aligned with current EPA policy.

Response:

EPA does not believe it is necessary to limit cement kilns (CKs) and light-weight aggregate kilns (LWAKs) to burning comparable fuels only. The burning of hazardous waste in CKs and LWAKs is currently regulated by the Boiler and Industrial Furnace (BIF) rule. Air emissions standards (MACT standards) for these units are being revised under the Clean Air Act. The MACT standards should result in increased protection to human health and the environment over existing RCRA standards. Under current and proposed standards, hazardous waste is appropriately burned in CKs and LWAKs.

18. Support CO limit to monitor organics.

CFCMA.39(commenter 198)

4. The EPA Comparable Fuels Exclusion as proposed will not achieve the desired objectives. It is overly restrictive, arbitrary and not based on sound statistical analysis.

CMA provided numerous comments on the EPA Comparable Fuels approach, including:

- Significant changes to the constituent specification bases need to be made. Most notably, operating to a CO emissions limit versus analyzing the hazardous waste for Appendix VIII constituents is critical to make a clean fuels exemption manageable.
- Flexibility on the selection of the benchmark fuel for comparison purposes should be allowed.

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- No physical specification for flash point is needed.
- The EPA sample size for calculating specifications was insufficient.
- CMA supports a minimum specification of 5000 BTU/lb for a clean fuels exemption to offer assurance that the materials are legitimate fuels.
- CMA supports use of total halogenated measurements versus analysis on individual compounds.

Additional details on the first three points above, in addition to other suggested improvements, are included in the following sections.

CFG.63(commenter 198)

5. The EPA Comparable Fuels Exclusion will provide no regulatory relief for ECA

Table 2 [SEE COMMENT PAGE 6 FOR TABLE] summarizes the comparison of the ECA waste fuel to EPA's Comparable Fuels specifications. Details of the comparison are included in Attachment 1, Table A2. The two EPA specifications selected were the Composite Fuel Specification - 90th Percentile and the Composite Fuel Specification - 50th Percentile. These two fuel bases were selected since they better represent the range of constituents which are present in commercial fuels.

ECA also analyzed the fuel according to the site's routine waste analysis plan, in which some methods different than those specified in the EPA Comparable Fuels Specification were used in order to achieve the detection levels necessary to ensure compliance with interim status requirements. The alternate methods were chosen from those specified in the "Technical Implementation Document for EPA Boiler and Industrial Furnace Regulations" issued in March 1992.

Table 2 indicates the number of parameters associated with the ECA waste fuel that fail the Comparable Fuels specifications. The analysis highlights the overly restrictive nature of the EPA proposal. What is particularly noteworthy is that in no case did a measurable ECA waste fuel parameter exceed a measured EPA concentration level based specification, yet there were over 50 failures when compared to the 90th% specification!

The reasons for the high failure rate, using the 90th% specification as reference, are as follows:

- Again, no ECA measured results exceeded EPA measured concentration levels.
- In 44 cases ECA results were non detect, but because the actual sample detection levels were above the EPA non detect level (using EPA test methods), the parameters failed the specification. It is well recognized that different sample matrices will yield different detection levels.
- In 2 cases ECA had a non detect result but the detection limit was above EPA's numeric concentration-based specification
- In 2 cases standards were not available for testing; therefore conformance to the specification could not be demonstrated.
- In 5 cases there was poor testing response (yielding high detection limits); conformance to the specification could not be demonstrated.
- In addition to the failures noted above, ECA would fail on all the remaining, over 300, Appendix VIII constituents for which EPA said the specification was non detect

because EPA could not analyze for the constituents. ECA did not attempt to analyze for these constituents for reasons described in Comment 7.

To summarize, the sampling program initiated by ECA demonstrated that the EPA proposal to analyze all the Appendix VIII constituents is unmanageable and unworkable. ECA supports the CMA proposal for a CO limit on the boiler stack to ensure adequate combustion of organics and does not believe that analyzing all Appendix VIII compounds is feasible. Some additional comments on the EPA comparable fuels exclusion are included in the following comments.

Response:

The analytical requirements for the comparable fuels exclusion are appropriate and workable. EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste. The following cannot be determined to "not be present" in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste. In the case were EPA did not analyze for an Appendix VIII constituent, EPA will not be promulgating standards for those remaining Appendix VIII constituents.

EPA is not pursuing an approach that would require the monitoring of CO. If the Agency were to develop an alternative approach that is based on monitoring emissions, the implementation details to ensure proper combustion of the candidate comparable fuel would be numerous. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste. This eventuality is viewed as both potentially unworkable and very difficult to implement and enforce.

219. Acutely hazardous wastes need not be explicitly ineligible for exclusion.

CFG.69(commenter 205)

Acutely Hazardous Wastes Ineligible for Exclusion (p. 17460): TCC believes that acutely hazardous wastes need not be explicitly ineligible for the comparable fuels exclusion since most acutely hazardous wastes are otherwise ineligible due to failing the individual constituents, halogen, metals, and nitrogen specifications.

A cursory comparison of 200 or so P-code hazardous wastes with the 90th percentile composite specifications reveals that most would fail. On the order of 25 would fail due to the halogen specification. Roughly another 20 would fail due to the metals specifications. About 100 would fail the Total N specification. Of the P-code wastes not containing halogens, metals, or nitrogen (e.g. acrolein P003), EPA is proposing individual constituent limits for which another 6 of the P-code wastes would fail. We believe a similar review of

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acute F and K hazardous wastes will show failure with the 90th percentile specifications. Thus, we believe EPA need not explicitly deny the comparable fuels exclusion to acutely hazardous wastes because the large majority of these wastes will not meet the exclusion by virtue of failing to meet the specifications.

Response:
EPA agrees with commenter.

20. Acutely hazardous wastes should not be eligible for exclusion.

CFMISS.10(commenter 106)
On page 17460/1 EPA requests comment on whether acutely hazardous wastes should be eligible for the exclusion. ENSCO is opposed to allowing any comparable fuel exclusion for acutely hazardous wastes, even at the point at which it is burned. ENSCO notes that this position is also supported and shared by the Chemical Manufacturing Association in page 2 of their proposal for a clean waste fuel exemption (see Docket Document # RCSP-S0044). Acutely hazardous wastes and P coded wastes must continue to be restricted to treatment in permitted and controlled units regulated under Subpart o and/or Part 266.

CFMISS.22(commenter 130)
EPA requests comment on whether acutely hazardous wastes should be eligible for the exclusion (page 17460/1). The ETC is opposed to allowing any comparable fuel exclusion for acutely hazardous wastes, even at the point at which is burned. The ETC notes that this position is also supported and shared by the Chemical Manufacturing Association in page 2 of their proposal for a clean waste fuel exemption (see Docket No. RCSP-S0044). The ETC applauds CMA for taking this responsible position, and recognizing that acutely hazardous wastes present a major risk to human health and the environment if improperly managed. Accutely hazardous wastes and P-coded wastes must continue to be restricted to treatment in permitted and controlled units regulated under Subpart O and/or Part 266.

Response:
EPA is not explicitly limiting the comparable fuels exclusion to acutely hazardous wastes because the large majority of these wastes will not meet the exclusion by virtue of failing to meet the specifications. The probability of today's rule being applicable to any specific hazardous waste is highly dependent upon the waste codes assigned to that waste as well as the industry generating the waste. In developing the Land Disposal Restrictions (40 CFR 268) and in developing the listings of hazardous wastes (40 CFR 261), the majority of the listed hazardous wastes were analyzed for concentrations of specific hazardous constituents. EPA has already determined that the majority of listed hazardous wastes (i.e., those having codes beginning with 'F', 'K', 'U' or 'P') are known to contain at least one of the hazardous constituents that are restricted by today's rule to "non-detect" levels. Appendix VII to Part 261 provides a partial list of hazardous constituents that are known to be present in each

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Listed Waste code, and the Treatment Standards for Hazardous Wastes (40 CFR §268.40) indicate constituents (and concentrations) that are specifically regulated for land disposal for each waste code. The majority of these constituents and waste codes are restricted to “non-detect” levels in today’s rule and so a potential comparable fuel containing these constituents either could not be used, or would have to be treated so that the hazardous constituents are removed or destroyed to non-detect levels. See treatment discussion below, Section E.4. It is possible, however, that an organic solvent or oil could carry one of these codes, based on the derived-from rule only, and could comply with the limits in today’s rule. As such, EPA did not restrict the application of today’s rule to any waste code, except in the case of wastes listed for the presence of dioxins or furans. See 261.38(c)(12).

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21. Gasoline/water mixtures.

CFG.70(commenter 207)

19. Comparable Fuel Exemption:

Although we agree that, if hazardous wastes are treated to produce a fuel, only the comparable fuel should be excluded from Subtitle C regulation and the "parent" wastes should be regulated from the point of generation until a comparable fuel is produced. However, EPA needs to address the possible implications of such a proposal on its longstanding "interpretive exclusion" for gasoline/water mixtures (also applicable to other petroleum storage tank bottoms).

Beginning in a letter dated March 19, 1986 from Marcia Williams, then Director of EPA's Office of Solid Waste, EPA has allowed gasoline/water mixtures to be excluded from being solid wastes, provided that they were legitimately reclaimed for their gasoline content. The rationale offered was that the mixture "contained a commercial chemical product."

If this existing exclusion still holds, it appears to be contradictory to the proposed rule, which holds that an exclusion for such a material would only be applicable if and when it achieves fuel "specifications" and not before that. Gasoline storage tank bottoms normally contain 98-99% water and only 1-2% gasoline. Clearly, prior to processing through phase separation, this material does not even come close to satisfying fuel specifications. Since such petroleum storage tank bottoms normally fail the Toxicity Characteristic for benzene, if tested, this raises an important question. Will petroleum storage tank bottoms that are reclaimed for their petroleum content still be excluded from being solid wastes as materials which "contain a commercial chemical product," or, under this proposed rule, would they now be subject to regulation as hazardous wastes?

The recovery of hydrocarbons from petroleum/water mixtures is, by far, the most common type of "treatment" that is currently undertaken to produce a usable fuel from a secondary material. This rule must clearly indicate what the regulatory status of petroleum/water mixtures will be.

Response:

The comparable fuels exclusion does not effect the regulatory status of petroleum/water mixtures. Gasoline/water mixtures will continue to be excluded from being solid wastes, provided that they are legitimately reclaimed for their gasoline content.

22. Excluding materials burned for energy recovery.

CFG.71(commenter 207)

20. On page 17459, the statement is made, "Under 261.33, commercial chemical products such as benzene, toluene, and xylene are not considered to be wastes when burned as fuels because normal fossil fuels can contain significant fractions of these chemicals and these chemicals have a fuel value."

This is a novel interpretation that appears to contradict 40 CFR 261.2 (c)(2)(ii) (as well as previous guidance). This provision states that commercial chemical products are not solid wastes when burned for energy recovery if they are ordinarily used as fuels. This provision does not say that the exclusion applies if such materials are found as components in fuels. Indeed, pure benzene, toluene, and xylene are no-t normally used as fuels, even though they have significant BTU value and are found as components in many fuels.

There is a considerable difference between excluding a material, burned for energy recovery, that is ordinarily used as a fuel and one that is not ordinarily used as a fuel, but is found as a component in fuels. This new interpretation opens the door to excluding materials, burned for energy recovery, when they constitute only minor components of commercial fuels. For example, coal is a fuel. Based on this, would pure phenol be excluded when burned for energy recovery if the BTU value was sufficiently high? Phenol is a component of coal.

Does EPA appreciate that this is a very significant widening of the existing exclusion?

Response:

The preamble statement (on page 17459) does not contradict 40 CFR 261.2(c)(2)(B)(ii). Under 40 CFR 261.2(c)(2)(ii), commercial products listed in §261.33 are not solid wastes if they are themselves fuels. Thus, when commercial chemical products like benzene, toluene, and xylene are directly used as fuels that are not solid wastes. However, under 40 CFR 261.2(c)(2)(B), if commercial chemical products are used to produce a fuel or are otherwise contained in fuels, they remain solid wastes.

23. Should not establish specifications lower than HWIR rule.

CFG.24(commenter 102)

F. Relationship to Other Proposed Hazardous Waste Exclusion Criteria

While NACR does not believe a comparable fuel exclusion is necessary or justified in the proposal, we would like to suggest that EPA at least attempt to integrate the exclusion with other regulatory initiatives underway such as the Hazardous Waste Identification Rule (HWIR). In the recent HWIR proposal EPA listed different constituent concentrations which, under various management scenarios, would provide an exit to Subtitle C regulation. The

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proposed comparable fuels exclusion will essentially produce a similar regulatory framework. At a minimum, these approaches ought to be coordinated such that the Subtitle C exit concentrations are applied in a consistent manner to the same material. However, since the HWIR rule did not consider combustion as a contingent management approach, the applicable concentrations for a comparable fuel exclusion ought to be as low or lower than those proposed under HWIR. In addition, the Agency could combine the comparable fuel benchmark approach (limiting the comparable fuel specification to those constituents detected in the benchmark fuel) with the exit concentration limits of HWIR. NACR urges the EPA to reexamine the HWIR levels to ensure they are protective for non-Subtitle C combustion management and to promulgate consistent exit levels for the unconstrained exclusions.

CFSA4.25(commenter 226)

2. It Would Be Arbitrary And Capricious To Establish Specifications That Are Lower Than Exit Levels Contained In The Hazardous Waste Identification Rule

Quite apart from the failure to fully disclose analytical methods, there is a fundamental substantive problem with EPA's proposed specifications. In the case of at least ten constituents, EPA is proposing to establish benchmark specifications that are lower than the concentrations that would allow a candidate fuel to exit the RCRA Subtitle C system under the agency's proposed Hazardous Waste Identification Rule ("HWIR"). 60 Fed. Reg. 66344 (Dec. 21, 1995). The following table compares EPA's proposed gasoline benchmark specifications for 10 compounds with EPA's proposed toxicity-based "exit levels" for non-wastewaters under the HWIR proposal:

	Gasoline (ppm)	HWIR (ppm)
1,1,1 Trichloroethane	55.7	48,000
1,1,2 Trichloro 1,2,2 Trifluoroethane	30.0	2,400
cyanide	1.0	20
endosulfan I	1.4	24
endosulfan II	1.4	6
ethyl carbamate	14.0	6,900
epichlorohydrin	30.0	44
heptachlor	1.4	8
pyrene	670.0	16,000
2,6 TDA Toluene diamine	7.0	20

There surely can be no valid justification (and EPA has not articulated any justification) for requiring a candidate fuel to meet a higher threshold for a risk-based exemption under the comparable fuels exclusion than EPA would establish for the same candidate fuel under a generic risk-based exemption such as HWIR.[3]

[Footnote 3: This is also true, of course, for the earlier list of constituents identified in the April 19, 1996 proposal, to the extent that a proposed benchmark specification for any of those constituents is lower than the proposed HWIR exit levels.]

Response:

EPA has taken into consideration the HWIR proposal with regard to its comparable fuel

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exclusion. However, EPA will not being uses the proposed exit levels in the HWIR rule to establish comparable fuel specification. The HWIR exit levels are based on a risk-based approach which is not the approach pursued under the comparable fuels exclusion. The comparable fuels exclusion is conditioned on the waste being combusted, and thus prohibits direct placement on the land. The comparable fuel specifications need not be the same as the HWIR exit levels. The HWIR proceeding is defining when wastes no longer are hazardous. This proceeding is defining when a fuel-like secondary material is not a waste. (Even viewed from the standpoint of risk -- a misplaced comparison for the reason given -- it should be noted that there could be a legitimate difference between exit numbers for materials which must be combusted and those which could be managed in many other manners, including direct land disposal.)

Under this final rule, EPA is excluding from the definition of soild waste hazardous waste-derived fuels that meet specification levels comparable to fossil fuels for concentration of toxic constituents and physical properties that affect burning. EPA has based the comparable fuel specifications on the levels found in EPA's analysis of the benchmark fuels.

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COMPARABLE FUELS: MAY 2, 1997 NODA

Synthesis Gas

1. Clarification of Synthetic Gas Fuels Production Processes

GASFUL 1 (commenter CS4A-00005) & (CS4A-00011)
In Section III of the Notice of Data Availability, EPA states that the "proposed rule included a proposed exclusion from subtitle C jurisdiction for certain synthetic gas fuels derived form hazardous waste treatment activities." (emphasis added). The proposed rule did not contain language which specifically indicated that it referred only to synthetic gas derived from hazardous waste treatment activities. Thus, Texaco had interpreted the proposal as much broader, in fact, potentially applying to commercial synthesis gas production processes such as the Texaco gasification process when that process utilizes as a feedstock secondary material which otherwise would be a hazardous waste if disposed to produce synthetic gas where that synthetic gas is used as a fuel.

If the proposal is actually intended to have a more narrow interpretation and apply solely to synthesis gas fuels which are derived from hazardous waste treatment activities, Texaco requests that the EPA in the proposed rule may have been intended by EPA to explain that the rule was intended to apply to synthesis gas derived from hazardous waste treatment activities. However, many (including Texaco) are not that familiar with the catalytic extraction process and do not know whether EPA considers that to be hazardous waste treatment. So if that was the purpose of the reference, it was lost upon many. Given the widespread commercial gasification facilities in existence and planned, it is critical that EPA make this clarification.

As we have stated in our prior comments, the Texaco gasification process is not a hazardous waste treatment process but rather is a production process used to convert carbonaceous materials into a synthetic gas consisting primarily of hydrogen and carbon monoxide. The synthesis gas is a valuable product with multiple uses, such as a building block for chemical manufacture and as a fuel. The Texaco gasification process has been used commercially for over 45 years to produce synthetic gas which has been used within that time period for many uses, including to produce hydrogen, chemicals, steam, and power. Feedstocks have included coal, coke, and secondary materials.

When secondary material is used as a feedstock in the gasification process, the secondary material is not as a waste, even if the secondary material is one which, if disposed, would be as a hazardous waste. EPA has agreed in the proposed rule that where the synthetic gas is made from secondary material which would otherwise be as a hazardous waste if disposed but is use for non-fuel purposes, such as to create chemicals, the synthesis gas would not be regulated. Yet, the synthetic gas used for non-fuel purposes is the same as the synthetic gas used for fuel.

Response:
The commenter appears to have misinterpreted the May 2nd notice. Use of hazardous

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secondary materials to produce fuel is a form of hazardous waste treatment. This is because sludges, by-products and spent materials which are listed, or which exhibit a characteristic, are defined as solid wastes and hazardous wastes (see β261.2(c)(2)), and producing a fuel from hazardous wastes is a type of hazardous waste treatment (it is designed to make the waste amendable for recovery). EPA has already provided this interpretation to Texaco by letter which antedates the original 1996 proposal. See Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995).

Upon reflection, it appears that these petroleum gasification operations may be similar to other within-petroleum industry recycling activities that EPA has proposed to exclude from Subtitle C jurisdiction in the petroleum listing rule proposed on November 20, 1995. 60 FR 57747. It therefore appears more appropriate to consider this overall jurisdictional issue in the context of that rulemaking. However, EPA is not at this time limiting the synthetic gas fuel exclusion insofar as it potentially applies to the output of gasification operations conducted as part of normal petroleum refining (SIC Code 2911). Thus, these syngas fuels can also be eligible for the exclusion in today's rule.

2. Concentration Limit on Hydrogen Sulfide in Synthesis Gas

GASFUL 2 (commenter CS4A-00006)

The Gasification Technologies Council is pleased to comment on EPA's notice of data availability and request for comments on the proposed rule, "Revised Standards for Hazardous Waste Combustors" (62 FR 2421 1 May 2, 1997). We wish to respond specifically to the request for comments on the "status of gaseous fuels generated from hazardous waste management activities" (62 FR 24253).

Member companies of the Council are involved on a worldwide basis in the manufacture and use of synthesis gas produced from coal, petroleum coke, heavy oils, biomass, and other carbon-containing materials. The Gasification Technologies Council recommends that the EPA set no limit on the concentration of hydrogen sulfide (H2S) in synthesis gas produced from the gasification of RCRA listed wastes when the gas is combusted in a unit subject to state and/or federal air emissions regulations under the Clean Air Act.

From an environmental protection perspective, the key issue is control of sulfur dioxide emissions to the atmosphere, not the level of H2S in the synthesis gas - an intermediate process stream in the facility. Sulfur in the syngas is converted to sulfur dioxide during combustion. Existing regulatory controls - federal and state Clean Air Act permits - already impose limits on sulfur dioxide emissions resulting from combustion of the gas. A separate RCRA H2S limit is, therefore, unnecessary and redundant.

In order to put the proposed 10 ppm hydrogen sulfide limit into perspective, we have prepared the attached chart, which is based on calculations by Mr. Neville Holt of the Electric Power Research Institute in Palo Alto, California. Mr. Holt is a recognized authority on gasification and power generation technologies. His analysis indicates that a 10 ppm H2S concentration in syngas of 200 Btu/scf would result in SO2 emissions of .0084 lb/mmBtu

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when the gas is combusted through a turbine.

The chart clearly illustrates that: (1) the draft rule would set a maximum level for H2S in syngas that is arbitrary and unduly restrictive, drastically below the level required to comply with the most strict Clean Air Act SO2 emissions limits when the syngas is combusted; and (2) even with a significant increase in the maximum allowable concentration of H2S in the syngas above the 10 ppm limit, the combustion of syngas from a gasification facility can result in SO2 emissions well below Clean Air Act requirements.

The proposed 10 ppm hydrogen sulfide limit for synthesis gas produced from RCRA listed wastes would impose on gasification plants that use these materials unnecessary added capital and operating costs as well as new review, monitoring, and reporting requirements. Gasification is clearly environmentally superior to conventional combustion of RCRA listed wastes. Its use should be encouraged, not overly regulated.

The hydrogen sulfide standard is also counterproductive environmentally. If this limit is retained in the final rule, it will discourage use of secondary materials in gasification plants. The alternatives to gasification - incineration or discharge to a wastewater treatment plant - will result in increased emissions and/or effluents.

Given the significant environmental benefits to be derived from greater use of gasification in industrial settings, we propose that no hydrogen sulfide specification be imposed on synthesis gas produced from RCRA listed wastes when the gas is combusted in a unit subject to state and/or federal air emissions regulations under the Clean Air Act. Clean Air Act limits on sulfur dioxide emissions resulting from combustion of the syngas provide a proven, effective means of protecting public health and the environment.

[See hardcopy of comment CS4A-00006 for table.]

Response:

EPA disagrees with commenters that no hydrogen sulfide specification should be promulgated. EPA is establishing this RCRA exclusion from the definition of solid waste by limiting Part 261 Appendix VIII constituents, one of which is hydrogen sulfide. However, the proposed specification of 10 ppmv is not appropriate and a more appropriate specification would be based on current applications where syngas is used as a fuel.

The sulfur content of the material used to produce the syngas is converted to almost entirely H_2S in the gasification process. Thus, syngas produced from low sulfur content material do not contain appreciable H_2S. The H_2S content of high sulfur coal-based syngas can be over 1000 ppmv. However, in these cases, H_2S is removed during the gasification process. The amount of H_2S removal is dependent on how the syngas will be used. In the case of syngas used for chemical feedstock, the H_2S removal can be to a level under 1 ppmv. For the case of syngas used for a fuel, H_2S removal can range from levels between 50 to 200 ppmv (above 200 ppmv may lead to corrosion of turbine parts). Therefore, EPA is promulgating a hydrogen sulfide specification of 200 ppmv for synthesis gas fuels. EPA further notes that H_2S removal is considered part of the gasification process so that a syngas generator is required to meet the H_2S specification after this removal process.

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3. RCRA section 3004(q)(1)

GASFUL 1.a.i (commenter CS4A-00005) & (CS4A-00011)
EPA claims jurisdiction to regulate synthesis gas under RCRA when the gas is produced from hazardous waste and is used as a fuel. To support this point, EPA states in the Notice of Data Availability that EPA has broad statutory authority to regulate fuels produced from hazardous wastes under RCRA section 3004(q)(1). However, when the secondary materials are used as a feedstock, the materials are not wastes. In fact, the purpose of this section of RCRA was to address concerns involving "direct introduction of hazardous wastes to the air..." H.R. Rep. No. 98-198, 98th Cong., 1st Sess. 46. Through the gasification process, all of the materials, including the secondary materials, are converted into a gas which primarily consists of hydrogen and carbon monoxide. Hazardous waste constituents are not present. Thus the concern raised by Congress is not present in synthetic gas produced by the Texaco gasification process.

In addition, RCRA 3004(q)(1) requires the EPA to promulgate such standards as may be necessary to protect human health and the environment. EPA has never done this in relation to synthetic gas. All of the prior rulemaking was based upon non-gaseous waste derived fuels. Even EPA recognizes that standards are not necessary for synthetic fuels which are produced from hazardous waste. Indeed, in the proposed rulemaking of April 19, 1996, EPA proposed to exempt synthetic fuels because regulation is not necessary to protect human health and the environment.

GASFUL 5.b (commenter CS4A-00019)
In the NODA, EPA cites its authority under RCRA 3004(q)(1) which requires EPA to regulate facilities that produce a fuel from a hazardous waste and facilities that burn such fuels for energy recovery. To use this authority, however, EPA must assert that the synthetic gases generated from hazardous waste combustion is a fuel produced from a hazardous waste. However, at the point the gas is generated from the combustion activity it ceases to be a solid waste (i.e., it is an uncontained gas which does not meet the statutory definition of a solid waste). Therefore, if a facility decides to use this gas as a fuel source it is not using a hazardous waste as a fuel because the gas cannot be defined as a hazardous waste.

Response:
Section 3004(q)(1) applies to fuels produced from hazardous wastes, not just hazardous waste burned as generated. Fuels so produced also are subject to subtitle C regulation. The nexus is simply that hazardous waste is being used to produce a fuel, precisely the activity addressed by 3004(q).

In response to Texaco’s comment, EPA certainly has jurisdiction to ascertain that these fuels produced from hazardous waste do not contain components of the hazardous waste that could cause burning to be harmful to human health and the environment. EPA made plenary findings for all fuels produced from hazardous wastes as part of the 1991 BIF rule. No challenges with respect to syngas derived from hazardous waste were raised at that time. Moreover, EPA has explained by letter to Texaco that its syngas is a type of hazardous waste fuel (albeit currently exempt from substantive regulation). See Letter of Michael Shapiro (Director of Office of Solid Waste) to William Spratlin (Director RCRA Division EPA Region VII) (May 25, 1995). That opinion letter was apparently accepted by the company, since EPA never received a reply.

Finally, the commenter's statement that their syngas fuel contains no hazardous constituents and so should not be regulated is accommodated by the final rule, which establishes a specification which allows exclusion if hazardous constituent concentrations are indeed as low as the commenter maintains. However, if syngas fuel produced from hazardous waste contains high concentrations of a hazardous constituent from the hazardous waste (or of PICs formed in the process of gasifying the hazardous waste) it is patent that the concerns underlying section 3004 (q) (1) would be present. However, EPA repeats that the issue of whether it is necessary to regulate hazardous waste-derived fuels was already settled in the 1991 BIF rulemaking.

EPA sees nothing in section 3004(q)(1) that draws the distinction made in the second comment that at the point the gas is generated from a fuel production activity it ceases to be a solid waste. The gas remains a fuel which is produced from a hazardous waste. It is indeed similar to other types of gaseous emissions which EPA may regulate. See, section 3004(n). In addition, it is clear that the material initially put into the gasifier is identified and listed hazardous wastes. See 261.2(c)(2) and earlier responses. For example, if a petroleum refinery were to take its wastewater treatment sludge (listed hazardous wastes K037, or K048-52), gasify it, and use the resulting syngas as a fuel, the fuel would be a hazardous waste-derived fuel.

4. Horsehead Resource Development Co. v. Browner

GASFUL 1.a.ii (commenter CS4A-00005) & (CS4A-00011)

EPA also cites Horsehead Resource Development Co. V. Browner, 16 F.3d. 1246 (D.C. Cir. 1994) for the proposition that it may has regulatory authority over synthesis gas, or syngas, when the gas is produced from hazardous waste. This case involves the regulation of air emissions from as a boiler or industrial furnace when both hazardous waste and non-hazardous waste is burned directly in the boiler or industrial furnace. It does not support EPA jurisdiction under RCRA of synthesis gas. First, this case involves Bevill waste as the non-hazardous waste and does not involve as a gaseous material. Second, this case involves waste treatment facilities, not commercial processes. Third, this case involves facilities which burn hazardous waste. The Texaco gasifier does not burn hazardous waste. It converts the hazardous waste to as a synthetic gas without the involvement of combustion. Fourth, the court in the case developed as a "significantly affected" test. The Bevill wastes retained their exemption from regulation under Subtitle C of RCRA as long as they were not "significantly affected" by the hazardous waste fuel. The secondary materials which may be used as feedstock in the Texaco gasification process would not significantly affect any other feedstock materials as all of the materials would be converted. (Use of non-legitimate materials as feedstock can be addressed by EPA Under sham recycling.) In addition, the synthesis gas

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created from secondary materials which would otherwise be as a hazardous waste if disposed are the same as synthesis gas created from any other feedstock materials. Moreover, EPA has not utilized the "significantly affect" test within the proposed rule. Finally, the case required an adequate nexus between the controls and the management of hazardous waste. EPA has not demonstrated any nexus in the proposed regulation. Thus, this case does not support EPA's claim of regulatory authority over syngas.

Response:
The D.C. Circuit, in Horsehead Resource Development Co. v. Browner ~~has~~, broadly construed EPA’s statutory authority to regulate fuels produced from hazardous wastes. The portion of the opinion upholding authority to regulate non-wastes burned as fuels when there is a nexus with hazardous waste fuel production/combustion has nothing to do with scope of the Bevill amendment or other extraneous distinctions mentioned by the commenter. EPA’s authority over hazardous waste fuel production also is not limited to treatment facilities; the hazardous waste management could occur at a generator’s site, for example. EPA continues to believe that the broad reading given to section 3004 (q) (1) in this opinion supports jurisdiction over syngas fuels produced from hazardous wastes (viz. from sludges, byproducts and spent materials, as set out in 261.2(c)(2)).

5. Jurisdiction case history

GASFUL 1.a .iii(commenter CS4A-00005) & (CS4A-00011)
RCRA defines what is as a solid waste and uncontained gases are not included. EPA's explanations of its potential jurisdiction over synthetic gas fuels in the Notice of Availability fails. EPA has recognized there is as a significant jurisdiction question over EPA's ability to regulate landfill gas which is burned for energy recovery. In the notice of Data Availability, EPA cites to three Federal Register notices. These notices go through as a period of 6 years, from November 29, 1985 to February 21, 1991. In each of these Federal Register notices, EPA states that the final rules relating to hazardous waste fuels do not apply to gas recovered from landfills that is burned for energy recovery in boilers and landfills and that the question of EPA's authority to regulate the burning of this gas is as a question that is not addressed. In fact, the last Federal Register notice explicitly further jurisdictional limits on EPA's authority.

Several administrative opinions and decisions also support that EPA does no have authority under RCRA to regulate the gases. For example, in an opinion dated December 17, 1984 from John Skinner, Director, Office of Solid Waste to Region IV, EPA confirmed that gaseous residues removed from compressed air cylinders was not subject to RCRA regulation, even if the gaseous residues are treated. Even the situation of where the gases are burned has been addressed in several administrative decisions and the decisions held that the gases are not solid wastes under RCRA. See In the Matter of BP Chemicals America Inc., 1991 RCRA lexis 60 3 E.A.D. 667, August 20, 1991.

Thus, EPA has not demonstrated that it has jurisdiction under RCRA to regulate synthetic

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gases which are used as fuels. Synthesis gas is not as a solid waste and therefore cannot be as a hazardous waste, whether or not it is produced from hazardous waste and regardless of whether it is used as a fuel.

Response:

EPA repeats that fuels produced from hazardous wastes can indisputably be regulated per the express language of RCRA section 3004(q). With regard to the administrative opinions cited by the commenter, none of them address the point of the issue in this rule: the regulatory status of fuels produced from hazardous wastes. The compressed air cylinder example involves the issue of whether gases in a cylinder had yet become wastes, not whether a gas fuel produced from hazardous waste is subject to RCRA Subtitle C. With regard to the matter of BP Chemicals America Inc., this decision does not address the regulatory status of fuels produced from hazardous wastes. The opinion does not stand for the proposition that gaseous releases from hazardous waste management are not within EPA's authority -- a proposition directly contradicted by Section 3004(n). Nor does the decision address the status of fuels produced from hazardous wastes, an issue directly addressed by Section 3004(q)(1). Rather, the decision dealt with the regulatory status of gaseous industrial process emissions. See In the Matter of BP Chemicals, 1991 RCRA Lexis 60, at *7 (Administrator, 1991) (RCRA permit cannot address combustion of gaseous industrial process emissions, even when burned along with hazardous wastes, absent a demonstration of nexus with hazardous waste management activity).Synthesis gas fuels produced from hazardous wastes are not industrial process emissions.

6. Contained gases

GASFUL 5.a (commenter CS4A-00019)

J. EPA does not have jurisdiction over gaseous fuels generated from hazardous waste treatment activities.

EPA requests further comment on the issue of whether certain synthetic gas fuels derived form hazardous waste treatment activities are subject to RCRA jurisdiction. (62 FR 24253). We do not believe that EPA has adequately demonstrated it has jurisdiction over gas fuels from hazardous waste combustion. RCRA section 1004(27), which defines a solid waste, clearly limits EPA's authority under RCRA to "contained" gases only. The gases generated from hazardous waste combustion certainly do not meet the definition of a "contained" gas and therefore are not included under this definition of solid waste. EPA has repeatedly confirmed, for example, that gases from industrial processes and sent to fume incinerators are regulated under the Clean Air Act and not RCRA. (See 47 FR 27530 and 54 FR 50968.) EPA is apparently asserting in the NODA that because the Agency has the authority to regulate hazardous waste-derived fuels, whether the synthetic gas fuels from hazardous waste combustion are uncontained gases or not is irrelevant. We disagree.

Response:

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EPA repeats that fuels produced from hazardous wastes can indisputably be regulated per the express language of RCRA section 3004(q). Syngas is not a gas from an industrial process. It is a gaseous emanation from hazardous waste treatment which is then burned as a fuel. This is well within EPA's authority not only under section 3004(q), but also under such provisions as section 3004(n) (gaseous emanations from treatment, storage, and disposal of hazardous waste to be regulated and 3004(o) (regulation of gaseous emanations from hazardous waste incineration).

7. Secondary materials

GASFUL 1.a.iv (commenter CS4A-00005) & (CS4A-00011)

RCRA regulation is not necessary for synthesis gas which is made from secondary materials, regardless of the commercial use of the synthesis gas. There are no benefits to human health and the environment from such regulation, but RCRA regulation does create disincentives for the use of secondary materials in the gasification process. EPA could do for synthesis gas the same as it has done for landfill gas and decide to defer the question of jurisdiction while determining that synthesis gas is not regulated under the waste-as-fuel rules. Apparently EPA believed it had authority under RCRA 3004(q) to do this for landfill gases. Texaco urges EPA to do the same for synthesis gas, at least for that synthesis gas which is produced from as a commercial gasification process such as the Texaco gasification process.

Response:

Section 3004 (q) (1) applies to "fuels", not fuels which are also solid and hazardous wastes. There is no empirical support for the commenter's assertion to the contrary. The fuel specification in the rule provides an objective measure for verifying when regulation of syngas fuel produced from hazardous waste is unnecessary.

Upon reflection, it appears that these petroleum gasification operations may be similar to other within-petroleum industry recycling activities that EPA has proposed to exclude from Subtitle C jurisdiction in the petroleum listing rule proposed on November 20, 1995. 60 FR 57747. It therefore appears more appropriate to consider this overall jurisdictional issue in the context of that rulemaking. However, EPA is not at this time limiting the synthetic gas fuel exclusion insofar as it potentially applies to the output of gasification operations conducted as part of normal petroleum refining (SIC Code 2911). Thus, these syngas fuels can also be eligible for the exclusion in today's rule. However, EPA has already addressed the specific question of applicability of current rules to the Texaco situation (by letter from EPA office Director dated May 25, 1995), and that letter (which Texaco never challenged) correctly states the current status of the material.

8. Section §261.2(c)

GASFUL 5.c (commenter CS4A-00019)

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Similarly, EPA cites the regulations under §261.2(c)(2(A) and (B) which defines as solid wastes certain materials that are burned for energy recovery or "used to produce a fuel or otherwise contained in fuels (in which case the fuel itself remains a solid waste)." But these provisions only apply to the list of materials in Table 1 at §261.2(c)(1)(i) which includes only spent materials, sludges, by-products, commercial chemical products, and scrap metal. Synthetic gas from the hazardous waste combustion does not meet any of these criteria (because the RCRA regulations are not intended to address uncontained gases). Therefore, the regulatory definition of solid waste in no way supports EPA's claim for jurisdiction over these materials.

Response:
EPA disagrees with the commenter’s point. The materials used to produce syngas are covered by the provisions of §261.2(c)(2(A) and (B). If a refinery, for example, were to gasify its wastewater treatment sludges, the sludge is a type of secondary material included as a potential solid waste in the Table cited by the commenter. Fuels produced from such solid and hazardous wastes are within EPA’s authority under the express terms of section 3004(q)(1). See also 261.2(c)(2)(B) noting that fuels produced from solid wastes likewise remain solid wastes.

9. Jurisdiction over syngas

GASFUL 5.d (commenter CS4A-00019)
The problem with EPA's assertion of jurisdiction over synthetic gas is clear when one considers the regulation of the synthetic gas when it is not used as a fuel. In the case of a traditional hazardous waste (e.g., a liquid hazardous waste with Btu value), when it is not used as a fuel it still remains a hazardous waste subject to regulation under Subtitle C of RCRA. In the case of the synthetic gas, however, EPA has no jurisdiction under RCRA over the gas, even if it is released directly to the environment. Thus, it makes no logical sense why RCRA would have authority over gases from hazardous waste combustion that are reused as fuels but no authority over gases that are used in any other manner, including being released in a manner which could be potentially significantly more harmful than use as a fuel.

Response:
The distinction is drawn in the statute, which singles out combustion of hazardous waste-derived fuels for regulation because the ultimate means of deposition -- combustion -- so closely resembles incineration -- a classic means of waste management.

10. Commercial chemical product

GASFUL 6 (commenter CS4A-00027)
Syngas to the extent syngas is used to make a product or as an effective substitute for a

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commercial chemical product, it and the feedstocks used to produce it are excluded from RCRA by 40 C.F.R. §261.2(e)(i) & (ii). To the extent it is used as a fuel, RCRA Section 3004(q)(1) does not affect its RCRA status. Current RCRA rules exclude syngas fuels and the feedstocks used to produce it under §261.2(c)(ii).

GASFUL 7 (commenter CS4A-00027)

V. Uncontainerized Syngas And The Feedstocks Used To Produce It Are Not Solid Wastes Subject To RCRA Jurisdiction

CMA's NPRM comments explained in great detail that the Agency's proposed comparable fuels specifications for syngas were unnecessary because the syngas is an uncontainerized gas. We also explained how the existing Part 261 rules exclude syngas and the feedstocks used to produce it from RCRA jurisdiction. Finally, we explained why RCRA Section 3004(q) does not authorize the proposed specifications. Comments at 137-44. The NODA makes only passing reference to this extremely significant issue, asserting jurisdiction over syngas on the theory that it is a fuel produced from hazardous waste, citing Section 3004(q)(1) and 40 C.F.R. §261.2(c)(2)(i)(A) & (B). CMA will not repeat all the arguments made in our prior comments, but will respond to the specific point raised in the NODA.

RCRA Section 3004(q)(1) authorizes EPA to establish "standards applicable to the owners and operators of facilities which produce a fuel ... from any hazardous waste .... or.. . from any hazardous waste ... and any other material...." 42 U.S.C. §6924(q)(1). This provision is in conflict with this in several respects:

First, because it refers to "fuel[s]" it does not apply by its own terms to the extent syngas is used to make a product, or as an effective substitute for a commercial chemical product, instead of being used as a fuel. As CMA stated in its NPRM comments, syngas and its feedstocks are excluded from RCRA in those cases under 40 C.F.R. §261.2(e)(i) & (ii).

Second, to the extent syngas is used as a fuel, EPA has never promulgated regulations under Section 3004(q)(1). The Section 261.2 rules cited in the NODA regarding materials burned for energy recovery were proposed before HSWA was enacted, see 48 Fed. Reg. 14508 (April 4,1983) (proposed §261.2(a)(2)(ii)), and the authority citation for those rules makes no reference to Section 3004, see 50 Fed. Reg. 663 (Jan. 4, 1985). Nor did the BIF rule amend the relevant portions of §261.2. See 56 Fed. Reg. 7206 (Feb. 21, 1991). Finally, the HWC MACT rule does not purport to exercise EPA's Section 3004(q)(1) authority. Rather, it only proposes to narrow EPA's Section 3001(b)(1) authority in the case of comparable fuels. The MACT rule thus cannot be seen as extending EPA's jurisdiction over syngas or its feedstocks on the basis of Section 3004(q)(1).

The NODA cites 40 C.F.R. §261.2(c)(2)(i)(A) & (B), but fails to note several important points regarding these provisions:

First, they are immediately followed by §261.2(c)(2)(ii), which makes these provisions inapplicable to commercial chemical products that are themselves fuels. Section 261.2(c)(2)(ii) applies not only to listed commercial chemical products, but to all commercial chemical products, whether or not listed. See 50 Fed. Reg. 14216 (April 11, 1985); Memorandum from S. Lawrence to K. Bremer entitled "Application of the BIF Rule to Heritage Environmental Services, Inc., Lemont, Illinois" (Dec. 30, 1992). See also our NPRM

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comments at 142. Thus, neither syngas nor the feedstocks used to produce it are solid wastes. Second, the provisions cited by EPA only apply to fuels that are by-products, as opposed to "co-products - materials intentionally produced for a commercial market and suitable for use as-is . . . . " 50 Fed. Reg. 631 Syngas meets the latter description, and hence is not covered by the provisions cited in the NODA. See also our NPRM comments at 142-43.

Based on the foregoing and CMA's NPRM comments, EPA cannot and should not regulate syngas or its feedstocks, and thus need not promulgate any specifications regarding when syngas is a "comparable fuel."

Response:

With regard to Agency authority, the BIF rule obviously implemented RCRA section 3004(q). See, for example, 56 FR at 7188/1 (February 21, 1991).

“Commercial chemical product” is a term of art referring to unused or off-specification commercial chemical products such as those listed in §261.33. (See the reference to §261.33 in the Table in §261.2.) Syngas fuels produced from hazardous wastes are not pure chemical products (consisting of a named chemical, or a product in which the enumerated chemical is the sole active ingredient), but rather a composite produced from a hazardous waste treatment process. The principle mentioned by the commenter hence does not apply.

With regard to the comment distinguishing between co-products and by-products, EPA disagrees that the provisions cited by EPA only apply to fuels that are by-products. All secondary materials that are used to produce a fuel or otherwise contained in fuels are solid wastes (See 40 CFR 261.2 Table 1), with the exception of commercial chemical products that are themselves fuels. EPA disagrees with the commenter that the Agency cannot and should not regulate syngas or its feedstocks. Hazardous feedstocks used to make syngas are not co-products. As the Agency explained in the January 4, 1985 preamble, co-products are materials intentionally produced for a commercial market and *suitable for use as-is* (Emphasis added; see 50 FR 630). The feedstocks used to make syngas have to be processed. The Agency goes on to state that fuels containing wastes remain solid wastes. Thus, the fact that syngas itself is a product is immaterial.

For example, if a chemical facility were to take distillation bottoms from chlorinated organic manufacture (hazardous waste F024, which can contain dioxin and dioxin-precursors as hazardous constituents), and gasify the still bottom to produce syngas fuel, the F024 material is a solid waste because it is a by-product being used to produce a fuel (per §261.2(c)(2)), the gasification process would be treating the F024 waste, and the resulting waste-derived fuel could still be subject to subtitle C jurisdiction. If the gasification process is sufficiently efficient, the syngas fuel would be excluded from being a waste because it meets the specifications established in today’s rule.

Furthermore, EPA noted in the January 4, 1985 preamble that “products-co-products that include hazardous waste as ingredients are classified as wastes when they are to be burned for energy recovery.” (50 FR 625). In addition, EPA specifically stated that “EPA also may be able to establish specifications that distinguish waste-derived fuels from products. Today’s rule makes clear that the Agency has jurisdiction to make these determinations.” (50 FR 630).

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11. Uncontained gases as a solid waste

GASFUL 9.a (commenter CS4A-00045)

XVIII. SYNTHETIC GAS FUEL EXCLUSION

On April 19,1996, EPA issued a proposed rule on Revised Standards for Hazardous Waste Combustors, which included a proposal to exclude from the definition of "solid waste" a particular type of syngas. 61 Fed. Reg. 17358 (Apr. 19, 1996). The proposed exclusion applies to syngas resulting from the thermal reaction of hazardous wastes. Id. at 17465. Syngas is produced in a partial oxidation process designed to optimize the production of hydrogen and carbon monoxide. Syngas can be used as a feedstock or a fuel at manufacturing facilities. EPA's proposed exclusion would apply only to syngas that "possesses standard product indicia in the form of fuel value" and meets very specific and stringent specifications. Id.

In response to its April 19, 1996 proposed exclusion, EPA received various comments stating that the regulation of syngas fuels as solid waste is beyond EPA's regulatory authority because syngas is an "uncontained gas." Nevertheless, EPA asserted its jurisdiction over such gases on May 2, 1997 in a third notice of data availability ("NODA") for Revised Technical Standards for Hazardous Waste Combustion Facilities. 62 Fed. Reg. 24212 (May 2,1997). In this NODA, EPA stated that it "has broad statutory authority to regulate fuels produced from hazardous waste [and] the fact that syngas (by definition) is a gas ... does not appear to raise jurisdictional issues. It is still produced from the hazardous wastes that are being processed thermally." Id. at 24253. EPA requested comments on this position.

A. It is unnecessary to exclude syngas from the RCRA definition of "solid waste."

As a threshold matter, it is unnecessary to exclude syngas of any type from the definition of "solid waste." Implicit in the EPA's proposed exclusion is the Agency's determination that syngas meets the definition of "solid waste." This is a position that is not supported by statute, regulation, or EPA Guidance. For the reasons described below, EPA has no authority to classify an "uncontained gas" such as syngas as a solid waste.

The plain meaning of the statutory definition of "solid waste" indicates that uncontained gases are not solid waste. Section 1004(27) of the Solid Waste Disposal Act ("SWDA") defines "solid waste" as:

any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities .... 42 U.S.C. §6903(27) (emphasis added).

Since this definition of solid waste was enacted in 1976, it has never been amended to include uncontained gases. The legislative history for the SWDA indicates that the subjects of this legislation included "[n]ot only solid wastes, but also liquid and contained gaseous wastes semi-solid wastes and sludges ... ." H.R. Rep. No. 94-1491, at 2 (1976), reprinted in 1976 U.S.S.C.A.N. 6238, 6240 (1976) (emphasis added). The longstanding definition of solid waste, which has always implicitly excluded uncontained gas, demonstrates that the proposed exclusion of syngas from the definition of solid waste is unwarranted and duplicative.

On several occasions, EPA itself has acknowledged that it is without authority to regulate

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uncontained gases as a solid waste. In 1984, in the preamble to a proposed hazardous waste listing, EPA initially stated that it considered hot, gaseous vapors from a production process to be a solid waste because, although this material is a gas, it is not a "true gas" because it contained liquids at standard temperature and pressure. 49 Fed. Reg. 5313 (Feb. 10, 1984). EPA subsequently reversed this interpretation on the basis that RCRA does not give EPA authority to regulate treatment of gases from production processes. 54 Fed. Reg. 50968, 50973 (Dec. 11, 1989). Based on comments it received on its initial determination, EPA stated that it "now believes our authority to identify or list a waste as hazardous under RCRA is limited to containerized or condensed gases" Id. This interpretation remains valid today. Likewise, EPA has acknowledged that RCRA does not give it the authority to regulate fume incinerators that treat gaseous emissions from industrial processes. 47 Fed. Reg. 27530 (June 24,1984). The basis for EPA's determination was that "in general, the RCRA standards do not apply to fume incinerators since the input is not identifiable as a solid waste; according to the definition set forth in §261.2." Id.

In another context, a federal district court held that uncontained gases are not solid wastes. Gallagher v. T.V. Spano Bldg. Corp., 805 F. Supp. 1120 (D. Del. 1992) In Gallagher, plaintiffs in a private CERCLA action asserted that methane emanating from a landfill was a RCRA "hazardous waste." Id. at 1129. The Court disagreed with the plaintiffs, however, concluding that "[c]onsistent with the EPA's interpretation,... [t]here can be no dispute that methane gas is not a solid waste." The Court provided the following explanation for its determination:

EPA regulations promulgated pursuant to RCRA indicate that "all materials are either: (1) Garbage refuse, or sludge; (2) solid, liquid, semi-solid or contained gaseous material; or (3) something else. No materials in the third category are solid waste." 42 C.F.R. Pt. 260, App. 1. It is clear that the migrating methane gas found at the Raintree Village site is not "[g]arbage refuse, or sludge", nor is it a "solid, liquid, semi-solid or contained gaseous material." See id. Therefore, methane gas must fall into the category of "something else: and the regulations clearly state that "[n]o materials in the [something else] category are solid waste." Id.

Based on the above cited authority, it is evident that the RCRA definition of solid waste precludes EPA from classifying an uncontained gas, including syngas, as a solid waste. Thus, the proposal syngas exclusion, assuming as it does, that the gas constitutes a solid waste, is unnecessary.

Response:

Syngas is being classified (and is classified) as a “fuel which is produced from hazardous waste”, and hence within the authority granted per section 3004(q).

With regard to the commenter’s example of gaseous vapors from a production process, this applies to gases generated in standard industrial processes (such as production of C1-C5 chlorinated aliphatic chemicals), not to the output of fuels from hazardous waste treatment processes. Gaseous emanations from industrial processes are generated from processing raw materials, or in-process materials, not from processing sludges, spent materials or by-products which are identified or listed as hazardous wastes. This earlier rulemaking had nothing to do with the status of fuels produced from hazardous waste. With regard to fume incinerators, that situation also involved gaseous process emissions, not fuels produced from identified and listed hazardous wastes.

There is no provision prohibiting EPA from classifying syngas as what it in fact is: a fuel produced from hazardous wastes, the express subject of section 3004(q)(1).

12. BP Chemicals America, Inc

GASFUL 9.b (commenter CS4A-00045)

B. It is unnecessary to exclude gases associated with the management of hazardous wastes from the RCRA definition of "solid waste."

In 1991, the EPA Administrator directly addressed the jurisdictional limits of EPA's authority under RCRA to regulate uncontained gases associated with the treatment of hazardous waste. In re BP Chemicals America, Inc., RCRA Appeal No. 894,3 E.A.D. 667 (Adm'r Aug. 20,1991). In BP Chemicals, the Administrator issued a remand order explicitly stating that RCRA does not give EPA authority to classify uncontained gases as solid wastes. Id. at 671.

In BP Chemicals, the Administrator reviewed permit conditions for a hazardous waste incinerator that thermally treated both hazardous waste and hydrogen cyanide ("HCN") vapors from a production process. BP challenged several permit conditions relating to the handling of HCN vapors on the basis that these requirements exceeded RCRA jurisdiction because uncontained gases are not solid wastes.

The Administrator determined that the RCRA definition of "solid waste" precludes EPA from regulating an uncontained gas as a solid waste, even if the gas is treated in a RCRA-regulated unit. See id. at 670. The Administrator rejected EPA's argument that it had broad authority under RCRA to regulate vapors associated with hazardous waste treatment as solid waste. The Administrator stated:

the [RCRA] omnibus authority may not be used to override the exclusions (express or implied) from RCRA jurisdiction found in the definition of "solid waste." Otherwise, the exclusions would be rendered virtually meaningless, a result that would not produce a coherent and reasonable reading of the statute. Id. at 671.

This holding further confirms that EPA does not have the statutory authority to regulate syngas as a solid waste, even if the gas was generated or treated in a RCRA permitted unit.

Response:

This is an incorrect characterization. The Administrator stated that just because gaseous process emissions -- which were not the outputs of hazardous waste treatment -- were burned in a regulated unit (a unit that was also burning hazardous wastes) did not confer jurisdiction over the gaseous industrial process emissions. The opinion plainly does not address authority over fuels produced from hazardous wastes. This was a case where a hazardous waste incinerator was also used to burn industrial process gases. It thus is not on point when considering questions as to the status of fuels produced from hazardous wastes.

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13. Environmental Appeals Board decision

GASFUL 9.c (commenter CS4A-00045)

C. Even gases generated from the treatment of hazardous wastes are not regulated as "solid wastes" under RCRA.

Both EPA and the federal courts have confirmed that uncontained gases generated from hazardous waste treatment, storage or disposal activities are not "solid wastes." EPA stated as much when it determined that:

[O]rganic vapors emitted from hazardous waste are not hazardous waste. Therefore, control devices installed specifically to comply with subpart CC organic vapor control requirements are not hazardous waste management units and are not required to be permitted under RCRA. (Background Information Document ("BID") for Promulgated Organic Emission Standards for Tanks, Surface Impoundments, and Containers 6-107 (Nov. 1994)).

The Environmental Appeals Board ("EAB") reiterated this position in 1995. See In re: Chemical Waste Management of Indiana, Inc., RCRA Appeal No. 95-4,1995 RCRA LEXIS 23 (Aug. 23, 1995). In this case, Chemical Waste Management challenged several conditions of a hazardous waste permit issued by EPA Region V. One of the challenged permit conditions involved monitoring of air emissions from hazardous waste treatment activities. The EAB determined that EPA did not have the authority to establish the permit condition on the basis of its corrective action authority under RCRA §3004(u). Id. at 38. The EAB made this determination on the basis that this authority extends only to hazardous wastes. Reiterating the holding in BP Chemicals, the EAB stated:

[A] substance in gaseous form is not considered a solid waste under RCRA unless it is containerized. Because the air emissions that the Region seeks to regulate are not containerized, they would not meet the definition of a solid waste and therefore would not constitute hazardous waste. Id. at *38-*39.

These authorities demonstrate, without qualification, that syngas, even syngas generated from the treatment of hazardous waste, cannot be regulated as a solid or hazardous waste unless it is containerized. EPA's proposed exclusion for syngas generated from burning hazardous waste fuels is an implicit and unauthorized expansion of its jurisdiction to regulate uncontained gases under RCRA.

Response:

The commenter maintains that an opinion of the Agency's Environmental Appeals Board ("Board"), In re: Chemical Waste Management of Indiana, Inc. (RCRA Appeal No. 95-4, 1995 WL 523542 (1995)), supports its position. In that case, the Board held that the RCRA corrective action authority in section 3004(u) to control "releases of hazardous waste... from any solid waste management unit" did not apply to gaseous releases because the gas would be uncontained and hence not a solid waste. Id. at 12-13. The Board also held that authority to control such releases existed under the section 3005(c)(3) omnibus authority, and also could exist under the section 3004(u) authority to control release of hazardous constituents from solid waste management units. Id. at 13 and n. 15.

The opinion is not on point here since it quite evidently did not involve the issue of regulation of fuels produced from a hazardous waste. This EAB opinion also confirms the Agency's broad authority to regulate gaseous emissions from treatment, storage, or disposal of hazardous wastes. There also was no issue of ability to control fuels produced from hazardous wastes.

14. Statutory authority over syngas

GASFUL 9.d (commenter CS4A-00045)

D. EPA's reliance on authority cited as the basis for its regulation of syngas as a "solid waste" is misplaced.

In the NODA published on May 2,1997, EPA prominently cites a 1994 decision by the United States Court of Appeals for the District of Columbia Circuit as establishing EPA's authority to regulate syngas as a solid waste. 62 Fed. Reg. 24212, 24253 (May 2, 1997); Horsehead Resource Dev. v. Browner, 16 F.3d 1246 (D.C. Cir. 1994). Unlike BP Chemicals, however, Horsehead does not involve the jurisdictional limits of RCRA authority to regulate uncontained gases. Horsehead establishes EPA's authority to regulate emissions from facilities that burn hazardous waste fuels, irrespective of whether the emissions are derived from burning non-waste fuels or from burning hazardous waste fuels. This case does not grant EPA authority to classify gaseous emissions as solid wastes and provides no support for expanding EPA authority to classify uncontained gases as solid wastes.

Likewise, EPA's reliance on RCRA §3004(q)(1) as establishing its authority to regulate syngas is misplaced. Section §3004(q) merely establishes EPA's authority to regulate the burning of fuels that are or are produced from hazardous wastes. In its discussion of syngas, EPA attempts to stretch its authority under this statute by arguing that the statute gives EPA the authority to regulate uncontained gases as solid wastes if they are generated from the treatment of hazardous waste and used as fuel.

The use of this statutory provision to expand RCRA jurisdiction in this manner is contradicted by legislative history. In 1983, the Committee on Energy and Finance, chaired by the Hon. John Dingell, issued a report stating that the provisions allowing EPA to exercise authority over the burning and blending of hazardous waste "do not grant EPA any new statutory authority." H.R. Rep. No. 99-198, at 39 (May 17,1983). The report also states that "hazardous waste, as used in this provision, includes not only hazardous wastes identified or listed as hazardous under EPA's regulations, but also any [listed] commercial chemical product ... which is not used for its originally intended purpose but instead is burned or processed as fuel." Id. at 40. However, section 3004(q) does not change the definition of "hazardous waste" to include uncontained gases, even if these gases are burned as fuel.

Nowhere in the legislative history for section 3004(q) is it contemplated that the term "fuel" includes uncontained gases, even those generated from the treatment of hazardous waste. In fact, if Congress had wished to expand EPA's authority to regulate uncontained gaseous fuels as solid wastes when section 3004(q) was enacted, it could have modified the definition of "solid waste" accordingly. The simple fact that syngas can be used as a fuel, as EPA states in the May 2, 1997 NODA, does not give EPA authority to regulate this material as a solid

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waste. Similarly, the use of the term "fuel" in 40 C.F.R. §261.2(c)(2)(I)(A) and (B) is not evidence that RCRA §3004(q) expands RCRA jurisdiction to allow regulation of gaseous fuels as solid wastes. These regulations merely restate EPA's longstanding authority to regulate the burning of fuels that are hazardous wastes or are produced from hazardous wastes.

Response:

With regard to Horsehead, the case does address authority under section 3004(q) to regulate fuels which are not solid or hazardous wastes, and upholds such authority if there is a reasonable nexus to hazardous waste management activities.

With regard to the 1983 Committee on Energy and Finance report, EPA reads the report to say that hazardous-waste derived fuels are, and always have been, within EPA's authority, with or without section 3004(q).

Again, EPA states is authority over hazardous waste-derived syngas. Syngas is regulated as a fuel produced from hazardous waste.

15. CAA regulation of emissions

GASFUL 9.e (commenter CS4A-00045)

E. The characterization of syngas as a "solid waste" is not necessary to fill gaps in the regulation of this material.

The attempt by EPA to regulate an uncontained gas such as syngas as a solid waste contravenes its obligation under RCRA §1006(b) to integrate RCRA provisions with those of the Clean Air Act ("CAA") to the maximum extent possible. The CAA fully and adequately regulates emissions from the burning of syngas fuels. Regulation of uncontained gas as a solid waste is also unnecessary considering the fact that EPA has clearly established authority under RCRA §3004(n) to regulate emissions from hazardous waste treatment, storage, and disposal facilities, although not as solid or hazardous wastes.

Similarly, the BP Chemicals decision held that RCRA gives EPA the authority to regulate uncontained gases associated with hazardous waste treatment in RCRA permits on a case-by-case basis, but not as solid or hazardous wastes. In re BP Chemical, Inc., RCRA Appeal No. 89-4,3 E.A.D. 667,672 (Adm'r Aug. 20, 1991). To establish and enforce RCRA permit conditions that regulate an uncontained gas, EPA must demonstrate that the permit condition "has an adequate nexus to solid or hazardous waste management" and is "necessary to protect human health and the environment," as required under RCRA §3005(c)(3). See id. at 670-72. These authorities demonstrate that the characterization of syngas or any other uncontained gas as a solid waste is not necessary in order to fill gaps in the regulation these materials.

Response:

EPA has authority to regulate syngas under 3004(q) which reaches the gaseous fuel outputs of hazardous waste treatment processes. EPA agrees that it already has jurisdiction to regulate hazardous waste-derived fuels, including those that are gases under the reasoning set

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out in the comment responses above

16. Waste-like material

GASFUL 9.f (commenter CS4A-00045)

F. The regulation of syngas as a "solid waste" is not necessary because as is not a waste-like material.

In discussing its proposed exemption for syngas, EPA concedes that the type of syngas subject to this exclusion is not a waste but a commercial chemical product. 61 Fed. Reg. 17358, 17465 (Apr. 19, 1996). EPA itself states:

We are aware ... of certain fuels produced from hazardous waste that are more appropriately classified and managed as products rather than wastes. EPA believes that syngas meeting the requirements of the proposed exclusion are such a material. Syngas is a commercial product which has important uses in industry as both a feedstock and commercial fuel, and it may be used as both a feedstock and commercial fuel at a manufacturing facility. Id.

Thus, even if syngas was a solid waste, which it is not, in many circumstances it would already be excluded from regulation under 40 C.F.R. §261.2(e)(1)(i)- (ii), which provides "materials are not solid wastes when they can be shown to be recycled by being: (i) [u]sed or reused as effective substitutes as ingredients in an industrial process to make a product ... or (ii) [u]sed or reused as effective substitutes for commercial products." In fact, syngas is typically processed to generate several products, including hydrogen, high-Btu methane gas, ammonia, sulfur, and miscellaneous recoverable hydrocarbons. See 45 Fed. Reg. 51744 (Aug. 4, 1980).

Likewise, when syngas is burned as a fuel, it would be excluded from the definition of "solid waste" under 40 C.F.R. §261.2(c)(2)(ii), which provides that commercial chemical products are not solid wastes if they are fuels. EPA has stated that this section applies to commercial chemical products generally, not just those listed in section 261.33. See 50 Fed. Reg. 14216 (Apr. 11, 1985). In light of these characteristics of syngas, which place it outside the definition of "solid waste" under existing RCRA regulations, EPA's proposal to provide an explicit exclusion from the definition of "solid waste" for one particular type of syngas is unwarranted.

CONCLUSION EPA's contention that "the fact that syngas ... is a gas, rather than a solid or liquid . . . does not appear to raise jurisdictional issues" is incorrect. 62 Fed. Reg. at 24253. In fact, EPA has consistently recognized that the plain language of the definition of "solid waste" precludes EPA from regulating uncontained gases as a solid waste under RCRA. Moreover, EPA is without the authority to implicitly create an exception to this principal for gases produced from or associated with the treatment of hazardous waste. For these reasons, EPA should not include an exclusion for syngas in the final rule for Revised Technical Standards for Hazardous Waste Combustion Facilities. [See hardcopy for attached graphs and figures.]

Response:

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EPA agrees that it can classify some hazardous waste-derived fuels as product-like. This is in fact the purpose of the hazardous constituent and other specifications set out in the rule. However, syngas fuel containing, for example, high concentrations of mercury or chlorinated compounds as a result of being produced from a hazardous waste, need not and should not be classified as a product not subject to regulation under the rules from burning hazardous waste-derived fuels.

As noted earlier, §261.2(e)(1)(i)-(ii) provisions do not apply to fuels produced from hazardous wastes. See 261.2(e)(2)(ii). Syngas also is not a “commercial chemical product” as the termis used in section 261.33 (see response to CMA comment above).

Notwithstanding that at least some uncontained gases are not solid wastes, uncontained gases resulting from hazardous waste management are within EPA subtitle C authority. There is no jurisdictional bar to RCRA regulation of uncontained gases released from hazardous waste management. See RCRA sections 3004 (n), (o) (l) (B), and (q) (explicitly commanding EPA to regulate air emissions from, respectively, hazardous waste treatment, storage and disposal units, hazardous waste incinerators, and hazardous waste fuel combustion units). These provisions were added to RCRA to require EPA to exercise its existing authority to control air emissions (i.e., uncontained gases) resulting from hazardous waste management activities. See H.R. Rep. No. 98-198, 98th Cong. 1st sess. At 40; S. Rep. No. 284, 98th Cong. 1st sess. At 36, 63. (There thus is no argument that these provisions were added to RCRA to fill a gap in authority created by the “contained gaseous emission” clause in section 1004 (27).) The unqualified authority in RCRA section 3004 (a) to establish performance standards for all hazardous waste treatment, storage, and disposal facilities (as may be necessary to protect human health and the environment) likewise is sufficiently ample to apply to uncontained gaseous emissions from hazardous waste management. See 45 FR 33066, 33216 (May 19, 1980) (authority under section 3004 (a) to establish standards for hazardous waste incinerators); 46 FR 7666, 7672 (January 23, 1981) (same).

17. EPA’s Authority to Regulate Fuels Produced from Hazardous Waste

GASFUL 8 (commenter CS4A-00035)

III. Status of Gaseous Fuels Generated From HWM Activities

The ETC concurs with EPA's interpretation at 62 FR 24253, col. 2, that EPA has statutory authority to regulate fuels produced from hazardous waste, including syngas and other gaseous materials derived from hazardous wastes. The MACT NPRM included a proposed exclusion from Subtitle C jurisdiction for certain synthetic gas fuels derived from hazardous waste treatment activities. 61 FR 17465. Some commenters stated that synthesis gas fuels are beyond EPA's regulatory authority because they are contained gases, and that EPA failed to set out any explanation for its potential jurisdiction over these synthesis gas fuels. In the NODA-3, EPA states that it "has broad authority to regulate fuels produced from hazardous wastes," cites numerous provisions, and states that "EPA believes its authority to be clear under these provisions." The ETC agrees. EPA has broad authority to regulate fuels produced from hazardous wastes.

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Furthermore, ETC believes that the proposed process is a pyrolytic combustion process and we strongly encourage EPA to propose MACT standards for the process. EPA not only has the authority, but also the Congressional mandate, to regulate all hazardous waste combustion processes. As ETC has previously stated in our comments on the MACT NPRM at pages 76-80, the CEP "thermal reaction" process proposed by MMT is essentially hazardous waste incineration in a starved air environment since hazardous waste is thermally destroyed using pyrolysis reactions. Pyrolysis reaction byproducts contain much higher levels of PICs than are generated by incinerators. MMT has not demonstrated that the process is closed loop. In fact, it has instead demonstrated that "treatment" is incorporated as part of the process (see Exhibit I of MMT comments, Docket No. RCSP-S0199). Subsequent treatment is indicated for both the syngas produced and the scrubber blowdown residues. If EPA exempts the proposed syngas process it opens up a loophole for any one to operate a pyrolytic device to burn hazardous waste and claim that the offgas is a "fuel." Such a loophole must not be promulgated in the MACT rule. These units need to be fully regulated under the same emissions standards as apply to hazardous waste combustion devices and under RCRA Subpart 0.

Response:
EPA maintains that it has RCRA jurisdiction over syngas produced from a hazardous waste. EPA has broad statutory authority to regulate fuels produced from hazardous wastes. RCRA section 3004 (q) (1); see also Horsehead Resource Development Co. v. Browner, 16 F. 3d 1246, 1262 (D.C. Cir. 1994) (broadly construing this authority). The commenter correctly notes many of the policy aspects supporting this settled determination. However, the scope of the final rulemaking continues to be the status of the syngas generated by the thermal treatment process. As this time, EPA is not making a decision with regard to the status of the thermal treatment unit from which the syngas is generated.

18. Status of Syngas

GASFUL 10 (commenter CS4A-00053)
Part Four: Miscellaneous Issues
III. Status of Gaseous Fuels Generated from Hazardous Waste Management Activities [Syngas]
The latest request for comment focuses specifically on the question of jurisdiction over a material some have described as an uncontained gas. The Louisiana Department of Environmental Quality has nothing original to add to this argument. Instead we hope that EPA will welcome comment on their proposal to relinquish this jurisdiction, an action we enthusiastically support:
Syngas and its manufacture bear little resemblance to materials and practices EPA considered in 1985, when choosing to assert jurisdiction over waste-derived fuels. EPA acknowledges that the chemistry is more drastic than the blending, distillation, pyrolysis (coking), and catalytic cracking operations it considered then. The more radical the chemical

transformations involved in making syngas, the better becomes the reason to question whether the product is truly "derived from" a hazardous waste. EPA, acting in the service of common sense and hard necessity, has already resorted to sophisticated interpretations of "derived from". (We refer to the "contained-in" principle.)

We agree that the proposed syngas specifications for chlorine, Appendix VIII constituents, heating value, and nitrogen are exacting enough to justify a syngas exclusion.

EPA has requested comment on whether a syngas exclusion should apply to mobile as well as stationary sources. Comment: In the case of other comparable fuels, which are solids and liquids, mobile sources may offer less opportunity for abuse than stationary sources.[1] [Mobile sources offer market constraints that stationary sources do not. Motor fuels represent the top end of the fuels market. Existing commercial specifications for gasolines can supply an adequate barrier to contaminants that would not affect a boiler. On a related issue, EPA reasoned (November 20, 1995, 60 FR 57756) "...EPA agrees that the need to closely control petroleum product quality makes it unlikely that the recovered oil.......would contain toxic contaminants not otherwise found in petroleum feedstock. The presence of non-hydrocarbon contaminants....... can jeopardize the integrity of the refined product. Product quality problems (e.g. solids or potential gum-forming problems in automobile fuel injection or carburetor systems) can, in turn. have a widespread impact on both the customers and refiners..." This same concern for feedstock purity must apply in extra measure to product purity.] However we do not know of any fuel uses for syngas in Louisiana other than as fuels for stationary boilers. Limiting a syngas fuel exclusion to a set of well-considered stationary sources would not, therefore, curtail any of the regulatory latitude we hope to gain from the rule.

We support, and are greatly encouraged by EPA's proposal to issue a separate, earlier final rule for a syngas exclusion before completing the action on a general exclusion for comparable fuels. At least one Molten Metal Technology facility is now under study in Louisiana as a substitute for a halogen acid furnace to treat on site waste at a chlor-alkali plant. Two generators have requested waste classifications for materials they plan to send to Bay City, Texas, where such a facility is under construction. We would consider it a great luxury to be able to apply regulations which actually anticipate the process. Otherwise, we face the same old dilemma: Do we act as faithful executors of yet another unintended consequence, or do we yield to Reason and reach for a stilted, but expedient interpretation?

An exclusion for syngas may not go far enough in providing appropriate relief from RCRA. The Louisiana DEQ is sensible to arguments that the Molten Metal Technology process may merit recognition as manufacturing, and that the secondary materials they accept as feedstock may merit exclusion (provided they are fed directly without prior reclamation, land placement, or speculative accumulation). We hope that EPA will consider narrowing the applicability of "use to produce a fuel" in later rulemaking.

Response:

The final rule also requires comparable/syngas fuel to be burned only in units subject to Federal/State/local air emission requirements. The Agency believes that limiting the burning of comparable/syngas fuels to industrial furnaces or boilers, or hazardous waste incinerators,

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along with a certification from the burner, would ensure that the fuel was burned in a unit subject to Federal/State/local air emission regulations. Industrial furnaces or boilers, or hazardous waste incinerators are believed to be a universe of units that are capable of handling comparable/syngas fuels and that would be subject to Federal/State/local air emission requirements. This limitation ensures that the syngas fuel is properly handled and combusted. This limitation does not limit the flexibility of the exclusion. Syngas will be permitted for use in industrial furnaces and boilers, as defined in §260.10, and hazardous waste incinerators subject to regulation under Subpart O of parts 264 or 265. This would include industrial boilers located on the site of a facility engaged in a manufacturing process and utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale.

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COMPARABLE FUELS: SEPTEMBER 9, 1997 NODA

Total Halogens

1. Support including both organic and inorganic halogens.

NODA.01(commenter CS5A.01)
USWAG is an informal consortium of EEI, APPA, NRECA and approximately 80 electric utility operating companies. EEI is the principal national association of investor-owned electric power and light companies. APPA is the national association of publicly-owned electric utilities. NRECA is the national association of rural electric cooperatives. Together, USWAG members represent more than 85 percent of the total electric generating capacity of the United States, and service more than 95 percent of the nation's consumers of electricity. Since its formation is 1979, USWAG has participated in virtually every major initiative and rulemaking under the Resource Conservation and Recovery Act ("RCRA") to present its views on the need for the development of a cost-effective, practical and environmentally protective hazardous waste regulatory program. U SWAG commented on EPA's original proposal to create a comparable fuels exclusion to support the exclusion from hazardous waste regulation of wastes that are similar to commercial fuels. Docket No. F-96-RCSP-FFFFF, submitted August 16, 1996.

USWAG supports EPA's proposal to include both inorganic and organic halogens in determining the total halogen standard for comparable fuels It is imperative that the comparable fuels standard reflect the levels of constituents found in actual fuels, and, therefore, if the Agency is going to set a standard for total halogens, that standard should reflect the total, i.e. both organic and inorganic, level of halogens found in actual fuels.

USWAG believes that there would be little value in differentiating between organic and inorganic halogen levels in the comparable fuels standards. A total halogen standard is used in the used oil program to distinguish between specification and off-specification used oil and has proven both workable and environmentally protective. No environmental or regulatory purpose would be served by adopting a different standard distinguishing between organic and inorganic halogens in the comparable fuels standards.

As we stated in our comments on the original comparable fuels proposal, USWAG supports establishing an exclusion from hazardous waste regulation for materials that meet the comparable fuels standard. It makes good economic and environmental sense to recover the energy value from materials that are essentially the same as commercial fuels rather than simply destroying them in an incinerator. For this proposal to be successful, the standard must both accurately reflect the levels of constituents in commercial fuels and be simple to implement. Revising the proposed standard for total halogens to reflect inorganic as well as organic halogens furthers these goals, and therefore is supported by USWAG.

NODA.09(commenter CS5A.03)
2. Total halogen level Ciba agrees with EPA that any specification for total halogens must include both inorganic and organic halogens'. Ciba supports the use of the Certification of

Compliance (CoC) data required by the Boiler and Industrial Furnace rule as valid for the purpose of rulemaking and supports the inclusion of the data submitted by Rohm and Haas Company. In fact, Ciba believes that such data must be used by EPA in establishing a comparable fuel specification to be consistent with the Agency's stated goals.

[Footnote 1: 62 FR 47403: "EPA is persuaded by commenters' arguments and is inclined to use data that reflect measurement of both organic and inorganic halogens to establish the total halogen specification. These data better represent the typical total halogen content found in benchmark fuels."]

NODA.27(commenter CS5A.07)

The Chemical Manufacturers Association (CMA) appreciates the opportunity to provide the following comments on the Agency's recent Notice of Data Availability (NODA) regarding the halogen specification for a comparable fuels exclusion to the definition of solid waste, 62 Fed. Reg. 47402 (Sept. 9, 1997). CMA is a nonprofit trade association whose member companies represent more than 90 percent of the productive capacity for basic industrial chemicals in the United States. CMA has commented on all the prior Federal Register notices in this rulemaking and remains vitally interested in assisting EPA in finalizing a comparable fuels rule that will provide some value to facilities generating low risk waste fuels.

CMA compliments EPA for declaring that "comparable fuel specifications should be set at levels that commercial fuels could consistently pass, and should be based on levels of constituents actually observed in commercial fuels, regardless of their derivation." 62 Fed. Reg. 47403. Only this approach will ensure that the comparable fuels rule accomplishes its purpose of allowing hazardous waste fuels to burned without RCRA regulation when the risks posed by burning them are comparable to, or less than, those posed by burning the conventional fossil fuels that would replace them.

The following comments address:

- the specific halogen values set out in the NODA;
- the need for EPA to specify a compliance method for total halogens;
- the importance of setting the total halogen specification at or beyond the 99th percentile of the distribution of observed halogen values;
- analytical issues raised by the NODA;
- the importance of issuing the comparable fuels final rule without delay; and
- CMA's recommendation that EPA continue to pursue a broader, risk-based clean fuels exclusion.

NODA.28(commenter CS5A.07)

EPA properly recognizes that, to implement the preceding principle, any specification for total halogens must measure both inorganic and organic halogens, since fuel oil naturally contains both species of halogens. CMA also appreciates that EPA has provisionally taken into account both data from Certifications of Compliance (CoCs) required by the Boiler and Industrial Furnace Rule and data submitted by Rohm and Haas Company.

Response:

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It is appropriate to establish a total halogen specification that includes both organic and inorganic halogens, because this better reflects what is found in fuel oils, particularly No. 6 fuel oil. For the final rule, EPA is using its composite benchmark approach to establish a total halogen specification that includes both organic and inorganic halogens.

2. Should consider a halogen equivalency determination.

NODA.02(commenter CS5A.02)
In summary, Fina believes that the combustion atactic polymer ("atactic"), a fuel byproduct of the polypropylene production process, should be exempted from the Revised Technical Standards. In the NODA, EPA provides a rationale for excluding the combustion of atactic fuel from the proposed comparable fuels exclusion. Having reviewed the NOD A, Fina concludes that this rationale is not persuasive, and that for both environmental and economic reasons, EPA should reconsider its reasoning for not providing an equivalency determination under the comparable fuels exclusion.

NODA.03(commenter CS5A.02)
Fina operates a polypropylene production facility at La Porte, Texas. The Fina La Porte facility produces polypropylene plastic. A by-product of that production process is a fuel called atactic that is routinely burned for energy recovery at the La Porte Facility in an industrial boiler. On rare occasions (typically no more than 10 percent of the time) the fuel is routed to a second combustion unit which is considered an incinerator for purposes of the Resource Conservation and Recovery Act ("RCRA"). The issue here is whether combustion in this backup unit should be exempted from the proposed Hazardous Waste Combustor Maximum Achievable Control Technology ("MACT") standards as a comparable fuel.
The atactic fuel meets the criteria of hazardous waste solely by virtue of its ignitability. This fuel does not contain any detectable 40 C.F.R. Part 261 Appendix VIII ("Appendix VIII") compounds, either organic or inorganic. The atactic fuel cannot be transported to an off-site location in liquid form as it will congeal into a solid mass if allowed to cool below 150° Fahrenheit.
Atactic fuel easily meets the criteria for comparable fuels except for one criterion: it contains an average total chloride concentration of approximately 1,150 µg/g. This chloride is a residuum of an inorganic catalyst composed of titanium tetrachloride, aluminum chloride and magnesium chloride that is used in the polypropylene production process. In all other respects, the atactic fuel meets EPA's proposed criteria for the comparable fuels exclusion.[1]
[Footnote 1: Emission testing performed at the La Porte facility, previously submitted to EPA, demonstrates that (except for total halogens) normalized emissions of atactic fuel are 4 percent of those of Number 2 fuel oil. Atactic does not contain measurable quantities of Appendix VIII compounds, and its burning results in a tiny fraction of the emissions of "conventional" pollutants when compared with fuel oil.]

NODA.04(commenter CS5A.02)

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1. There Is No Rational Basis For EPA Not To Incorporate An Equivalency Determination To The Total Halogen Specification On A National Regulatory Basis

In the NODA EPA states that incorporating an "equivalency determination to the total halogen specification on a national regulatory basis would be inappropriate and infeasible."[2] The Agency further states that were it to incorporate an equivalency determination for total halogens, the "implementation details needed in a national regulation to ensure proper combustion of halogenated wastes would be numerous including, for example, provisions on operating parameters, performance testing, and monitoring.

This rationale fails for at least two reasons. First, the Agency in the past has evaluated the risks posed by hazardous wastes and has not hesitated to grant an equivalency determination at the national level to exempt certain wastes from RCRA regulation where the management of those wastes would pose minimal risk to public health and the environment.

For example, on March 8, 1996, EPA proposed to exempt condensed methanol produced during pulping operations in the paper industry from RCRA regulation.[3] Like atactic fuel, condensed methanol is a hazardous waste solely because it exhibits the ignitability characteristic set out in 40 C.F.R. § 261.21. In explaining its actions to exempt condensed methanol from RCRA regulation, EPA stated that it "did not believe that as an initial matter RCRA regulation of combustion of the condensate is needed."[4] The Agency further stated that it "believes that allowing the burning of this condensate does not produce any additional HAPs due to the high temperatures and residence times found in pulp and paper combustion devices that would be used to comply with the proposed MACT Standard. Moreover, burning condensate will not increase the potential environmental risk over the burning of the steam stripper vent gases prior to condensation. Additionally, the use of the condensate as a fuel could reduce or eliminate the need for supplemental firing of fossil fuels in such combustion devices, thereby decreasing the emission of criteria- pollutants."[5]

[Footnote 2: 62 Fed. Reg. 47403.] [Footnote 3: See 61 Fed. Reg. 9383 (Mar. 8, 1996).] [Footnote 4: *Id.*, at 9397.] [Footnote 5: *Id.*]

NODA.05(commenter CS5A.02)

Second, EPA would not have to implement elaborate conditions in order to assure that dioxins, furans, or other products of incomplete combustion ("PICs") were not emitted. EPA's NODA argues that establishing an equivalency determination would require implementing complex conditions to ensure proper combustion. This is not so. The combustion chemistry of atactic fuel is such that regardless of the conditions of combustion, dioxins, furans and PICs will not be formed. This is because chlorides present in the fuel form harmless salts rather than dioxins, furans and other PICs when not fully combusted. Thus, there would be no need for EPA to implement any conditions to assure proper combustion of the. atactic fuel.

In short, the Agency's justifications for not proposing an equivalency determination do not hold up under scrutiny. As the Agency is well aware, the combustion of atactic fuel poses very little risk to human health and the environment. Yet, without an equivalency determination that would allow the atactic fuel to meet the comparable fuels exclusion, Fina will have no choice but to comply with the MACT requirements of the Hazardous Waste Combustor rule *(see 61* Fed. Reg. 17358) for a incinerator unit that operates, at most three to four, days a year. Using EPA's own cost estimates tor the additional control technologies and monitoring equipment beyond those currently required by the State of Texas), Fina will have to spend approximately $1,350,000,[6] to provide virtually no benefit to public health and the environment.

[Footnote 6: Fina has done preliminary cost estimates which suggest that the cost the required monitoring and pollution control equipment will be substantially higher than estimated by EPA in its Technical Support Document. As these figures are refined, we will be happy to supply them to the agency. At this stage, however, the point is that if an equivalency determination is not available for atactic fuel, Fina will be forced to spend significant sums which will purchase no public health benefits.]

NODA.06(commenter CS5A.02)

2. An Equivalency Determination For The Total Halogen Specification Is Appropriate and Feasible

Incorporating an equivalency determination into the comparable fuels exclusion would not be administratively complex. lt would only apply to situations where the fuel met the comparable fuel specifications except for exceeding the total halogen limit. It would involve a demonstration by the person applying for the equivalency determination that the chemistry of the fuel is such that it is incapable of forming dioxins, furans and other PICs. This would be confirmed by actual emission data from the unit(s) demonstrating that uncontrolled emissions are less than 0.20 ng/dscm (TEQ) corrected to 7 percent oxygen for dioxins and furans and 75 ppm by volume, combined emissions, for hydrochloric acid and chlorine gas, expressed as hydrochloric acid equivalents, dry basis and corrected to 7 percent oxygen, and measured over an hourly rolling average if compliance is based on a continuous emission monitor.

As discussed above, if the person applying for the equivalency determination can not demonstrate to the satisfaction of the controlling authority that the chemistry of the fuel is such that regardless of the combustion conditions, it will not form dioxins, furans and other PICs, the fuel will not meet the requirements of the equivalency determination and hence not be considered for the comparable fuel exclusion. By requiring these demonstrations before atactic can be considered a comparable fuel, the Agency will be ensuring the protection of public health and the environment.

Response:

The Agency continues to maintain that an emissions-based equivalency determination to the halogen specification on a national regulatory basis would be inappropriate and infeasible at this time. If the Agency were to develop an equivalency determination for total halogens, the implementation details needed in a national regulation to ensure proper combustion of halogenated wastes would be numerous, including, for example, provisions on operating parameters, performance testing, and monitoring. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste which is viewed as both potentially unworkable and very difficult to implement on a national basis. Although the Agency has granted equivalency determinations in the past, this would be an equivalency

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determination under an exclusion from the definition of solid waste, which would be difficult to implement and enforce. Therefore, EPA is not inclined at this time to consider developing any national equivalency determination to the total halogen specification. At some future point, perhaps as the Agency's understanding of cause-and-effect relationships regarding emissions from a wider variety of sources grows, EPA may be able to address aspects of the commenter's recommendations if appropriate and feasible.

Furthermore, there are no hydrocarbon-based fuels for which combustion conditions (such as oxygen level, mixing, temperature, etc.) will have no impact on non-chlorinated and/or chlorinated PIC emissions. Additionally, chlorine is both inorganic and organic forms in the waste fuel can contribute to chlorinated PIC emissions. PCDD/PCDF and other chlorinated PICs have been detected from sources burning both inorganic (e.g., salts) and/or organic chloride (e.g., plastics) containing wastes (e.g., Wikstrom et al., 1994; Fangmark et al., 1991; Nielsen, 1989). Note that under well controlled combustion conditions, the vast majority of organic chlorine waste fuel feed will leave the combustor gas as HCl; the remaining chlorine found in smaller levels in the combustion gas in the form of chlorine gas and chlorinated organics, and some may also be present in the solid bottom and fly ash as salts. Inorganic chlorine salts will also decompose to some lesser degree as HCl, chlorine gas, and PICs in the combustion gas; with the remainder as salts in the bottom and fly ash. Note that inorganic salts are sometimes assumed not to react at combustion temperatures due to the high melting temperatures. However, work by Uchida et al. have shown that inorganic salts can directly contribute to HCl combustion gas levels; water vapor and zeolites participate in a reaction transforming chlorine salts to HCl. Additionally, inorganic chlorine salts have been shown to act as a direct chlorine source for PCDD/PCDF formation at low de-novo synthesis temperatures (Addink and Olie, 1995). Thus, for all chlorinated hydrocarbon fuels (containing either inorganic or organic chlorine), there is potential that under less optimum combustion conditions (higher CO, insufficient oxygen and mixing, etc.), there may be chlorinated PIC emissions.

EPA recognizes that the commenter’s waste stream is unlikely to meet the comparable fuels exclusion due to the inorganic halogen content of the waste. EPA has reviewed the commenter’s emissions testing program and has drawn the following conclusions. Very complete combustion was achieved for both the APS and No. 2 fuel oil conditions (low CO, no detectable semi-volatile organics (SVOCs), and detection of only a couple of volatile organic (VOCs) at low levels). A small amount of PICs were generated from either of the feed types.

However, EPA had some concerns about the analysis. The reported detection limits for each of the SVOCs of around 20 µg/dscm were on the high side. Less than 3 µg/dscm per SVOC is typical (readily achievable) with the SW-846 8270 analytical technique. Sampling train time and volume were sufficient, therefore the analytical method is not as sensitive as possible. The SW-846 8270 SVOC scan was not comprehensive. There are many other SVOCs that are typically including in the SVOC analysis, including PAHs (including fluorene, anthracene, pyrene, and methyl-naphthalene, and acenapthanes), oxygenated PAHs (such as fluorenene and benzophenone), and other compounds including dioxane, nitrobenzenes, quinone, quinolines, nitrophenols, and chlordane.

EPA notes that VOCs were detected for the APS, thus supporting EPA's position for the need for a total halogen specification because inorganic chlorides can lead to the formation of products of incomplete combustion (PICs) (see total halogen comment response for further discussion). For APS tests, three VOCs were detected: chloromethane, 1-2 dichloropropane, and benzene. For the No. 2 fuel oil tests, four VOCs were detected: chloromethane, benzene, allyl chloride, and hexane. Chloromethane during the fuel oil testing was detected at a level of about 0.5 of that of the APS testing. Alternatively, benzene was detected at a level of about 100 times higher during the fuel oil tests compared with the APS testing. The VOC scan was comprehensive and detection limits were adequate.

Thus, based on the data received, the APS has been shown to burn similar with No. 2 fuel oil when good combustion conditions are being achieved. Under good combustion conditions, the higher chlorine level of APS does not have an apparent impact on the emissions of chlorinated PICs compared with lower chlorine No. 2 fuel oil, which is not unexpected. However, if a comparable fuel exemption was granted and the facility had no limits on operating conditions, there is no guarantee that these optimum combustion conditions will be maintained at all times. Under less optimum combustion conditions (higher CO, insufficient oxygen and mixing, etc.), the higher chlorinated APS may have higher chlorinated PIC emissions. These details would almost certainly result in a complicated conditional exclusion from the definition of solid waste.

The Agency maintains that a emissions comparison alternative would be inappropriate and infeasible at this time and is declining to adopt an alternative approach. This is because of a number of technical and implementation problems with using an emissions comparison approach. These implementation problems include how to ensure proper combustion to prevent PIC formation. EPA has chosen the comparable fuel approach precisely to avoid having to base an exclusion from RCRA regulation on the risks associated with burning individual hazardous compounds in a host of uncontrolled settings.

The Agency notes that it has not foreclosed individual risk determinations, and indeed have recently finalized such an exclusion in the pulp and paper MACT standard. EPA believes it is more appropriate at this time to implement a scheme that can be feasibly applied on a national basis, and to devote further effort at the longer-term goal of a risk-based exclusion for certain fuels (or potentially, a national risk-based exclusion).

3. Problems with halogen data.

NODA.10(commenter CS5A.03)

However, upon examining the COC reports from American Cyanamid Company and Huntsman Polypropylene Corporation, Ciba is concerned that the analytical methods which were used by American Cyanamid and Huntsman Polypropylene are not appropriate when US EPA Method 325.3/Parr has been stated to be the method under which the standard is set. (See 61 FR 17462).

In particular, the data reported by Huntsman Polypropylene Corporation did not measure total halogen, but organic halogen - in that the test method used was reported to be EPA

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Method 600 450.1/SW-846 Method 9020. Likewise the data reported by American Cyanamid Company is not comparable to the Parr bomb (a combustion technique) in that the data was analyzed using ASTM D3120 (Modified) Method. This method is titled "Trace Quantities of Sulfur in Light Petroleum Hydrocarbons by Oxidative Microcoulometry."

After examining the analytical test methods used by Huntsman and American Cyanamid in the r compliance tests, Ciba believes only the Rohm and Haas data should be used for determining the comparable fuel total halogens specification for fuel oil #6.

In addition, the combustion test results for gasoline and fuel oil #2 in the April 19, 1996 proposal are suspect for the same reasons that fuel oil #6 was not reported using a combustion test in that proposal. Specifically, the combustion test equipment that was used to produce the data for the April 19, 1996 proposed rule exhibited abnormally low recovery rates for halogen. As such, it was not surprising to see that the Dow and DuPont COC data described in this NODA, exhibited higher total halogen results than the data discussed in the April 19, 1996 proposed rule.

In light of the fact that the Parr bomb tests performed for the proposed rule had difficulties, Ciba requests that EPA use only the COC data that used a combustion test method to determine total halogen, and the Rohm and Haas data submitted to this rulemaking.

NODA.29(commenter CS5A.07)

CMA has the following comments on the noticed data. These comments are not intended to question the adequacy of these data for the purposes for which they were submitted ant accepted by the Agency. Rather, they are intended to ensure that, for standard-setting purposes, the Agency uses data that truly measure the correct analyte in a sufficiently accurate and precise manner, so that subsequent compliance can be determined reliably. *See Portland Cement Ass'n v. Ruckleshaus, 486* F.2d 37S, 401 (D.C. Cir. 1973); *International Harvester* v. *Ruckleshaus, 478* F.2d 615, 648 (D.C. Cir. 1973) (standards must offer "statistical[ly] reliab[le]" or "objectively defined performance requirements and test procedures").

Huntsman EPA should exclude the data from Huntsman Polypropylene Corporation. The method used by this company, EPA Method 600 450.1/SW-846 Method 9020, actually determines only Organic Chlorine.

NODA.30(commenter CS5A.07)

American Cyanamid Company. The data from American Cyanamid Company should also be excluded because the method used there also does not represent a standard Total Halogen test method. As shown by the docket materials for this data (WW Engineering & Science, Inc. report, page 3), American Cyanamid used a method entitled "Trace Quantities of Sulfur in Light Petroleum Hydrocarbons by Oxidative Microcoulometry," ASTM D3120 (Modified) Method. US EPA Method 325.3 has been determined to be the method of choice among the various methods available, see 61 Fed. Reg. 17462 (April 19, 1996), and EPA should not rely on methods that have to be modified to indicate total chlorides.

NODA.31(commenter CS5A.07)

DuPont. CMA has also examined the data for # 2 fuel oil from DuPont. See Test Report for the RCRA Trial Burn on the DuPont Experimental Station Hazardous Waste Incinerator in Wilmington, Delaware, Volume 1 - Technical Report, Revision 1 (December 1, 1992). DuPont used a combustion method for determining chlorine, and therefore these data generally appear to be appropriate for determining the total halogen specification. However, the DuPont data for"auxiliary fuel to afterburner" Fuel Oil #2) for run 6 (0.0016%) appears to be an outlier and should be discarded from the data set of Table 1, just as a high value from the Rohm and Haas Company data was excluded as an outlier.

NODA.32(commenter CS5A.07)

Dow Chemical. For Dow's #2 fuel oil data, we have reviewed the BIF Compliance Certification for Dow's Allyn's Point Plant, Gales Ferry, CT, Boiler A (August, 1992). This report states that Dow used ASTM method D808*, with the * denoting "turbidimetric method." D808 is a combustion method followed by a gravimetric test using silver nitrate to precipitate the chlorine. The test method is only valid, however, for chlorine concentrations from 0. 1% (1000 ppm) to 50%. Thus, unless some other, more sensitive analytical method were followed afterward, CMA does not see how the D808 method could have been effective at the levels reported. CMA is not familiar with the "turbidimetric method," and thus cannot comment on whether it was appropriate. CMA urges EPA exclude the Dow data unless EPA can determine that Dow employed a method, in addition to the straight D808 method, that was sufficiently sensitive to accurately reflect the low levels reported.

NODA.33(commenter CS5A.07)

Table 2. CMA questions the data contained in Table 2. On a June 5 conference call between CMA and OSW, EPA's contractor (EER Corporation) and its analytical lab subcontractor (Paradigm) stated that they did not use EPA Method 325.3 (a total halogen method) for analyzing #6 fuel oil samples due to very poor matrix spike recovery rates (-20 to 40%) due to interferences caused by iron in the "bomb" used for the combustion step of this method. *See* letter from Joe J. Mayhew dated June 27, 1997, Docket item number S0001. Instead, the lab decided to use another method which measured only organic halogens. As the NODA indicates, EPA has now excluded data for #6 fuel oil for this reason. CMA questions whether the same iron interference problems produced the uniformly below detection limit results for gasoline and #2 fuel oil contained in Table 2, in which case the stated total halogen values would be lower than their true value. CMA requests that EPA investigate this question and delete the gasoline ant #2 fuel oil values from Table 2 unless it can demonstrate that those values were not impaired by the same iron interference problems that impaired the #6 fuel oil results.

NODA.34(commenter CS5A.07)

Highly Limited Database. Finally, CMA urges EPA to reconsider whether it has identified all the relevant and reliable data in its possession on total halogen levels in fossil fuels, particularly given the infirmities noted the current, already limited database. CMA is highly troubled that the highest concentration for chlorides in the present database is only 1000 ppm uncorrected for energy value. Several data points, including one from Rohm and Haas

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Company, indicate that the chloride content of #6 fuel oil may be as high as 5000 ppm, as noted by EPA's contractors on the June 5 conference call. CMA feels strongly that a larger sample size should be used to provide a more representative value for the chloride concentration in fossil fuels. Alternatively, EPA should use a very high percentile value (100th or beyond) to account for variability not captured by the narrow existing database. This issue is explored at greater length in Part III below.

NODA.35(commenter CS5A.07)

Conclusion. For the above reasons, CMA asks EPA (1) not to use the data from Huntsman Polypropylene Corporation or American Cyanamid Company, (2) to exclude DuPont's data for test run 6, (3) to exclude the Dow Chemical data unless EPA can show that the method used was sufficiently sensitive to detect the low levels reported, (4) to exclude the data in Table 2 unless it can show why they were not impaired by iron interference, and (5) to either expand the total halogen database or choose a high percentile value that will capture variability not reflected in the database.

Response:

EPA is persuaded by some of the commenters' arguments and has excluded the data from three facilities in its halogen data set. Using this revised data set, the total halogen specification would be 540 ppm for the highest value composite. For the final rule, EPA is promulgating a total halogen specification of 540 ppm.

EPA agrees with the commenters' arguments with regard to the Huntsman Polypropylene Corporation, American Cyanamid, and Dow Chemical data. EPA disagrees with commenters arguments with regard to the DuPont data and EPA's No. 2 fuel oil and gasoline:

Huntsman -- The CoC report documents the use of test method EPA-600 450.1/Sw-846 Method 9020, which measures organic rather than total halogens (including inorganic halogens). EPA agrees that the data should be excluded from the evaluation for setting the benchmark standard for total halogens because the method specified is for organic halides only.

American Cyanamid -- The CoC report documents the use of test method ASTM D3120 (based on Oxidative Microcoulometry) which is reported to give total chloride results. ASTM Standard D 3120 is for the determination of trace quantities of sulfur in petroleum products by oxidative Microcoulometry and would not lead to appropriate results for total halogens. EPA agrees that the data should be excluded from the evaluation for setting the benchmark standard for total halogens.

Dow Chemical -- The CoC report documents the use of test method ASTM Standard D808*, with * denoting "turbidimetric method". Performing a turbidimetric determination after the combustion of the sample is not acceptable approach to total halogen determination. The analytical range for D 808 is 0.1% (1,000 ppm) to 50%. Thus, the detection limit of ASTM Standard D 808 is not sensitive enough to meet the benchmark fuel specification.

DuPont -- The DuPont data (No. 2 fuel oil) for run number 6 (16 ppm) is not an outlier with respect to all the all of the halogen data. EPA analyzed 11 No. 2 fuel oil samples and determined the total halogen content to be below 25 ppm. Therefore, the value of 16 ppm

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appears to be a reasonable value.
EPA's No. 2 and gasoline data -- The method used for No. 2 fuel oil and gasoline was the Parr Bomb/EPA Method 325.3. For No. 4 and No. 6 fuel oil, EPA used ASTM Standard D 4929 because of concerns that the high nitrogen content of the fuel would interfere with the method analysis. These interference could possibly elevate the chloride result. The nitrogen content of gasoline and No. 2 fuel oils are not at a sufficient level to interfere with the chloride. Furthermore, recovery of spiked halogen was in the range of 87% to 92% for all gasoline and No. 2 fuel oil samples. This recovery is viewed as acceptable.

4. Clarification on halogen methods.

NODA.11(commenter CS5A.03)
3A. Organic halogen The NODA addresses analytical data and specifications for total halogens. EPA has indicated that it is also considering finalizing an organic halogen specification based on ASTM Method 4929 that could be used in place of constituent by constituent analysis for the Appendix VIII halogenated organics. However, the ASTM test method 4929 requires distillation at the high temperature of 204 C. Tests performed by Ciba indicate that one of our promising comparable fuels begins to char at this temperature, however, if the distillation is performed at 180 C, our material does not char and provides a suitable distillate for the subsequent organic halogen analysis. Flexibility must be incorporated into the regulatory language to permit modifications to the suggested analytical methods and substitution of alternate methods to demonstrate adherence to the organic halogen specification. Ciba requests the Agency clarity that performing the distillation at 180 C in order to prevent the material from degrading is acceptable.

NODA.36(commenter CS5A.07)
II. EPA Should Describe the Elements of an Appropriate Compliance Method for Total Halogens
The discussions over the last several months about the total halogen specification, as well as the foregoing comments, clearly illustrate the importance of choosing the right test method to measure an analyte. Given the great diversity of methods for determining chlorides and halogens -- organic, inorganic and totals -. CMA believes that EPA should specify a method or methods for determining compliance with the total halogens specification. Otherwise, facilities will run a significant risk of using a method that indicates total halogens at low or nondetect levels, only to have a regulatory agency use a different method and find levels above the exclusion level. *See Portland Cement* and *International Harvester, supra.*
To ensure that total halogens are appropriately measured, EPA should specify that compliance with the specification will be determined by use of a method that combines (1) a "bomb," or combustion, step; followed by (2) an analytical method that measures chlorine, bromine and iodine, expressed as total chlorides, that is valid at the level ultimately chosen.

Response:

EPA is not specifying analysis methods to be used to document compliance with the comparable fuel specifications. EPA recognizes that the methods used in its own analysis of the benchmark fuels may not be appropriate for some candidate comparable fuels. Thus, in the final rule EPA is allowing the use of alternate methods or modifications to current methods that meet the performance based criteria in section §261.38(c)(7). Should such a method be used, then enforcement could be based only on the use of that same analytical method. See 62 FR at 64636 (December 8, 1997) (same principle enunciated for purposes of compliance with RCRA subpart CC standards). It is the responsibility of the generator to ensure that the sampling and analysis is unbiased, precise, and representative of the waste. For the waste to be eligible for exclusion, a generator must demonstrate that: 1) each constituent of concern is not present above the specified exclusion level at the 95% upper confidence limit; and 2) the analysis could have detected the presence of the constituent at or below the specified exclusion level at the 95% upper confidence limit.

The Agency will consider that the exclusion level was achieved in the waste matrix if an analysis in which the constituent is spiked at the exclusion level indicates that the analyte is present at theat level within analytical method performance limits (e.g., bias and precision). In order to determine the performance limits for a method, EPA recommends following the quality control (QC) guidance provided in Chapters One and Two of SW-846, and the additional QC guidance provided in the individual methods. It should be noted that EPA supplies guidance on many analytical methods and EPA is available for additional questions.

5. Decision on halogen equivalency determination should not effect other determination.

NODA.25(commenter CS5A.05)

Safety-Kleen Corp. appreciates the opportunity to provide comment on EPA's September 9, 1997 Notice of Data Availability (NODA) for comparable fuels. Our comments are limited solely to EPAs decision to deny a request for a national emissions-based equivalency determination to qualify for the comparable fuels exclusion. Safety-Kleen neither supports nor opposes this decision. However, we feel obliged to note that EPAs decision in this matter should not affect consideration of the equivalency determination procedure suggested by the Cement Kiln Recycling Coalition (CKRC) and others.

CKRC, along with Safety-Kleen and Holnam, Inc., put forth a proposal for an equivalency determination procedure in their comments on the April 19, 1996 proposed hazardous waste combustion rulemaking. This equivalency determination would allow for permit authorities to make case-by case determination that a source has equivalent control in each of three situations: 1) when EPA has established a surrogate control parameter and an alternative parameter can be shown to meet the same environmental objective; 2) when an alternative operational requirement can be shown to serve the same function; and 3) when raw materials, not hazardous waste combustion, is the source of emissions.

The equivalency procedure suggested by CKRC is considerably different than EPAs description of the equivalency determination requested by Fina Oil for comparable fuels. Most notably, the CKRC equivalency determination would be carried out on a site-specific,

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case-by-case basis as part of the permitting process. Hence, EPA would not need to make national decisions on the comparative risks of an equivalent approach and it would not put EPA administratively in the position of attempting to create, on a national level, a defensible and consistent set of equivalency determinations based on considerations of comparative emissions and risk... as EPA states in the NODA. Nor would EPA be forced to create a complicated national regulation to ensure that equivalent control is achieved, as these decisions would be made on a case-by-case basis by permitting authorities with specific knowledge of the facilities seeking the equivalency determination.

Finally, EPA expresses concern in the NODA about the inherent technical complexity and our current inability to adequately model the risks from all potential burners of an unregulated hazardous waste fuel. The CKRC equivalency determination procedure would not require EPA to model emissions from unregulated devices as the sources under the CKRC procedure would continue to be fully regulated. Neither, as we stated above, would EPA need to model all facilities as there would be no need for a national assessment. Therefore, this concern and the others expressed in the NODA, do not apply to the CKRC equivalency determination procedure.

Response:

The concerns expressed about implementing a total halogen equivalency determination for an exclusion from the definition of solid waste do not apply to the CKRC equivalency determination procedure. EPA will make decisions on the CKRC equivalency determination in a separate rulemaking.

6. Do not support inclusion of additional halogen data.

NODA.26(commenter CS5A.06)

Why apparently allow 500 ppm/w (in the 99th percentile, and 260 ppm/w at the 90th percentile, and 25 ppm/w at the 50th) halogens in other (i.e. non-#6 fuel oil) fuels, when EPA now has its own (therefore intrinsically more reliable, i.e. industry not only has a conflict of interest in presenting data, but you were not there to ensure its validity) data showing total (incl. inorganic, this time) halogen content all at less than the non-detect level of 25 ppm/v? I don't believe you offered a rationale for that. Are you being cautious because industry's data (of unknown reliability) happens to favor a laxer regulation for #6 fuel oil? How much weight was given to this new industry data on #6 fuel oil in deriving the announced variable limits?

NODA.41(commenter CS5A.L01)

NRDC is a national public interest environmental organization with members in every state and more than 350,000 members nationwide. NRDC participates extensively in regulatory, legislative, and judicial proceedings affecting surface water and air quality under federal, and state law, including but not limited to the federal Clean Air Act, Clean Water Act, and RCRA. NRDC commented previously on other issues in this rulemaking, including issues concerning the comparative fuels exemption from RCRA under consideration by EPA.

The NODA highlights one of NRDC's concerns regarding the comparative fuels exemption. In its rush to promulgate the exemption, EPA lacks sufficient data to determine the true chemical content of the fuel oils upon which the exemption is purportedly based. Therefore, not only is EPA unable to determine whether the exemption will be protective of human health and environment, and is therefore deferring regulation to the Clean Air Act without the necessary legal and factual findings, but the Agency also cannot adequately benchmark the exemption limits to ensure truly "comparable" contaminant levels to fossil fuels.

NODA.42(commenter CS5A.L01)

A case in point is the data in the NODA regarding No. 6 fuel oil. The total halogen data consists of a very small set of samples. Further, the samples were subject to different analytical methods, QA/QC procedures and other variables, thereby introducing additional uncertainties into interpretations of the data. Accordingly, while the data may represent what is currently available, it does not represent the data needed to determine the chemical content of No. 6 fuel oil with an acceptable degree of scientific precision.

This lack of sufficient and consistently obtained data is especially important in the case of No. 6 fuel oil because the total halogen content data in the NODA differ by over two orders of magnitude. In addition, the data submitted by one company (Rohm & Haas) is significantly higher than other data in the Agency's possession. While the regulated community may attribute these higher concentrations to variability in the fuel oil itself, in an effort to obtain less stringent exemption concentrations, the data base is inadequate to reach that determination given the lack of ununiformity in data collection.

Indeed, the only sampling data with total halogen content above 300 ppm is from one set of sampling events at one facility from August 22-25, 1995.' All the other data available to the Agency, including other sampling data provided by this company, consistently shows total halogen content below 300 ppm, and frequently below 100 ppm. Rohm & Haas attempts to explain away the lower concentrations in a variety of ways, but none of the explanations are convincing. For example, sampling performed pursuant to an EPA inspection in August 1996 revealed only 13.6 ppm total chloride content. While the company questions the veracity of this result based on a "high" ash value of 3,700 ppm, 2 other sampling data (including data from Rohm & Haas) reveal ash content of comparable concentrations.

Similarly, the total halogen content of a sample taken on August 1, 1995 was 260 ppm. While the company claims the result measures only inorganic halides,[3] it is highly unlikely the inclusion of organic halides would have added substantially to the total halide concentration given EPA's benchmarking data on organic halogens.

[Footnote 1: While the company separates the data into two reports, the data was obtained at the same time. See Document CS5A-S0002, p. 2.)] [Footnote 2: Id. (Discussion of Report 3).] [Footnote 3: Id. (Discussion of Report 4).]

NODA.43(commenter CS5A.L01)

Significantly, EPA's intention to select an exemption level based upon a statistical manipulation of the data is also unjustified given the deficiencies in the sample universe. These

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deficiencies do not disappear simply by selecting a percentile of the data, particularly as the percentile increases. Without a better understanding of why the total halogen data varies so widely, and why only data from one company during one sampling event comprises all the values above 300 ppm, EPA cannot proceed as if all its data are of equal validity.

The consequence of including the suspect August 22-25, 1995 sampling data is best exemplified by the different exemption concentrations based upon percentile cutoffs, as suggested by EPA in the NODA. The total halogen specification would increase from 25 ppmw for the 50% percentile composite by over an order of magnitude (260 ppmw) for the 90% percentile composite.[4] This huge increase is simply a function of including the suspect data, notwithstanding its unexplained variation from other data provided by the same company and others. Assuming arguendo that EPA proceeds to final rulemaking based upon the data currently available, the unanswered questions concerning the validity of the higher total halogen values requires selection of a lower percent composite cutoff that minimizes the importance of the higher values.

Response:

At the time of the proposal, EPA intended to establish a total halogen limit that included both organic and inorganic halogens. However, the total halogen data used by EPA in the proposed rule for its No. 4 and No. 6 fuel oils were based on analytical methods measuring only total organic halogens, not both organic and inorganic halogens. Commenters raised concerns about including total halogen data that did not include inorganic halogens because it did not represent typical halogen content found in benchmark fuels. EPA was persuaded by commenters' arguments and noticed additional total halogen data gathered from its own database (i.e., Certifications of Compliance (CoC) required by the Boilers and Industrial Furnace Rule) and data submitted by one commenter. In addition, EPA will continue to use its original gasoline and No. 2 fuel oil halogen data, which included both organic and inorganic halogens.

EPA believes that the database used in the final rulemaking reflects the range of total halogens in the that are possible in benchmark fuels. Inorganic chlorides can vary in fuel oils, particularly No. 6 fuel oil. This is primarily due to the fact that the fuel oils contain widely varying levels of inorganic chlorides from contamination with emulsified brine during the oil extraction or transportation process.

EPA believes that its sample size of the fuels analyzed is appropriate. To calculate benchmark specifications, EPA obtained 27 fossil fuel samples, comprised of eight gasoline, eleven No. 2, one No. 4, and seven No. 6 fuel oil samples. The samples where representative of the benchmark fuels because they were collected from various geographic locations around the country (see Technical Support Document for sample locations). In addition, EPA believes the choice of the composite at the highest value is appropriate. This is explained in other comment responses. Thus, in the final rule, the total halogen specification would be 540 ppm for the composite.

Miscellaneous Comments on Exclusion

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1. Support comparable fuels exclusion.

NODA.07(commenter CS5A.03)

Ciba Specialty Chemicals (Ciba) has been actively involved in the Definition of Solid Waste issue for many years. Ciba was a member of the EPA's Definition of Solid Waste Roundtable, whose recommendations included an exemption from the definition of solid waste for secondary materials that are "clean" and burned for energy recovery. Ciba continues to strongly support EPA's effort to develop a clean fuels or comparable fuels exclusion from the definition of solid waste. A properly constructed exclusion will improve resource conservation and recovery and reduce unnecessary regulatory and paperwork burdens.

Ciba Specialty Chemicals is a global leader in the discovery, development and manufacture of innovative materials that provide color, performance and care for plastics, coatings, fibers, fabrics and other products. Ciba Specialty Chemicals - North America consists of five divisions - Additives, Consumer Care, Performance Polymers, Pigments and Textile Dyes - and is based in Tarrytown, NY. The company has operations in New York, New Jersey, Delaware, North Carolina, Georgia, Michigan, Alabama, Louisiana, California, and in Ontario, Canada. It is part of the worldwide Ciba Specialty Chemicals group, a company with 1996 global sales of $5.5 billion, sales) in 117 countries, R&D in 12 of these, and more than 20,000 employees.

Ciba has been involved in drafting the CMA comments to this NODA, and fully supports EPA's efforts in developing a viable comparable fuel specification. In addition, CMA and Ciba, among others, have been providing EPA with alternatives for developing a comparable fuel specification that meets EPA's stated goal of finalizing a specification which is of use to the regulated community, yet assures that an excluded waste is similar in composition to commercially available fuel and poses no greater risk than burning fossil fuel. See 61 FR 17459. April 19, 1996.

NODA.13(commenter CS5A.03)

Ciba appreciates the opportunity to comment on this NODA and encourages the Agency to finalize the comparable fuels rule expeditiously. Many streams that would be excellent fuels are currently trapped within the RCRA hazardous waste system and are wasted instead of being used as environmentally sound energy resources.

Response:

EPA is promulgating a comparable fuels exclusion.

2. Support the 99th Percentile.

NODA.08(commenter CS5A.03)

One of the issues particularly important to Ciba is the analytical requirements for showing that a fuel-like secondary material is similar to a commercial fuel. In order for companies to make process and investment decisions based on a material being a comparable fuel, the companies need to have a high level of confidence that the alternative fuel will consistently pass the comparable fuels specification.

1. Use of the 99% confidence limit to determine analytical specifications

As mentioned in both Ciba and CMA comments to the proposed rule we support using the 99% confidence limit when determining comparable fuels specifications. As the NODA states, the "comparable fuels specifications should be set at levels that commercial fuels could consistently pass...." 62 FR 47403. In order to implement its stated approach, EPA needs to create benchmark standards that encompass the range of physical and chemical compositions representative of commercial fuels. Setting each constituent specification at the 99th percentile level would provide that commercial fuels will pass the specification consistently. Ciba supports the use of the 99th percentile (or at a minimum the 90% percentile) for determining the comparable fuel analytical specifications.

NODA.37(commenter CS5A.07)

III. EPA Should Set Constituent Specifications at a Level such that at Least 99% of Fossil Fuels Themselves Will Pass the Specification

The comparable fuels approach is based on the concept that wastes with compositions like commercial fuels should be regulated like those fuels, rather than as wastes. As the NODA states, "EPA is persuaded by commenters' arguments . . . that comparable fuels specifications should be set at levels that commercial fuels could consistently pass ....'; 62 Fed. Reg. 47403. To implement its stated approach, EPA needs to construct benchmark standards that will result in commercial fuels passing almost all of them. Because a fuel must pass for every one of multiple constituents, in order for fuels to meet all of the specification levels at a given probability, individual constituents must pass at a much greater probability. For fuels to pass virtually all the time, constituents must be set at the extreme end of their ranges or beyond. An example is illustrative. If a level is set at the 90th percentile for any single constituent, there is a 1 in 10 probability that the limit will be exceeded by the commercial fuel on which the standard is based. For a two constituent specification, commercial fuels will typically fail 19% of the time (1-(.92)). As more constituents are added to the specification requirements, more and more commercial fuels will fail the specifications that were developed from the same commercial fuels. This problem is exacerbated by EPA's use of a nonparametric, "rank order" statistical approach, in which a multitude of nondetect values are treated as ties -- i.e., as a single occurrence.

The correct way to ensure that conventional fuels would pass for *all* constituents at a specified high percentage (99% or the time or more) would be to construct tolerance intervals for each constituent based on that percentage and the desired confidence level. How to do this for multiple constituents simultaneously is explained in statistical texts. Obviously, the 50th and 90th percentile values cited in the NODA (25 and 260 ppmw at 10,000 Btu/lb) are vastly too restrictive. Indeed, not even the relatively few samples contained in the NODA would all pass them. The correct percentile value would probably exceed the 100th percentile for a database as limited as the NODA's.

For additional discussion of this issue, including a references to statistical texts, CMA has attached the relevant pages of its comments on the April 19, 1996 proposed rule.

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Response:

EPA is promulgating its comparable fuel specifications based on the composite at the highest value. The composite is appropriate and the use of confidence intervals is not necessary. At the time of proposal, EPA believed that a 50th percentile analysis represented a midpoint of potential benchmark fuels that were studied. EPA also believed that a 90th percentile analysis represented a reasonable upper bound of what is found in all fuels capturing variability both with each fuel category and in the case of the composite approach, between categories. However, when the individual fuel samples were compared to the benchmark specifications, EPA found that at the 50th percentile composite none of the virgin fuel samples met the specification and at the 90th percentile composite only 40 percent met the specification. This appears to confirm the commenter's concern over joint probability, and reflects on the degree to which the comparable fuels exclusion would actually be useable. It was EPA's goal to base the comparable fuel specifications on the 99th percentile, a level near which 90 percent of EPA's individual fuel samples would meet the specification. However, the size of the data base precluded the calculating of a 99th percentile constituent specification. Therefore, in this case, the Agency used the largest measured value to approximate an upper percentile. In the future, EPA may choose alternative methods of evaluating any new data that may be submitted suggesting that these specifications need to be modified. After re-calculating the specification taking joint probability into account, the composite at the largest value more closely represents what EPA intended to propose with the 90th percentile, a reasonable upper bound that is also useable in practice. The 90th percentile closely represents what EPA intended with the proposed 50th percentile, i.e., a midpoint. The composite has the virtue of being representative of a range of fuels that are burned nationally in combustion devices.

3. Use LDR approach for non-detects.

NODA.12(commenter CS5A.03)

3B. Non-detect standard and good-faith analytical effort use LDR approach As both Ciba and CMA have advocated in this rulemaking, the uncertainties associated with complying with the analytical requirements of this rule as proposed are daunting. The two analytical issues that trouble Ciba the most are the nondetect standard and the inflexibility regarding detection limit compliance. Attached is a letter sent from CMA to Mary Jo Krolewski at EPA dated August 28, 1997 which provides background on these two analytical issues, supporting arguments and CMA's recommendation which Ciba endorses.

Essentially, Ciba recommends that the decision rules which have worked well in the Land Disposal Restriction (LDR) program be followed in the comparable fuels final rule. The LDR program, like the comparable fuels proposal, relies heavily on extensive analytical testing. The two decision rules adopted in the LDR program have stood the test of time and are working well. These rules are:

> 1. Eliminate the "non-detect at any level" standard, as described in the proposal, and set the regulatory compliance point as a specified concentration that represents the method detection limits achieved by EPA at the 99% confidence level;

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2. Allow a producer to demonstrate compliance with a regulatory compliance point if good-faith analytical efforts achieve a detection limit which does not exceed the compliance point by an order of magnitude.

By adopting both of these principles EPA will be creating an analytical framework for the comparable fuels rule that is protective and sensible, since it removes considerable uncertainty regarding the ability of a comparable fuel to continuously be in compliance with the standards, while protecting human health and the environment.

NODA.14(commenter CS5A.03)

As we have discussed previously, CMA is ready concerned about the proposed comparable fuels rule's approach to constituents for which EPA has established a "nondetect" specification. There are significant limitations to using detection limits in a regulatory setting. For constituents other than pure hydrocarbons, the proposed nondetect specification also creates a moving compliance target. EPA should adopt an approach for these constituents that accommodates the current uncertainties with detection limits. One such approach is being used successfully in the LDR program, as well as other EPA' programs. Our proposed approach, based on the LDR precedent, is *briefly* summarized below. The **balance** of this letter provides additional explanatory background.

NODA.15(commenter CS5A.03)

Recommendation

CMA urges EPA to drop the "nondetect" standard described in the proposal (61 Fed. Reg. 17462, April 19, 1996). Instead, EPA should set the regulatory compliance point as a specified concentration that represents the method detection limit (MDL) achieved by EPA in its analysis at the 99% confidence level.'

Additionally, until a uniform and reliable basis for calculating detection limits on fuel matrices becomes available, compliance should not hinge on attaining an MDL at the compliance point. Given the recognized uncertainties with detection limits and the fact of matrix interference, EPA Should allow a producer to demonstrate compliance if good-faith analytical efforts achieve detection limits that do not exceed the compliance point by an order of magnitude. EPA already has adopted both the compliance point based on the MDL, as weld as a detection limit uncertainty factor, in its LDR rule at 40 CFR §268.40(d)(3). Similar provisions are equally necessary in the comparable fuels rule.

[Footnote 1: CMA understands from Equation 2-1 of the Draft Technical Support Document for the Hazardous Waste Combustor MACT Standards (TSO) that the 99% confidence level MDL is defined as 3.143 x σ, where σ is the standard deviation calculated in the widely accepted manner stated in Equation 2-2, and the multiplier is for the seven replicate analyses normally used for the determinations, as given in Appendix C of the TSD. See TSD, pp. 2-14 to 2-25.]

NODA.16(commenter CS5A.03)

Discussion

Terminology: In discussions since the proposed rule, EPA has indicated that a comparable

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fuels producer need only analyze for those constituents which the producer by process knowledge, thinks are present. For those constituents that will be analyzed, CMA wishes to begin by clarifying terminology. The proposal speaks of "maximum allowable detection limits" (see 61 Fed. Reg. 17462), which it shortens confusingly in tables to "maximum detection limits," *id.* at 17481-94. Careful reading of the proposal, however, indicates that the Agency is speaking of detection limits in their conventional sense; i.e., the minimum concentration of a target analyte that can be determined to be different than zero by a single measurement at a stated probability.[2] EPA staff confirmed this view in a June 5, 11997 conference call between CMA and EPA staff. The proposal also makes clear that the Agency's "[d]etection limits were determined by calculating the 'method detection limit' (MDL) for each analyte,' *id*. at 17463 (citing 40 C.F.R Part 136, App. 8).

[Footnote 2: At 17463, the proposal states that the Agency sought to "ensure the lowest detection limits." The phase "maximum allowable detection limit" means the highest (minimum) detection limit that EPA is willing to accept for compliance purposes.]

NODA.17(commenter CS5A.03)

Non-detect as a Specification; CMA agrees with EPA using the 99% confidence MDL. However, CMA recommends that EPA eliminate the "non~detect" specification that was proposed for constituents for which EPA was able to analyze but did not detect.

Serious due process concerns are raised by EPA's proposal to base compliance on "nondetect determinations that are equal to detection limits. These MDL limits will vary within a single laboratory and arguably even more among different laboratories using different matrices. False positives - an acknowledged artifact of detection limits -will give rise to RCRA violations on a spastically predictable basis. Producers could never know, notwithstanding their best efforts, whether they will face RCRA enforcement action for burning the comparable fuels they determined to be eligible for the exclusion.

NODA.18(commenter CS5A.03)

Many scientists believe that detection limits should not be used for regulatory purposes because data measured at or near the limit of detection have two basis problems: (1) uncertainty can approach and even equal the reported value, and (2) confirmation of the species is virtually impossible.[3] An MDL is not a known reference value like an atomic weight. It is not a quantity that can be estimated with great precision; perhaps not even with good precision. MDLs can be estimated by at least four different procedures based on multiple analyses and standard deviations. There are also iterative procedures often referred to as the "pooled MDL." Most techniques are distributed in a Gaussian fashion, in which, if the analyte were present at the MDL, half of the results would be false positives or negatives. Indeed, one can argue that a positive test result at the MDL indicates only a 50 percent chance that the analyte is present at or above a certain level.[4]

[Footnote 3: Klodowski, H.F., Jr., Complying with Water Quality Permit Limits: The Role of Analytic Variability. Journal of Environmental Regulation(Spring 1993),p. 301. and Kimbrough, D.E., and Wakakuwa, J. Method Detection Limits in Solid Waste Analysis. Environ. Sci. Technol. 1983, 27, 2698.] [Footnote 4: Klodowski, H.F., Jr., 1993.]

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NODA.19(commenter CS5A.03)

These problems are only compounded (for constituents other than hydrocarbons) by the proposal's requirement that the producer's results be the lesser of the published detection limit and the producer's own detection limit. Under such uncertainty, the following example is a real possibility: a producer's tests show that none of the Appendix VIII constituents are present in its comparable fuel based on the detection levels its laboratory is capable of achieving using its best efforts (assuming that its detection limits are at or below the EPA "maximum allowable detection limits"). What if, as part of an inspection, EPA or the state later performs its own tests on that fuel, achieves a detection limit that is below the EPA MDLs and below the producer's detection limits, and detects the presence of one or more of the previously "undetected" constituents?

NODA.20(commenter CS5A.03)

MDL Uncertainty Factor. CMA recommends that the Agency follow the LDR precedent and allow generators to demonstrate compliance with the comparable specification if good faith analytical efforts achieve detection limits that are within an order of magnitude of the MDL-based compliance point.

As the Agency recognized in the Technical Support Document for the proposed rule, the MDL "is not necessarily reproducible over time in a given laboratory, even with the same analytical procedures, instruments and sample matrix." *Id.* at 2-14. The limitations of the MDL are so significant that even the very laboratory that developed the method detection limits for the proposed rule may not be able to achieve the published detection limits in subsequent tests. For these reasons, EPA has stated in prior rulemakings that MDLs introduce significant uncertainty and are not always appropriate as the basis for setting regulatory standards. 56 Fed. Reg. 60949 (Nov. 29, 1991)

NODA.21(commenter CS5A.03)

Moreover, the MDL is only and intra-laboratory determination. Thus, even if an MDL could accurately predict the detection capabilities in the EPA laboratory in which it was generated, it would not provide a reliable basis for predicting the detection capabilities in other laboratories. If EPA recognizes the uncertainty with the MDL even within the same laboratory, it surely must appreciate CMA's concerns over the even greater uncertainty with MDLs calculated in different laboratories. That problem is likely to be even more prevalent among all the other producer and government laboratories that perform the MDL procedure in practice.

In light of the uncertainties regarding reproducibility of the MDL. CMA urges the Agency to follow the precendent established in the Land Disposal Restriction regulations, and allow generators to demonstrate compliance with the comparable specification if good faith analytical efforts achieve detection limits that are within an order of magnitude of the MDL-based compliance point.

NODA.38(commenter CS5A.07)

IV. EPA should modify its specification bases to more appropriately account for analytical issues

The NODA addresses analytical data and specifications for total halogens. It is crucial that the final rulemaking address analytical issues in a way that reflects the limitations of detection limits and the fact of matrix interference. Attached is a letter sent from CMA to Mary Jo Krolewski, EPA, dated August 28, 1997, which included two key recommendations on analytical issues:

1. EPA should drop the "non-detect" standards in the proposal and should set the regulatory compliance point as a specified concentration that represents the method detection limit achieved by EPA in its analysis at the 99%confidence level; and
2. EPA should allow a producer to demonstrate compliance if good-faith analytical efforts achieve detection limits that do not exceed the compliance point by an order of magnitude.

Additional background on these recommendations are included in the attached letter.

Response:

To limit the Part 261, Appendix VIII constituents in comparable fuels to those found in benchmark fossil fuels, the Agency calculated concentration limits using the Agency's analysis of individual benchmark fuel samples. If the benchmark fossil fuel had no detectable level of a particular Appendix VIII constituent, then the comparable fuel specification is "non-detect" with an associated, specified minimum allowable detection limit for each compound (except in the cases of metals, hydrocarbons, and oxygenates). The detection limit is a statistically-derived level based on the quantification limit determined for each sample. While these constituents should not be present, the Agency will allow non-detects lower than the detection limits that EPA was able to obtain. However, EPA will not allow measured or quantified results below the specified minimum required detection limit where “non-detect” is the comparable fuel specification.

EPA believes it would be inappropriate to change its non-detect policy. The Agency believes that allowing concentrations of constituents not found in the benchmark fuels to be present in the comparable fuel is counter to the comparable approach and could allow higher emissions of toxic compounds from burning excluded waste than from benchmark fuels. EPA has no reason to believe that most Appendix VIII constituents will be found in benchmark fuels. In the case of metals, hydrocarbons, and oxygenates, it is reasonable to assume that non-detect metals in EPA's benchmark analysis would be present up to the detection limit (see other comment responses for further discussion).

With regard to achieving the detection limits, the Agency continues to believe that the detection limits can be met. This in part due to the fact that the detection limits are primarily based on the limits found for the No. 6 fuel oil analysis. EPA believes that the matrix for No. 6 fuel oil is a more difficult matrix to analyze than what the Agency believes will be the matrix for the majority of comparable fuels--a light solvent matrix. To assist generators who may have difficult matrices to analyze, the final rule provides the latitude to use any method that will ensure an unbiased and precise analysis of the waste.

EPA also does not believe it is necessary to allow the flexibility to meet the specification by demonstrating a non-detect level at up to 10 times the benchmark fuel non-detect level. The

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detection limit is a statistically derived level based on the quantification limit determined for each sample. The methodology provides for a confidence interval to arrive at the minimum detection limit based on the quantification limit. In addition, the minimum detection limit used in the final rule represent the highest value composite of the benchmark fuels. Therefore, EPA has provided flexibility by using the this detection limit.

Furthermore, the analytical requirements for the comparable fuels exclusion are flexible. EPA will allow the use of process knowledge under limited circumstances in determining which constituents to test for in the *initial* scan as well as any follow up testing. Generators of hazardous wastes should have adequate knowledge of their waste to allow the use of process knowledge in determining which constituents may and may not be present in their waste. The following cannot be determined to "not be present" in the waste: 1) a constituent that triggered the toxicity characteristic for the waste or constituents that were the basis of the listing of the waste; 2) a constituent detected in previous analysis of the waste; 3) a constituent introduced into the process that generates the waste; or 4) a constituent that is a byproduct or side reaction to the process that generates the waste.

Additionally, it should be noted that the detection limit, referenced as the "maximum" detection limit, should more accurately be referred to as the "minimum" detection limit that must be achieved. The final rule requires that analysis for a constituent with a specification of non-detect must: 1) meet a detection limit at or less than the minimum detection limit listed for the constituent; and 2) not detect the constituent of concern in the waste.

4. Opposition to comparable fuels exclusion.

NODA.22(commenter CS5A.04)

The Cement Kiln Recycling Coalition (CKRC) is a Washington, D.C.-based trade association representing all cement companies engaged in the use of hazardous waste-derived fuels as well as those companies that process, transfer and market fuels for use in cement kilns. CKRC's cement company members are regulated by state implementation plan rules, the existing CAA new source performance standard (NSPS) for portland cement plants codified at 40 CFR part 60, Subpart F, and RCRA rules for burning hazardous waste derived fuel in boilers and industrial furnaces (BIF rules) codified at 40 CFR part 266, Subpart H. CKRC's cement plants will also be subject to the final CAA Maximum Achievable Control Technology (MACT) standards currently being developed for hazardous waste combustors (HWC). Therefore, CKRC has an interest in the recent EPA NODA published on September 9, 1997, regarding EPA's proposed Comparable Fuels Exclusion.

In CKRC's August 19,1996 comments on EPA's April 19,1996 proposed rule (See CKRC comments at pp. 512-524), CKRC expressed its concern regarding the inappropriateness of addressing a Comparable Fuels Exclusion within the context of the MACT rulemaking, which deals primarily with regulation of air emissions from hazardous waste combustors. Because of its deregulatory nature, CKRC believes it would be more appropriately addressed through other RCRA rulemaking efforts such as the Hazardous Waste Identification or the Redefinition of Solid Waste rules.

NODA.23(commenter CS5A.04)

In its August comment package, CKRC also expressed general support for changes in regulations that reduce or eliminate unnecessary burdens and improve cost-effectiveness. However, our support for such efforts is tempered by a concern regarding the lack of information quantifying the materials potentially impacted by the proposed Comparable Fuels Exclusion and the associated relative risks of exempting them from regulation as hazardous wastes. In a rulemaking that has made significant efforts to expand public participation and public reporting requirements, CKRC finds highly suspect the Agency's effort to completely exempt from regulation an unknown unquantified amount of material. CKRC is also concerned that EPA has failed to uphold its responsibility under RCRA to adequately consider the risks associated with this deregulatory initiative. CKRC believes it is very important and appropriate to fill these information gaps to enable proper evaluation and meaningful comment to take place prior to the final promulgation of such an exclusion.

NODA.24(commenter CS5A.04)

Without this information, CKRC finds it very difficult to adequately respond to EPA's specific NODA request for comments on the "practical impacts of a total halogen specification of 25, 260, or 500 ppmw." In addition, CKRC believes efforts to focus comments on only one of several parameters that will be used to establish the final exclusion standards for a Comparable Fuel is inadequate. Finally, the limited NODA does not provide CKRC with any information indicating that our previously voiced concerns regarding this effort have been adequately considered in the Agency's latest publication on comparable fuels. CKRC strongly urges the Agency to consider these comments[1] as EPA continues to develop this aspect of the Final HWC MACT rule.

[Footnote 1: CKRC herein incorporates by reference pp. 512-524 of its August 19, 1997 comments on-EPA's proposed Comparable Fuels Exclusion.]

<u>Response:</u>

EPA disagrees that it is necessary to evaluate the environmental implications of its comparable fuels approach. The Agency has developed a comparable fuel specification based on the level of hazardous and other constituents normally found in fossil fuels. EPA refers to this as the benchmark approach. For this approach, EPA set a comparable fuel specification such that concentrations of hazardous constituents in the comparable fuel could be no greater than the concentration of hazardous constituents naturally occurring in commercial fossil fuels. Thus, EPA expects that the comparable fuel would pose no greater risk when burned than a fossil fuel and would at the same time be physically comparable to a fossil fuel, leading to the conclusion that these materials are products, not wastes. The Agency concludes it has discretion in exercising jurisdiction over waste-derived fuels that are essentially the same as fossil fuel, and since there would not likely be environmental benefits from regulating those fuels (i.e., burners would likely just choose to burn fossil fuels), EPA has decided not to exert regulatory control over comparable hazardous waste fuels meeting the benchmark specifications.

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5. Finalize exclusion as soon as possible.

NODA.39(commenter CS5A.07)
V. CMA Encourages EPA to Finalize the Comparable Fuels Rule as Soon as Possible
CMA continues to strongly support EPA's effort to develop a comparable fuels exemption for certain waste-derived fuels. A properly constructed exemption has the potential to improve resource conservation and recovery and reduce unnecessary regulatory and paperwork burdens.
CMA has continually advocated that many of the hazardous waste streams burned in boilers, incinerators and furnaces have recoverable fuel value and have such low levels of undesirable constituents that the streams can be used as fuels with no more risk than that associated with the commercial fuels replaced. For such operations, it is rational that they be managed under Clean Air Act rules governing fuels versus a RCRA Subtitle C program.
CMA continues to encourage EPA's efforts to streamline its Definition of Solid Waste (DSW) regulations. While we have been disappointed that the recent major DSW reform effort has failed to meet desired objectives, finalization of a comparable fuels proposal in a timely manner will at least allow the Agency to meet one of its reform objectives. CMA urges that the Agency continue to work toward its January 1998 target date.

Response:
EPA has separated the comparable fuel rulemaking from the HWC MACT rule under which it was proposed. The Agency is promulgating the comparable fuel exclusion as quickly as possible.

6. Develop a clean fuels exclusion for future rulemaking.

NODA.40(commenter CS5A.07)
VI. EPA Should Continue to Develop a Clean Fuels Exemption Program for Incorporation into Future Rulemaking
In its August 19, 1996 comments on the proposed rule in this docket, CMA developed and submitted to the Agency a proposal for defining a Clean Fuels exemption. The CMA proposal, which draws heavily on the MACT standards for incinerators and furnaces being developed, involves specifications that must be met by the waste fuel, as well as certain operating and pre-conditions. The proposal is much simpler than the EPA Comparable Fuels proposal, while ensuring the appropriate degree of environmental protection.
In the NODA, EPA rejected an individual company request for a comparable fuels exemption based on an equivalency determination, stating that the Agency "continues to maintain that an emissions-based equivalency determination to the total halogen specification on a national regulatory basis would be inappropriate and infeasible at this time." 62 Fed. Reg. 47403. CMA believes that the EPA Comparable Fuels rule is just the first step in a process to reform rules governing waste-derived fuels that perform in a manner comparable to commercial fuels. EPA should continue to develop a more powerful Clean Fuels program for incorporation into

future rulemaking (e.g. upcoming MACT rules for hazardous waste boilers).

Response:

EPA is concerned about using risk to establish a "clean fuel" specification. EPA does not have data available documenting that emissions from burning a "clean fuel" would not pose a significant risk for the potential combustion and management scenarios in which the clean fuel exclusion from RCRA might be used. At some future point, perhaps as the Agency's understanding of cause-and-effect relationships regarding emissions from a wider variety of sources grows, EPA may be able to address aspects of the commenter's recommendations if appropriate and feasible.

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PERMIT MODIFICATIONS

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PERMITTING MODIFICATION

PERM6(commenter 083)

30 pg 17454, Part Five, Section VI.E- This section requires the facility to comply with the new MACT standards within 3 years following final promulgation of the rule. We have the following comments:

Some of the options being considered involve Class I or Class 3 RCRA permit modifications. Our Regional and State RCRA permit engineers routinely take up to 12 months to process a Class I modification and Class 3 modifications can easily take as much as 3-4 years. We have numerous examples of this that can be provided upon request. If the option chosen requires any regulatory approval to begin implementation, this rule must clarify that the allotted 3 years does not include the time that the regulators need to approve any documents.

Response:

EPA concurs with the commenter's point that the modification process can be lengthy. Indeed, the amount of time needed to process modification requests was a driving factor for developing a streamlined modification process, and for promulgating this streamlined process in advance of the remainder of the proposed rule (so that states could obtain authorization for it before the MACT standards become effective). EPA cannot stipulate in the final rule that the three year timeframe for complying with the MACT standards does not include the time that the regulators need to approve any documents, as suggested by the commenter. Rather, EPA is taking steps in the final rule to ensure that the modification procedures do not unduly delay any initial technology changes necessary to comply with MACT standards. By classifying these changes as Class 1 requiring prior Agency approval, and incorporating a 90-day time default (so that if no action is taken by the Director within 90 days, the request would be deemed approved), EPA expects that the modification process will not serve as an obstacle to compliance.

PERM6(commenter 083)

31 pg 17455, Part Five, Section VI.E.l.b, column 2- says that the streamlined options being proposed are consistent with general efforts within the EPA to improve permits by focusing on performance standards rather than on a detailed review of the technology requirements. While it may be true that EPA HQ is talking about permit improvements, we feel that it is important for you to know that there is no sign of streamlining or focusing on performance standards at the Regional and State levels where the permitting process is being implemented. That is why it is taking 3-4 years to get modifications approved. We have numerous examples of this that can be provided upon request.

32 pg 17455, Part Five, Section VI.E.I.b, column 3- discusses facility versus EPA responsibility (i.e. the need to approve initial permit modification requests) to assure that the facility meets the required performance standards and the need for EPA oversight. We have the following comments: a) the facility should be responsible for implementing changes needed to comply with this new rule and that the EPA's oversight should be limited to

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ensuring that the performance standards are being met after the modifications are implemented. We feel that there is insufficient benefit gained by requiring EPA approval to justify the added time delay. b) if the EPA agrees that their approval is not required prior to implementation, then there is no need to require providing all of the detailed drawings and specifications in the permit modification prior to construction. The time it takes to get the drawings completed to the level of detail needed to satisfy the Agency will consume time unnecessarily (especially considering the Agency is not giving them a thorough technical review or approving them). Therefore, we recommend that the design details not have to be provided until after construction is completed and the design documents are "as-built". They can be added to the application as a Class 1 modification at that time. If you are really trying to focus on performance standards, not on technical detail, then you shouldn't need this detail up-front.

33 pg 17456, Part Five, Section VI.E.l.b- says that the fourth modification option would give the Director authority to elevate this modification to a Class 2 modification if the Director believes that additional public participation is warranted. We have the following comments concerning this option: a) If, as the EPA states in this proposed rule, that hazardous waste combustors do represent a threat to human health or the environment, then we do not feel that this rule should be written giving a Regional and State permit engineer the authority to holdup the implementation of a rule. If implementing this rule is meant to greatly reduce the threat to human health or the environment, then its implementation should not be delayed simply because someone might think that the public should have a chance to comment first. If the EPA experts really feel that there is a threat, then I think that the facilities should implement the changes as quickly as possible without delay. Otherwise, it puts into question whether there ever was adequate justification for the EPA to promulgate this new rule to begin with. b) As I stated in comment 26(pg 17451) above, Regional and State RCRA permit engineers tend to be conservative in their determinations. As a result, we feel that if you give them the option of choosing to elevate the modification to a Class 2, many of them will do so simply because it is the conservative thing to do which will lead to abuse of the authority to elevate the modifications. c) As I stated in comment 30 (pg 17454) above, as it is now there is not enough time to implement the rule within 3 years. If you allow the Regional or State permit engineer the option to elevate the modification to Class 2, you are dragging out the implementation. We do not feel that the potential benefit to be gained from giving the public an opportunity to comment is great enough to offset the potential risk caused by a 6-12 month additional delay.

Response:

The commenter makes three points: (1) that streamlining (i.e., focusing on performance standards rather than technology) is not actually taking place in EPA regions and authorized states, (2) that facilities should be responsible for implementing changes needed to comply with MACT standards, with EPA’s oversight limited to ensuring compliance with performance standards after the changes are made, and (3) that proposed option 4 (categorizing the changes as Class 1 with authority for the Director to elevate them to Class 2) would lead to delays in implementation since permitting authorities would tend to be

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conservative and frequently exercise the authority to elevate changes to Class 2.

In response to the comment about a lack of streamlining taking place in Regions and States, EPA would like to point out that its efforts to improve environmental permitting by focusing on performance standards are still relatively new and, as such, are not yet being widely implemented. The Agency's Permits Improvement Team (PIT) recently developed a draft Concept Paper that provides a direction for EPA's permit reinvention efforts. It discusses performance-based permitting as something to work towards, but acknowledges that it is still in the future. The PIT also developed specific recommendations, including ones for streamlining the permit process. These recommendations are being forwarded to EPA media program offices for further development and/or implementation.

The other two concerns expressed by the commenter pertain to the proposed options for dealing with RCRA permit modifications. EPA agrees with the commenter that option 4 is not the most desirable, for a variety of reasons, and chose not to pursue that option in the final rule. EPA does not agree that its oversight should be limited to ensuring compliance with the standards after technology changes are implemented. As we discuss in the preamble (see sections B. 3. How Today's Rule Impacts the Procedures, and C. 3. Response to Comments and Discussion of Final Provisions), changes to one part of a facility's design or operations can sometimes impact other parts of its operations. Since EPA is retaining authority to review and approve the modification request, the drawings and specifications referred to by the commenter will be necessary to perform the review. The Agency believes a certain amount of regulatory oversight is both warranted and beneficial, to ensure that changes to have a positive effect, like reducing one type of emissions, does not have a corresponding negative impact elsewhere. Several other commenters supported retaining regulatory oversight as well.

PERM6(commenter 089)

Public Participation This proposed rule does not address the issue of public participation other than to note in Section VI.A., Coordination of RCRA and CAA Permitting Processes, "The important things are that all substantive requirements are met and that a timely and full opportunity for public involvement is provided during the permit process." It is not clear what level of public participation EPA envisions for the permitting activities associated with the implementation of the MACT regulations, although EPA appears to advocate that modifications of the RCRA permit for compliance with the MACT standards be processed as Class 1 modifications. Furthermore, it does not appear that EPA has considered the impact that any added time required for public participation would have on facilities attempting to meet the compliance deadline. The final rule should provide opportunities and guidance for appropriate public participation, and evaluate the effect public participation will have on the compliance schedule.

Response:

This rule includes the revised permit modification procedures to facilitate initial technology changes necessary to comply with the new MACT standards. It does not address the "longer-

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term" permitting implementation issues, for example, whether the standards will be placed in CAA or RCRA regulations, or whether hazardous waste combustors will receive a CAA permit, a RCRA permit, or both. The level of public participation for these permitting activities associated with the implementation of the MACT regulations will be addressed in the final rule promulgating the revised standards for hazardous waste combustors.

EPA agrees that there should be adequate opportunities for public participation; the Agency is committed to enhancing public participation in all of its decision-making processes. The Agency believes it has struck an appropriate balance between instituting a streamlined modification process that will facilitate meeting the three-year deadline for MACT compliance, and retaining an effective public participation process. EPA chose to classify the initial technology changes as Class 1 requiring prior Agency approval, a class which has less public involvement built into its procedures than either Class 2 or 3. However, the Agency has offset this apparent shortcoming by incorporating additional public participation activities into the requirements for the Notification of Intent to Comply (NIC) in 40 CFR 63.1211.

As part of the process for developing a final NIC, facility owners or operators are required to provide notice of, and conduct, an informal meeting with the community. EPA expects that the types of initial changes a facility will need to make will be covered in the NIC, and hence be available for public review and discussion during this pre-submittal meeting. Facility owners/operators must submit the NIC to the permitting authority before, or at the same time as, they submit their modification request. Given the relationship between the NIC and the modification process, communities will actually be involved earlier in the streamlined modification procedures for "MACT-related" changes than they would be otherwise. Furthermore, since there is no requirement for the Agency to review and approve a NIC, or for the Agency to respond to comments submitted at the informal meeting, the public participation activities required through the NIC process will not delay the permit modification process, and thus, will not delay a facility's ability to comply with the MACT standards.

PERM6(commenter 089)

E. Permit Modifications Necessary to Come Into Compliance with MACT Standards

1. Proposed Options Regarding Modifications Pg 17455 The TNRCC has favored and continues to favor Option 4 for permit modifications. We feel that this option allows the TNRCC to more quickly process the permit modifications necessary to bring facilities into compliance with the new requirements, while also allowing for meaningful public participation. Options 1, 2 and 3 are not compatible with our current State rules. We could not implement any of these three options as our State regulations require that modifications made to permitted hazardous waste combustion units require either a Class 2 or a Class 3 modification. In addition, Option 2 appears to shift the burden from the permitting program to the enforcement program. Options 1, 2 and 3 also do not allow for significant public participation, especially in light of EPA's recent issuance of the Public Participation rule and the potential controversy which may be associated with some combustion facilities. We do not believe that Option 5 could be implemented within the compliance deadline proposed in

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this rule; particularly due to the large number of facilities in Texas that will subject to this rulemaking. In addition, under Option 5, our state regulations would allow for an affected party to request a public hearing, which would likely result in a facility being unable to meet the compliance deadline.

2. Proposed Approaches to Address Potential Implementation Conflict Pg 17456 Several issues come into play when discussing the proposed options to address potential implementation conflicts. One problem that Texas could face with either Option 2 or 3 is that while Permit modifications performed at the Federal level may constitute Class I' permit modifications, the corresponding State permit modifications, under existing rules, would constitute either Class 2 or Class 3 modifications. This scenario would present the same implementation problems for the States and industry as Proposed Permit Modification Option Five would present to EPA and industry. A possible solution to this situation would be to allow pass through authorization; i.e., allow the States to pick up the modification rules immediately, without waiting for authorization. This would preempt any conflicts in modification classification between State rules and EPA rules. Another alternative would be to add language to 40 CFR § 270.42 Appendix I that would allow Class 11 mods for changes to incinerators, cement kilns, or LWAKs that results in more stringent control levels. This language, if proposed and promulgated quickly, could be adopted quickly by the States. The language would also be consistent with EPA's MACT proposal. Any proposed language, however, should not specifically reference the MACT rulemaking, as the promulgation date for the MACT may at this time be uncertain. An example of possible language would be: "Technology changes that result in more stringent permit conditions or additional continuous monitoring for incinerators, cement kilns or lightweight aggregate kilns."

Response:

1. Proposed Options Regarding Modifications

EPA acknowledges that there was potential for some of the proposed options to conflict with existing state regulations. By promulgating the revised modification process prior to the final standards, however, EPA hopes to provide states with sufficient time to address any such conflicts before any modification requests related to initial compliance with the MACT standards start to come in.

TRNCC states that option 3 would conflict with state regulations, and implies that option 4 would be more viable. The two options are in fact very similar. Option 3, which is finalized in this rule, categorizes the changes necessary to initially comply with the MACT standards as class 1 requiring prior Agency approval; option 4 categorizes them the same way, but adds a provision to allow the Director to elevate the modification requests to class 2. Given the nature of RCRA as a delegated program, states have the option of implementing provisions that are more stringent than the federal program. Elevating the change requests from class 1 requiring prior Agency approval to class 2 would be a more stringent approach; thus, TRNCC would actually be able to implement this added provision, even though the federal rule does not include it.

Beyond the issue of compatibility with state regulations, TRNCC appears concerned with two areas: timeliness of the process, and meaningful public participation. EPA believes that categorizing the MACT-related change requests as class 1 with prior Agency approval addresses the timeliness issue by offering a potentially more viable way for states to handle the anticipated volume of requests in a more timely manner than would occur under the class 2 or 3 procedures. Although the procedures for class 1 modifications requiring prior Agency approval provide for less public participation than other classes of modifications, the Agency has offset this apparent shortcoming by requiring facility owners or operators to complete the Notification of Intent to Comply (NIC) in order to be able to use the streamlined modification procedures. The NIC requirements set forth in 40 CFR 63.1211 include having the owner or operator provide notice of, and host, an informal meeting with the community to discuss, among other topics, changes to facility design and operations necessary to meet the new emissions standards. This meeting provides an opportunity for the public to become involved at an early point in the process.

2. Proposed Approaches to Address Potential Implementation Conflict
EPA is not pursuing any of these proposed options in the final rule. These options were intended to address possible permit implementation conflicts which may have occurred if a State did not become authorized to carry out the provisions of the proposed MACT rule in time to handle necessary modifications. By promulgating the revised modification procedures prior to the remainder of the proposed rule, EPA anticipates that States will have adequate time to receive authorization to process the requisite modifications. Thus, the need to put in place a separate implementation mechanism no longer exists.

PERM7.2.b(commenter 089)
On p. 17416, EPA recognizes that "...vast majority of sources would require substantial modifications to operating and/or emission control equipment to comply with the standards." EPA also should consider the resources and manpower required by authorized States to process the influx of permit modifications and applicable documents that may potentially be submitted during the three year time frame. The State of Texas has about 36 facilities, representing approximately 16% of the universe of hazardous waste combustion facilities, subject to this proposed rule (see Figure 1, Attachment A). We could not possibly process, in the three year compliance period, the RCRA permit modifications and applicable documents associated with this rule in order for facilities to be able to comply with the proposed MACT standards by the compliance deadline.

Response:
EPA acknowledges the potential burden on permit writers to process modification requests for changes necessary to come into compliance with the MACT standards. To alleviate the burden, the Agency has chosen to categorize these initial changes as Class 1 requiring prior Agency approval (with the time default of 90 days to review and take action, with the possibility of a one-time extension of up to 30 days). By taking this streamlined approach to modifying the RCRA permits, EPA is balancing the need to act quickly in order to meet the three year compliance date with the desire to retain some regulatory oversight of requisite

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changes. In addition, EPA is retaining public involvement in the process, even though the public involvement will be outside the scope of the actual modification procedures. Facility owners and operators, as part of the requirements for developing a Notification of Intent to Comply (NIC) in 40 CFR 63. 1211, must advertise and conduct an informal meeting with the community.

PERM7.3(commenter 089)
State Authorization The three year compliance schedule does not take into account the approximately 18 months between Federal promulgation of rules and State adoption of the rules. This lag time could cause even more delays in processing permit modifications and facilities meeting the compliance deadline.

Response:
There is a time factor associated with the process of obtaining authorization for federal rules. EPA recognizes that this time factor could impact a state's ability to address permit modification requests in time for facilities to meet the three year compliance deadline. To mitigate this impact, the Agency is promulgating the streamlined modification procedures in advance of the final MACT standards. By doing so, EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal procecures, before they need to process MACT-related modification requests from facility owners or operators.

PERM6(commenter 101)
The operator should be allowed the opportunity to use the Class I permit modification provisions to redefine permit limits for operating parameters to be consistent with the MACT rule.

Response:
EPA has chosen to categorize changes necessary to initially comply with the MACT standards as class 1 requiring prior Agency approval. EPA agrees that the streamlined procedures associated with class 1 modifications will facilitate meeting the compliance deadline; however, the Agency also agrees with commenters who emphasized the need to retain some amount of regulatory oversight (and approval) before facility owners and operators initiate the modifications.

PERM6(commenter 104)
D. Define the states as lead implementers; ensure that they have sufficient
management discretion to run their programs effectively, and take advantage of their permit writers' multi-year expertise with these regulated units. When the MACT rule becomes final, it will not occur in a vacuum: Most of these facilities have existing, state-issued RCRA permits. Modifications may be necessary to existing RCRA permits or Part As in order to

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achieve CAA compliance. In the proposed MACT rule, EPA takes comment on a number of options for speeding permit modifications; however, under none of these options are state's permit modification needs addressed. Even if federal EPA were willing to commit the resources necessary to move full speed ahead in modifying and issuing permits, but the state modification process may move on a different track and leave the facility between a rock and a hard place. Furthermore, it makes no sense for EPA to start the process and then toss it to the states mid-stream. The MIP members believe that EPA should define the states as primary implementers of the rule, and provide them with significant discretion and authority to tailor the program to the states' and units' needs.

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Response:

RCRA is set up as a "delegated" program. EPA develops federal regulations to implement RCRA, and is responsible for administering the program until the states develop comparable regulations or adopt the federal ones. Once this happens, the state program becomes the RCRA program. Most states have been authorized to administer the RCRA permitting program -- they truly are the primary implementers of the permitting program.

The commenter is correct in that most of the facilities subject to the new MACT standards have (or will have) state issued RCRA permits, and that these state permits will need to be modified to enable a facility to comply with the new standards. EPA is very concerned about the states' needs with regard to addressing the modification requests expected to be submitted in a relatively short period of time following promulgation of the final standards. Although states may always use their current modification process, the revised procedures offer a potentially more viable way to handle the anticipated volume of requests in a more timely manner.

States that wish to take advantage of the revised modification procedures (i.e., categorizing changes that are necessary in order to be able to initially comply with the MACT standards as class 1 requiring prior Agency approval) may have to modify their state procedures, consistent with this rule, before they may use the streamlined process to respond these types of change requests. By promulgating the revised procedures on an expedited schedule (i.e., before the final MACT standards), EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal ones, before they need to process MACT-related modification requests from facility owners or operators. Combining the revised procedures with the expedited schedule sets up a procedural framework designed to help both state permitting agencies and facility owners/operators work together to meet the compliance date for the new standards.

In the statement, "...it makes no sense for EPA to start the process and then toss it to the states mid-stream," the commenter is referring to the implementation options discussed in the proposed rule hand-in-glove with the modification options (see 61 FR 17456, April 19, 1996). Those options were intended to address possible permit implementation conflicts which may have occurred if a State did not become authorized to carry out the provisions of the proposed MACT rule in time to handle necessary modifications. By promulgating the revised modification procedures prior to the remainder of the proposed rule, EPA anticipates that States will have adequate time to adopt new procedures for processing the requisite

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modifications. Thus, the need to put in place a separate implementation mechanism no longer exists. This rule does not address any of the longer-term implementation options discussed in the proposed rule (e.g., placing the MACT standards in a Clean Air Act permit, in a RCRA permit, or in both permits). Implementation will be discussed in the final rule promulgating revised standards for hazardous waste combustors.

PERM6(commenter 106)
PART FIVE: IMPLEMENTATION I The only uncertainty with the three year time frame is permitting, and ENSCO urges EPA to promulgate a Class 1 Permit Modification protocol as described under option 2, to help expedite obtaining permits for upgrades to implement these improved emission controls.

<u>Response:</u>
The commenter expresses support for proposed option 2 (i.e., to categorize the MACT-related changes as class 1 permit modifications that do not need prior Agency approval), because option 2 would help expedite upgrading permits to implement improved emission controls. The Agency agrees that there is a need to expedite the permit modification process to facilitate meeting the three-year compliance date for the MACT standards. However, the Agency also concurred with other commenters who supported retaining some measure of regulatory oversight of proposed changes, in order to ensure that changes in one area would not have other undesirable consequences. Thus, the Agency chose to pursue option 3, rather than option 2 (option 3 categorizes the changes as class 1 modifications that do require prior Agency approval). To further ensure that the process is indeed expedited, the Agency is imposing a time frame for Agency review of these modifications. If the Director does not approve or deny the request within 90 days of receiving it, the request shall be deemed approved.

PERM6(commenter 106)
VI. Permit Requirements ENSCO supports the option of a Class I permit modification (Option 2 at 17455) for all physical, operational and other changes needed to comply with MACT standards, and HSWA preemption of contrary state requirements (17455/1). This option provides for rapid updates to the permit to allow compliance with MACT standards, and to allow the operator to make permit changes to be consistent with the new MACT standards. A Class 2 or 3 permit modification requirement would create a review and permit processing burden on state and federal permit writers, which would delay implementation of the rule beyond 3 years. We strongly support the proposal (17456/3) that EPA should modify or delete conditions of the state issued permit if conflicts exist between the state and federal permits that would hamper compliance with the MACT standards. If EPA selects an option for RCRA permitting that requires State and/or Federal review and approval, then ENSCO urges EPA to set a time limit for review, beyond which the modification request would be approved by default. Otherwise, processing of modification requests could severely delay

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implementation of the upgrades needed to comply with the MACT emission standards, and hampered a facility's ability to meet the notification of compliance deadline. In addition, changes to the permit should be allowed under Class 1 modification in order to modify operating parameter limits to be consistent with the MACT rule.

Response:

The commenter expresses support for proposed option 2 (categorize the requisite modifications as Class 1, with no prior Agency approval required), because the time frames associated with class 1 modifications would help facilities meet the compliance deadline. EPA agrees that an expeditious process is necessary, however, EPA also agrees with commenters who recommended that some amount of regulatory oversight be retained. Thus, EPA chose to categorize modifications necessary for initial compliance with the MACT standards as class 1 requiring prior Agency approval. EPA concurs with the comment that requiring Agency review could potentially slow the process, therefore EPA has incorporated a time default into the review for these types of changes only (i.e., other non-MACT related class 1 modifications requiring prior Agency approval would not be subject to the time default). If the Director does not act to approve or deny the modification request within 90 days, with a possible one-time extension of up to 30 days, the request shall be deemed approved.

PERM6(commenter 114)

For this program to work in the time frame envisioned, EPA must streamline the state authorization process and develop an expedited RCRA permit modification procedure.

Response:

EPA agrees that steps had to be taken to facilitate meeting the compliance deadline. As a result, EPA chose to categorize modifications needed to initially comply with the MACT standards as class 1 requiring prior Agency approval. To further expedite the modification process, the Agency also incorporated a time default into the review period. If the Director does not act to approve or deny the modification request within 90 days, with a possible one-time extension of up to 30 days, the request shall be deemed approved.

EPA is not streamlining the state authorization process in this rule. If, in other EPA rulemakings, a streamlined authorization process is set forth, the Agency will look into applying that process, to the extent practicable, to requests for authorization for the modification procedures promulgated in this rule. However, it is EPA's intent, in promulgating the modification procedures in advance of the final MACT standards, to provide sufficient time for states to develop comparable procedures or adopt the federal ones before they actually start to receive modification requests following promulgation of the final MACT standards.

PERM6(commenter 114)

1.3. Permit Modifications/Compliance Within 3 Years Concerns Many facilities that will be subject to the new MACT standards for HWCs already have RCRA and CAA permits. For these facilities, an efficient permit modification process is paramount to expedite technology upgrades (either CEM's or APCD'S) needed to comply with the standards. Under today's rules, the full permit modification processes are in place. In particular, regulations promulgated under the Clean Air Act require a permit modification application to be submitted [40 CFR 70.7(a)(1)(i)]. A permit modification is considered any revision to the permit that is not administrative, (i.e., change of owner, typographical errors, etc.). The regulations distinguish between minor and significant modifications. Minor modifications could include modifications where there are no significant changes to monitoring or reporting, no case-by-case determinations on emissions standards, involve no violation of an applicable requirement, etc. [40 CFR 70.7(e)(2)]. Significant permit modifications include all changes in existing monitoring permit terms or conditions and every relaxation of reporting or record keeping permit terms or conditions [40 CFR 70.7(e)(4)]. Significant changes require public participation, review by affected states, and review by EPA. The permitting authority must complete review of significant modification applications within nine months after receipt of a completed application. Regulations promulgated under RCRA specify three classes of permit modifications, Classes 1, 2, and 3 [40 CFR 270.42]. Class I modifications (similar to CAA administrative modifications) can be made under most circumstances if the permittee notifies the permitting authority of the modification and sends notice of the modification to all persons on the facility mailing list. Class 2 and 3 modifications require a modification request be submitted to the permitting authority describing the exact requested change and an explanation of why the change is needed. Notice must be sent to everyone on the facility mailing list, to appropriate state and local officials, and must be published in a local newspaper, including announcement of a 60-day comment period. Copies of the permit modification request and supporting documents must be made available.

Response:

EPA agrees with the commenter that an efficient permit modification process is necessary in order to expedite technology upgrades that are necessary for a facility to comply with the MACT standards. The process being finalized in this rule, i.e., to categorize these type of changes to the RCRA permit as class 1 requiring prior Agency approval (with a time default incorporated into the review period) ensures expedited review of modification requests, which will subsequently provide ample time for facilities to implement the necessary changes.

Since the MACT standards are self-implementing under the CAA, owners or operators of affected facilities must comply with the standards in accordance with their effective dates, without regard to whether or not the affected facilities have Title V permits. In the event that owners or operators have received Title V operating permits for emissions units co-located with but other than facilities affected by this rulemaking, then those permits are to be reopened and revised to include the new applicable requirements if the permit terms have three or more years remaining. (See 40 CFR 70.7(f)(1)(i) and 40 CFR 71.7(f)(1)(i)).

The Agency agrees that the public should be informed about proposed changes to a facility to meet the new standards. EPA is requiring, as part of the Notification of Intent to Comply (NIC) process set forth in 40 CFR 63.1211, that a facility advertise and conduct an informal

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meeting with the public. Topics of discussion at this meeting will include waste minimization and pollution control techniques being considered for use by the facility to meet the new emissions standards. The availability of the NIC, either through an information repository or by direct transmittal of the document, will be announced to the public. The public will also be informed of any changes to the NIC through the progress report that facilities must submit a year later, in accordance with §63.1212. These public involvement procedures ensure that the public is afforded the opportunity to participate in activities concerning the operation of affected facilities, and are consistent with the public participation requirements associated with both the Air operating permit program's permit modification procedures given in 40 CFR 70.7(h) and 40 CFR 71.11 and the RCRA permitting given in 40 CFR 124.31.

PERM6(commenter 114)

An additional complicating factor in this regulatory picture is the authorization status of the states. A facility may be in any one of the current situations: o Current Title V operating permit, issued by either an authorized state or the Federal government; or no current air permit, and o Current RCRA permit (possibly up for renewal), issued by an authorized state, EPA or both; or o Current RCRA interim status in either an authorized or unauthorized state. Under the RCRA program, many facilities have existing permits that would require modification in order to come into compliance with the MACT rules (e.g. to perform trial burns or install equipment). EPA has set forth five options to modify existing permits and three options for streamlining the implementation process. See 61 FR 17455/56, April 19, 1996, for a description of the various options.

Response:

EPA agrees that the authorization status of states could have posed a complication. By promulgating the RCRA modification procedures for technology changes necessary to initially comply with the MACT standards prior to finalizing the standards themselves, EPA is setting up a procedural framework to promote initial compliance with the new standards. In this way, EPA hopes to minimize the potential for authorization to become a "complicating factor," since States should be able to adopt the streamlined procedures before they start receiving MACT-related modification requests.

PERM6(commenter 117)

25. ISSUE: Permit Modifications. Rule Cite: The EPA has proposed five different options to streamline the authorization process to make changes to RCRA permits. (Proposed Rule, 61 FR 17455, Part Five, Paragraph VI.E.l.b) Comment: DoD favors the third option which designates the initial changes to the permit as a Class I modification with regulatory approval. Discussion: Typically, RCRA permit changes to the operation of an incinerator are a Class II or III modification. The proposed change to Appendix I of 40 CFR 270.42 to consider initial technology changes as a Class I modification will decrease the implementation time. option 3 allows for an agreement between the owner/operator and the regulatory authority

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on what facility modifications are considered covered by the proposed rule. Typically; before a capital investment is made in a facility, the owner/operator will inform the regulatory authority and seek some type of approval or understanding. Using Option 1 (self-implementation) or option 2 (notification with no prior approval) could lead to disagreements between the owner/operator and the regulatory authority of what changes are considered allowable under the proposed rule. option 4 allows the regulatory authority to elevate the modification to a Class II if additional public participation is warranted. This is already provided for under the other options. The regulatory authority can elevate a modification to Class II or III if the changes to the facility are considered to go beyond what is allowable under the proposed rule. Recommendation: In the final rule, DoD recommends EPA adopt the third option for streamlining the authorization process to make changes to RCRA permits.

Response:
EPA concurs with the commenter that option 3 is the most favorable option. In this final rule, EPA is categorizing technology changes necessary to initially come into compliance with the MACT standards as class 1 requiring prior Agency approval. To further promote meeting the three year compliance deadline, the Agency is also incorporating a time default (of 90 days with a possible one-time extension of up to 30 days) into the review period. EPA also agrees with the commenter on the benefits of retaining a certain amount of regulatory oversight in the modification process for MACT-related facility modifications.

PERM6(commenter 126)
4.10 Comments on the Public Participation Aspects of Permit Modifications and Modifications of Interim Status Facilities on Implementation of the New MACT Standard
ALA strongly supports procedures and requirements to ensure that members of the public can receive prior notice of pending decisions, submit comments on the record, have the opportunity to see EPA/State responses to such comments and have input into a final decision concerning environmental and public health protection matters. The location, authorization, operation, permitting and performance of hazardous waste combustors is a matter of crucial importance to members of most communities where such facilities may be located. In addition, many waste combustors operating on interim status with no permit have commenced operations to store, treat, blend and burn hazardous waste with little or no prior public notice, little public Knowledge and little or no opportunities for the public to be involved in the decision making process. The proposed rules do not detail what procedures will be used to authorize modifications for interim status facilities. EPA should not create procedures with the proposed new rules, particularly for interim status facilities, which cause proceedings' for either new RCRA/CAA permits or modifications of existing RCRA/CAA permits to be implemented without effective public participation procedures. Effective public participation procedures include all of the following: prior public notice, use of notification lists by mail, availability of public repositories, public comment periods, public hearings, records of decision and the availability of the 40 CFR 124.19 process for appeals and citizen suit provisions. These procedures are particularly important for interim status facilities since EPA

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has not insured that the public has had effective public participation capabilities for decision making on these facilities in the past.

Response:

EPA agrees with the commenter on the importance of public involvement in environmental decision-making. EPA is committed to enhancing public involvement in RCRA permitting, and has reflected that commitment in the expanded public participation requirements promulgated in December 1995 (60 FR 63417, December 11, 1995), and in the recently revised RCRA Public Participation Manual (EPA530-R-96-007, September 1996). These regulations and guidance augment the public involvement procedural requirements set forth in 40 CFR part 124, and are intended to promote earlier and more frequent opportunities for people to participate in the RCRA permitting process. As facilities operating under interim status proceed through the permitting process, they become subject to the public participation requirements. Also, certain requirements are targeted specifically at interim status facilities -- for example, interim status combustion facilities, as is the case with permitted facilities, must provide a public notice prior to conducting a trial burn (see 40 CFR §§ 270.62(d) and 270.66(g)).

Facilities operating under interim status are allowed to make certain changes to their operations. The types of changes, and whether they must first be approved by the Director, are described in 40 CFR 270.72. These procedures, in general, are not within the scope of this rule. The commenter lists what they consider to be effective public participation procedures, and the need to impose these at interim status facilities. Again, the Agency's regulations governing operation of interim status facilities, and changes under interim status are outside the scope of this rule.

EPA is, however, specifying in this rule that modifications necessary to initially comply with the new MACT standards be allowed, even if the cost of effecting the changes would amount to "reconstruction" (defined in the regulations as "when the capital investment in the changes to a facility exceeds 50 percent of the capital cost of a comparable entirely new hazardous waste management facility"). To ensure that the reconstruction clause does not present an obstacle for interim status facilities trying to implement changes to meet the lower emissions levels, the Agency added a new paragraph to 270.72(b) exempting changes necessary to comply with the MACT standards. The change to 270.72(b) is only relevant to MACT-related modifications, and not to any wider range of facility changes.

The commenter states that "EPA should not create procedures with the proposed new rules, particularly for interim status facilities, which cause proceedings' for either new RCRA/CAA permits or modifications of existing RCRA/CAA permits to be implemented without effective public participation procedures." EPA concurs that it is important to involve the public in a facility's plans to comply with the new MACT standards. Equally as important, is the need to provide a framework that facilitates compliance with the new standards within the designated timeframe. To meet both needs, EPA is promulgating requirements for a Notification of Intent to Comply (NIC). These requirements (see 40 CFR 63.1211) call for the facility to advertise and conduct an informal meeting with the community to discuss, among other topics, proposed changes to the facility needed to meet the new standards.

Facilities operating under interim status, like permitted facilities, will be required to comply with the NIC requirements. Thus, the public will have the opportunity to review planned changes as part of the NIC and to participate in the pre-submission meeting.

PERM6(commenter 128)

Furthermore, under RCRA procedural rules in most states, installation of new equipment will require a Class 2 or Class 3 permit modification, entailing significant state agency review, preparation of a draft permit, and public notice and opportunity for a hearing. This permit modification process requires at least 18 months and in many cases 4 or, 5 years, based on CMA members experience. EPA's proposed solution of converting such changes to Class 1 modifications will itself take several years to implement, as states will have to go through rulemakings (and in some cases legislative revisions) merely to put the new procedure in place.

Response:

EPA recognizes that there is a time factor involved in states being able to "pick up" federal rules. In most cases, state permitting agencies have been authorized by EPA to issue and modify RCRA permits. Authorized states that wish to implement the revised procedures may have to modify their state procedures, consistent with this rule, before they may use the streamlined procedures to respond to MACT-related modification requests from facility owners or operators. Once the final MACT standards are promulgated, facility owners and operators have three years to begin operating under the lower emissions levels. The Agency believes that these three years are better used for processing modification requests, and subsequently implementing the necessary changes, than for going through the authorization process. By promulgating the revised procedures on an expedited schedule (i.e., before the final MACT standards), EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal procedures, before they start receiving MACT-related modification requests from facility owners or operators.

Combining the streamlined modification procedures with the expedited schedule for promulgating them sets up a procedural framework to promote initial compliance with the MACT standards. Although States could always use their current modification process, the revised procedures offer a potentially more viable way for states to handle the anticipated volume of requests in a more timely manner, and EPA encourages States to pursue using the streamlined procedures.

EPA is not pursuing proposed options of categorizing the initial technology changes necessary to comply with the MACT standards as Class 2 or 3; thus, the timeframes identified by the commenter will not apply in this instance. The Agency has opted instead to categorize these changes as Class 1 requiring prior Agency approval.

PERM7.7(commenter 128)

2. The Agency should revise regulatory procedures that would interfere with timely

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compliance. o Finalize and authorize states for the proposed changes to RCRA permit modification regulations immediately. EPA has solicited comment on four alternative options to the current RCRA permit modification rules insofar as they apply to technology changes required to comply with this MACT rule, and has proposed option 2, Class 1 with prior approval (in place of the current Class 2 or 3 modifications typically required by States and Regions for such changes). CMA sees no reason why EPA could not decide this issue in a few months after the comment period on this rule closes and then publish a final rule on HWC permit modification streamlining as soon as possible thereafter. If this permit modification issue were resolved by a final rule before the end of calendar 1996, states could go to work immediately making the necessary changes (many state legislatures meet in the beginning of 1997). The sooner that states begin making changes to their HWC RCRA permit modification procedures, the sooner these procedures will be submitted to EPA for authorize and put into place.

Response:
EPA agrees with the commenter that the modification issue could be decided in advance of the rest of the proposed rule, and with the benefits of promulgating the streamlined procedures on an expedited schedule. By doing so, EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal procedures, before they start having to process MACT-related permit modification requests.

PERM6(commenter 128)
c) The Agency must streamline RCRA permit modifications for existing HWIs to facilitate timely compliance. Existing HWIs currently operate under RCRA permits. Under existing State and EPA regulations, most, if not all, of the control and monitoring equipment changes to existing hazardous waste incinerators required for compliance with the emission standards in the final rule will necessitate modifying these RCRA permits. Current State permit modification regulations generally would require Class 2 or Class 3 permit modifications for the substantial equipment changes needed for many existing HWIs to meet the revised HWI technical emission standards. CMA member company experience indicates that such permit modifications would generally take two to three years (as little as 18 months and as long as 5 years). And such Class 2 or 3 modifications would be required before the equipment changes can be constructed. Continuation of this sort of permit modification requirement would prevent HWI owner '/operators from being in compliance within 3 to 4 years of publication of the final revised HWC technical standards rule. Therefore, it is imperative that the Agency streamline RCRA permit modifications for existing HWIS. CMA supports the proposed rule preferred option for permit modification-Class 1 with prior approval. And CMA urges the Agency to expedite issuance of and state authorization for revised Part 270 procedures for permit modification allowing such Class I with prior approval permit modifications for HWIs adding equipment needed to come into compliance with the revised HWI technical emission standards. As discussed earlier, the Agency should move ahead with these revised permit modification procedures independent of the remainder of the MACT rule

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so that states can be authorized for such streamlined RCRA permit modification by the date of publication of the final MACT rule. CMA notes EPA's concern that the Class one modification process may not be provide adequate public participation. CMA supported EPA's recent public participation rule, and CMA members actively seek public involvement in important facility issues pursuant to the Responsible Care Community Awareness and Emergency Response Code. CMA members do not oppose public participation requirements that do not extend or delay the timetable for agency decisions under the final rule.

Response:
The commenter expresses support for categorizing the MACT-related modifications as class 1 requiring prior Agency approval. This is the approach being finalized in this rule. Also, as the commenter suggests, EPA has moved ahead with these procedures independent of the remainder of the MACT rule, so that states may implement streamlined procedures before facility owners or operators begin submitting modification requests following promulgation of the final MACT standards. Since the commenter states that they do not oppose any public involvement activities that do not extend or delay Agency decisions, the commenter should be supportive of the approach taken in this rule., i.e., to incorporate public involvement through the requirements for the Notification of Intent to Comply (NIC) (see 40 CFR 63.1211), rather than through the modification process itself.

PERM6(commenter 130)
VI. Permit Requirements The ETC supports the option of a Class I permit modification (Option 2 at page 17455) for all physical, operational and other changes needed to comply with MACT standards, and HSWA preemption of contrary state requirements (page 17455/1). This option provides for rapid updates to the permit to allow compliance with MACT standards, and to allow the operator to make permit changes to be consistent with the new MACT standards. A Class II or III permit modification requirement would create a review and permit processing burden on state and federal permit writers, which would delay implementation of the rule beyond 3 years. We strongly support the proposal (page 17456/3) that EPA should modify or delete conditions of the state issued permit if conflicts exist with the Federal permits that would hamper compliance with the MACT standards. If EPA selects an option for RCRA permitting that requires state and/or Federal review and approval, then the ETC urges EPA to set a time limit for review, beyond which the modification request would be deemed approved. Otherwise, processing of modification requests could severely delay implementation of the upgrades needed to comply with the MACT emission standards, and hamper a facility's ability to meet the notification of compliance deadline. In addition, changes to the permit should be allowed under Class I modification in order to modify operating parameter limits to be consistent with the MACT rule. Although the ETC strongly supports public participation, we feel that in the interest of rapid implementation of the more protective MACT emission standards, permit modifications to upgrade for MACT compliance should be processed as Class I modifications without the need for a public comment process for every such modification. The new standards are more stringent than current emission

levels, and any new APC equipment installed will improve environmental protection. The time and resources needed for public participation could easily delay the implementation of these desirable improvements.

Response:
The commenter expresses support for proposed option 2 (categorize the requisite modifications as Class 1, with no prior Agency approval required), because the time frames associated with class 1 modifications would help facilities meet the compliance deadline. EPA agrees that an expeditious process is necessary, however, EPA also agrees with commenters who recommended that some amount of regulatory oversight be retained. Thus, EPA chose to categorize modifications necessary for initial compliance with the MACT standards as class 1 requiring prior Agency approval. EPA concurs with the comment that requiring Agency review could potentially slow the process, therefore EPA has incorporated a time default into the review for these types of changes only (i.e., other non-MACT related class 1 modifications requiring prior Agency approval would not be subject to the time default). If the Director does not act to approve or deny the modification request within 90 days, with a possible one-time extension of up to 30 days, the request shall be deemed approved.
With regard to the comment about public participation, EPA also strongly supports public participation, and believes it is important to keep the public involved in the process as facilities plan modifications to comply with the new MACT standards. Even though, as the commenter points out, the new standards are more stringent, communities still might very well be interested in what changes are going to take place. To facilitate community involvement, yet keep the modification process moving expeditiously so that facilities may meet the compliance date, EPA has chosen to incorporate public involvement requirements into the Notification of Intent to Comply (NIC). For example, as part of the NIC requirements (see 40 CFR 63.1211), facility owners or operators must advertise and conduct an informal meeting with the community. This requirement is based on the recently promulgated requirement for a pre-application meeting set forth in 40 CFR 124.31.

PERM6(commenter 144)
EPA has proposed an abbreviated permitting procedure, but in some states, particularly New York State, this procedure may conflict with existing statutes. EPA's proposal that all upgrades to meet this rule be Class I modifications can not be implemented in NYS, because NYS has a 2 tier system (major and minor modifications), with statutory requirements defining what is a major modification. The upgrades that Kodak envisions to meet this rule will likely be major modifications under NYS law, so the timing cannot be shortened by federal regulatory changes redefining what class of modification this is. Kodak's experience indicates that permit modifications takes an extensive period of time. It took 3 years from submission to EPA in 1983 of a Part B permit application for a hazardous waste incinerator in Rochester, NY until a final RCRA permit was received from EPA. Kodak submitted a Part B permit application to New York State in 1988, but did not receive approval of the TB plan until 1991. The TB was conducted and the results submitted in 1992, but a draft permit has

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not yet been received by Kodak. Since most facilities will have to upgrade due to this rule, they will be submitting permit modifications during the first year after the rule is finalized, which will be the time period when the states are not authorized to implement the rule. Hence the expedited permit modification procedure EPA proposes will not impact the time it takes to receive approval for the permit modifications if the facility has a state RCRA permit. Additionally, most permit modifications will occur at about the same time, straining the states' limited resources and slowing down the process.

Response:

EPA acknowledges that there was potential for some of the proposed permit modification options to conflict with existing state regulations. By promulgating the revised modification process prior to the final standards, however, EPA hopes to provide states with sufficient time to address any such conflicts before any modification requests related to initial compliance with the MACT standards start to come in.

In most cases, state permitting agencies have been authorized by EPA to issue and modify RCRA permits. Authorized states that wish to implement the revised procedures may have to modify their state procedures, consistent with this rule, before they may use the streamlined procedures to respond to MACT-related modification requests from facility owners or operators. Once the final MACT standards are promulgated, facility owners and operators have three years to begin operating under the lower emissions levels. The Agency believes that these three years are better used for processing modification requests, and subsequently implementing the necessary changes, than for going through the authorization process. By promulgating the revised procedures on an expedited schedule (i.e., before the final MACT standards), EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal procedures, before they start receiving MACT-related modification requests from facility owners or operators.

Combining the streamlined modification procedures with the expedited schedule for promulgating them sets up a procedural framework to promote initial compliance with the MACT standards. Although States could always use their current modification process, the revised procedures offer a potentially more viable way for states to handle the anticipated volume of requests in a more timely manner, and EPA encourages States to pursue using the streamlined procedures.

EPA would like to point out that prior to promulgating the Class 1, 2, 3 procedures, modifications were divided into two categories, major and minor. States authorized to implement the RCRA program were not required to adopt the Class 1, 2, 3 procedures, since they were considered less stringent than the predecessor major/minor system. As a result, both systems are in use today. In converting to the new system, many of the modifications that had been designated as minor were placed into Class 1, or Class 1 with prior Agency approval. EPA presumes that modifications listed in 40 CFR 270.42 Appendix I as Class 1, or Class 1 requiring prior Agency approval, are most likely processed as minor modifications in states that continue to use that system. This history may provide a basis for states to adopt the modification procedures being promulgated in this rule into their state regulations as minor changes.

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PERM6(commenter 144)
E. EPA's proposed option 1 is recommended for facility upgrade permit modifications. EPA has proposed 5 permitting options for upgrade and compliance testing. We believe that several options could work when EPA has the authority to approve RCRA permit modifications. However most permit modifications will occur before most states have adopted this rule, so the benefits of EPA's proposed new permit modification process will not be realized in most cases. EPA's Option #1 provides overall self-implementing authority to facilities to perform modifications necessary to meet new standards without state or federal permit modifications. However, federal regulations will not override NYS state regulations that requires an application and mandates that the application be processed as a major permit modification. NYS will want to approve the upgrade, and the trial burn. Also, these upgrades would be considered a major modification to state RCRA permits, and a considerable amount of public participation would be required. NYS Uniform Procedures do not include an enforceable Agency time line for issuance action on either major or minor modifications to permits under delegated programs. In either case, DEC can delay final action on a modification request without any recourse for the operator. EPA's Option #2 provides that all modifications necessary to meet new standards are Class I modifications without Agency approval. This is also an acceptable option and does provide public involvement. However the same problems with state requirements discussed for Option #1 also apply to Option #2. EPA's Options 3-5 are not acceptable because there is no required Agency time line for acting on either Class 3 modifications or Class I modifications that require approval. With the short, strict time line for compliance, it is not acceptable to have the potential for an indeterminate delay. Kodak suggests that an Option 6, making all modifications necessary to meet new standards Class 2 modifications, is also acceptable. Since there is a definitive time line for Agency action on Class 2 modifications, this would be acceptable to operators. Kodak recommends option 1, although 2 or 6 would also be acceptable under federal RCRA authority. However none of the options address problems with permit modifications under state RCRA authority. Therefore it is critical to provide for flexible extensions of the compliance deadline as discussed in the comment III. A. F. All facility modifications related to the MACT compliance should be done through the modified permitting procedure. EPA states in the preamble that the modified permitting procedures would not apply to retrofitting changes outside of the framework of meeting MACT. This would be a very difficult interpretation to make and defend, since changes being made all affect each other. Facilities should be required to declare that they are entering a MACT upgrade program and then use the modified permitting procedures for all upgrades that are related to MACT and occur during the compliance period. (However, these modified permitting procedures would not apply to permit modifications that are clearly outside of the MACT rule, such as waste code changes, or changes that relax requirements.)

Response:
The commenter is concerned about revisions to the federal modification procedures not being compatible with procedures at state permitting agencies. As stated above, EPA realizes that

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there are potential conflict with state regulations governing RCRA permit modifications. By promulgating the revised modification procedures EPA hopes to provide time for states to possibly resolve any conflicts and adopt the procedures prior to promulgation of the final MACT standards. Thus, the new procedures would be available to the state permitting agency before facilities start submitting modification requests. The commenter is correct in stating that the federal streamlined modification procedures promulgating in this rule will not "override" state regulations. States may choose to implement the streamlined permit modification procedures, but they also have the option to be more stringent in their requirements (and so may elect to use their existing modification procedures, rather than a streamlined approach).

The commenter implies that the state would require more than a modification request -- that an application and a trial burn would be required. As stated above, states have the option to be more stringent than the federal program in their requirements. Although EPA does not anticipate that facilities will be required to conduct a trial burn as part of the initial technology changes necessary to meet the new MACT standards (since the unit will be subject to performance testing to demonstrate compliance with the new standards), the decision would ultimately rest with the authorized state. EPA is, however, strongly encouraging states to adopt streamlined modification procedures for processing RCRA permit modifications necessary to come into compliance with the MACT standards.

The commenter provides feedback on the proposed modification options, and offers a sixth alternative. The comments on all options (including the sixth) concern the time it takes to process a modification request and the level of public involvement. The commenter seems to support options that put a finite timeframe on the decision-making process and still allow for public involvement. EPA has achieved this balance in the approach taken in the final modification procedures. EPA concurs with commenters who express support for imposing a deadline on the procedures, in order to facilitate meeting the compliance date for the MACT standards. As a result, EPA has added a 90 day review time period, with the possibility of a one-time extension for up to 30 days, for the permitting agency to review and make a decision on the class 1 modification requests (for changes to initially comply with the MACT standards). If the permitting agency does not act to approve or deny the request during this time period, the request shall be deemed approved.

In order to ensure adequate public involvement in this process, without unduly delaying the process, the Agency is finalizing requirements for a Notification of Intent to Comply (NIC) in 40 CFR 63.1211. Any facility that wants to benefit from the revised modification process must meet the NIC requirements, including the requirement to advertise and conduct an informal meeting with the public.

PERM6(commenter 152)

While we recognize the authority of EPA under both sections 112(d) of the Clean Air Act (CAA) as amended in 1990 and the Resource Conservation and Recovery Act, we also recognize the differences inherent in each statute and their attendant regulations. We applaud the efforts of EPA to attempt to eliminate regulatory overlap and maximize government efficiency by crafting a rule to satisfy its requirements under both statutes; however, we are hopeful that EPA will recognize the difficult timing issues associated with permitting and permit modifications required by the two statutes and better rectify the very obvious discrepancies.

Response:
EPA does recognize that there was a potential timing problem with RCRA permit modifications. The existing RCRA modification process (and categories) would have presented an obstacle to meeting the MACT compliance deadline. To overcome this obstacle, EPA has chosen to revise the RCRA permit modification procedures to categorize changes necessary to initially comply with MACT as class 1 requiring prior Agency approval. This change, together with the Agency's approach of promulgating the revised procedures before the final MACT standards, alleviates the timing issue and sets up a framework to promote initial compliance with the new standards.

If, in the rule promulgating the final MACT standards, the Agency decides that air emissions requirements are to be included in Title V permits, and not in RCRA permits, the Agency will identify appropriate modification procedures for achieving the changeover.

PERM6(commenter 152)
Shell understands the one-year extension allowance the Agency is affording sources as allowed by §112(i)(3)(B) of the CAA as a means to seek and secure modifications to existing RCRA permits in order to make modifications necessary to comply with this rulemaking. We also understand EPA's estimate of three years for sources to conduct engineering studies, design and install equipment, and validate test results. Our experience, however, with RCRA permit modifications is that even simple, straight forward modifications can take as long as three years, depending to some degree on the class of the modification. While we believe that some of the work to comply with this rule can be done concurrently while the RCRA permit modification is pending, we do question EPA's estimate of how quickly the Agency or states with primacy are able to respond to modification requests. Shell contends that it is inappropriate to hold a source responsible for compliance requirements when the speed at which certain actions are to take place is out of its control. When scheduled events are delayed due to the inaction of other responsible parties, the source should be granted additional time to comply with no- liability. Alternatively, EPA has the option of approving, or directing local permitting authorities to approve, expeditiously those modification requests which are designed for compliance with this rule. Shell suggests the same alternative for sources who must comply with the RCRA provisions of this rule within six months of promulgation. We do not believe that expeditious review should necessarily be precluded. The burden of compliance with both RCRA and this rule remains with the source, and EPA retains oversight responsibility. Shell generally supports options 1 or 2 for permit modifications. Neither option requires agency involvement, thus, streamlining the implementation process and reducing the paperwork burden. Risk to human health or the environment is unaffected by these two options, since MACT compliance demonstrations

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must be conducted anyway. Also, the rule necessitates some permit modifications which will receive either state or federal review. If option 3 is promulgated, Shell believes that a time limit of no more than 60 days should be allowed for review. Reviews not completed by that time should receive automatic approval to prevent unnecessary delays from eroding the compliance period. Shell agrees with the Agency that option 4 would unduly impact the implementation process due to delays associated with agency reviews.

Response:
EPA concurs with the commenter that there is a need to ensure that modification requests are processed in a timely manner, so that facilities have sufficient time to implement changes necessary to meet the compliance deadline for MACT. To this end, EPA is categorizing the changes necessary to initially comply with the new standards as class 1 requiring prior Agency approval. EPA agrees with the commenter that a time default is appropriate, so that undue delays will not "cut into" the compliance period. Thus, for these types of MACT-related changes only, the Agency is imposing a 90 day review period, with the possibility of a one-time extension of up to 30 days. If the permitting agency does not approve or deny the request during this time, the request shall be deemed approved, and the facility may proceed with their planned changes. The Agency selected 90 days, and not the 60 days recommended by the commenter, to allow for the volume of requests the Agency anticipates will be submitted in a relatively short amount of time following promulgation of the final MACT standards.

PERM6(commenter 153)
With respect to permit modifications for implementation of structural or operational requirements to comply with the MACT Rule, CWM recommends proposing that any modification necessary to comply with these requirements be deemed a Class 1 modification. The permittee would notify the Agency and its mailing list but would be allowed to implement the changes immediately and not upon Agency approval. This permit modification procedure incorporates the notification provisions but eliminates untimely delays that may occur if subject to Agency approval and public participation requirements. Air permitting must also be considered when a decision is made on the permitting procedures that will be followed. Facilities that have separate air permits must modify those permits appropriately. In States that require changes made to air permits be subject to permit modification requirements and have no self-implementing or notification provisions, these requirements could cause delays in implementation of structural or operation changes that are necessary to comply with this Rule. Consistency in the permit modification process from the RCRA and CAA sides, must be implemented to avoid any delays.

Response:
The commenter supports the proposed option of categorizing modifications necessary to comply with MACT requirements as class 1, since this would allow for some amount of public notice but not for untimely delays that may result from options requiring Agency

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review or more extensive public participation (e.g., like the activities required under Class 2 modifications). EPA agrees that it is important to guard against undue delays, but believes a certain amount of regulatory oversight is equally as important. Thus, EPA is categorizing the initial changes necessary to comply with MACT as class 1 requiring prior Agency approval, with an added time default for reviewing the requests. If the permitting agency does not act to approve or deny the request within 90 days, with a possible one-time extension for up to 30 days, the request shall be deemed approved. The Agency is also committed to ensuring opportunities for public involvement. In order to provide opportunities, without unduly delaying the process, the Agency is finalizing requirements for a Notification of Intent to Comply (NIC) in 40 CFR 63.1211. Any facility that wants to benefit from the revised modification process must meet the NIC requirements, including the requirement to advertise and conduct an informal meeting with the public.

The MACT standards are self-implementing, thus, facilities with existing Title V permits must comply with the standards, regardless of what is in their permit. Thus, a facility will not need to modify its Title V permit to reflect initial design or equipment changes. If the facility has a Title V permit in place that includes conditions for the source subject to this rule, EPA anticipates that the existing Title V modification procedures would apply. If, in the rule promulgating the final MACT standards, the Agency decides that air emissions requirements are to be included in Title V permits, and not in RCRA permits, the Agency will identify appropriate modification procedures for achieving the changeover.

PERM6(commenter 170)

We agree with EPA that, for facility changes necessary to comply with the proposed rule, it will be necessary to use RCRA permit modification procedures that are faster than currently is allowed. CKRC supports either EPA's first or second option for RCRA permit modifications.

Response:

The first two options proposed for RCRA permit modifications do accomplish the goal of expediting changes necessary to comply with the MACT standards. Several commenters, however, emphasized the need to retain some oversight by the regulatory agency prior to facilities implementing the changes. EPA found these comments compelling, and has chosen to pursue proposed option 3 (categorize the changes as class 1 requiring prior Agency approval). EPA added a time default into the Agency review process, however, to make sure undue delays do not impede a facility's ability to comply. The final provision includes a 90 day deadline, with the possibility of a one-time extension for up to 30 days. If the Agency does not act to approve or deny the modification request during this time, the request shall be deemed approved, and the facility may proceed with the planned changes.

PERM6(commenter 170)

AMENDMENT OF RCRA PERMITS SHOULD BE EXPEDITED EPA correctly points out

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in the proposal that necessary facility changes to comply with the HWC standards will require modification of RCRA permits. While only one CKRC member has received a BIF permit so far, we expect that a number of these permits will be issued by the HWC compliance date. It is critical that facilities not be impeded from coming into compliance by a slow modification process. CKRC supports either EPA's first or second option for allowing quick modification of RCRA permits to allow for compliance with the HWC standards. The first option, which allows for self-implementation, of course would be the most streamlined. The second option, which would consider all modification requests due to the HWC standards to be Class 1 modifications requiring no prior approval, probably would also allow changes to be made quickly enough. But any option that would require a public hearing or EPA approval would bog down the process. CKRC therefore opposes options 3 through 5. Moreover, we urge EPA to issue these procedural aspects of the rule as soon as possible, so that states may amend their state programs.

Response:

The first two options proposed for RCRA permit modifications do accomplish the goal of expediting changes necessary to comply with the MACT standards. Several commenters, however, emphasized the need to retain some oversight by the regulatory agency prior to facilities implementing the changes. EPA found these comments compelling, and has chosen to pursue proposed option 3 (categorize the changes as class 1 requiring prior Agency approval). EPA agrees that facilities should not be impeded in their efforts to comply with the new standards by a slow modification process. Thus, EPA added a time default into the Agency review process, however, to make sure undue delays do not impede a facility's ability to comply. The final provision includes a 90 day deadline, with the possibility of a one-time extension for up to 30 days. If the Agency does not act to approve or deny the modification request during this time, the request shall be deemed approved, and the facility may proceed with the planned changes.

EPA agrees with the commenter on the need to issue these procedural aspects quickly so that states may amend their programs. By promulgating the modification provisions before the final MACT standards, EPA hopes to provide ample time to states to develop comparable procedures, or adopt the federal ones, before they start receiving modification requests.

PERM6(commenter 180)

B. Permitting 1. The Agency must streamline RCRA permit modifications for existing HWIs to facilitate timely compliance. Existing HWIs are currently under RCRA permits. Under existing State and EPA regulations, most, if not all, of the equipment changes to existing hazardous waste incinerators to come into compliance with the emission standards in the final rule will necessitate modifying these RCRA permits. Even in the case where the permitting authority plans to use a CAA permit as the sole HWI permit for the technical emission standards in the final rule, it may be necessary to modify the existing RCRA permit for the HWI to remove all emission control-related conditions from the RCRA permit to enable consolidation of such conditions in the HWI's CAA permit. Current State permit modification

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regulations in the States where DuPont operates HWIs would require Class 2 or Class 3 permit modifications for the substantial equipment changes needed for many existing HWIs to meet the revised HWI technical emission standards. DuPont experience indicates that such permit modifications generally take two to three years (and sometimes as long as 5 years). These Class 2 or 3 modifications would be required before the equipment changes can be constructed. Continuation of this sort of permit modification requirement would prevent us from being in compliance within 3 to 4 years of publication of the final revised HWC technical standards rule. Therefore, is imperative for the Agency to streamline RCRA permit modifications for existing HWIs. DuPont supports the proposed rule preferred option for permit modification -- Class 1 with prior approval. And DuPont urges the Agency to expedite issuance of and state authorization for revised Part 270 procedures for permit modification allowing such Class 1 with prior approval permit modifications for HWIs adding equipment needed to come into compliance with the revised HWI technical emission standards. The Agency should move ahead with these revised permit modification procedures independent of the remainder of the MACT rule and have states authorized for such streamlined RCRA permit modification by the date of publication of the final MACT rule.

Response:
The commenter expresses support for categorizing the MACT-related modifications as class 1 requiring prior Agency approval. This is the approach being finalized in this rule. Also, as the commenter suggests, EPA has moved ahead with these procedures independent of the remainder of the MACT rule, so that states may adopt streamlined procedures before facility owners or operators begin submitting modification requests following promulgation of the final MACT standards.

The commenter also refers to cases where the permitting authority plans to use a CAA permit as the sole HWI permit for the technical emission standards in the final rule, stating that it may be necessary to modify the existing RCRA permit for the HWI to remove all emission control-related conditions from the RCRA permit to enable consolidation of such conditions in the HWI's CAA permit. This type of modification is outside the scope of today’s rule. In the final rule promulgating the emissions standards the Agency plans to address the permitting scheme for hazardous waste combustors, including the need, if any, to “transition” permit conditions from a RCRA permit to a Title V permit.

PERM6(commenter 181)

E. Eastman Supports Class 1 RCRA Permit Modifications, With Prior Agency Approval, to Implement the Proposed MACT Requirements As is discussed elsewhere in these comments, Eastman is concerned that some facilities may not be able to complete all of the many activities required to submit a certification of compliance within the specified three year (or, four with a one-year extension) period. One concern is the time that will be required to obtain the RCRA permit modifications necessary for facilities that have to upgrade or modify their combustion units. The Agency recognizes this potential problem and, at 61 FR 17455-56, proposes five RCRA permit modification options for comment. These range from

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total self-implementation of facility upgrades or alterations, with no permit modification, to a "no change" option where existing RCRA 270.42 Class 2 or 3 permit modifications would be required. To effect any significant reduction in the time necessary to process a permit application, Eastman believes that the process should be no more involved than the current 270.42 Class 1 modification procedures. However, Eastman believes that most states may want an opportunity to review and approve facility changes before they are made and, in fact, many facilities will find it desirable to have Agency understanding and approval before they embark on costly equipment alterations. Therefore, Eastman supports class 1 permit modifications, with prior approval. Eastman believes that this class of modification is adequate. It does involve notifications to the persons on the facility mailing list and relates to facility upgrades which, while potentially substantial, are required to achieve improved operational performance. Eastman is concerned that in order to change the requirements for major equipment upgrades to class la from class 3, there will be a conflict between state and federal requirements. For example, Eastman's Tennessee hazardous waste incinerators are permitted under state authority. In this case, a requirement for class 3 modification would remain even after the promulgation of the federal rule until such time as Tennessee could modify their regulations to incorporate new federal flexibility. In the state of Tennessee, a minimum of 12 months is generally required to publish a modification of the state-regulations, receive public comments, receive approval from the state regulatory board responsible for solid and hazardous waste regulations, and receive attorney general approval. Such a process imposes yet another delay in a facility's ability to comply with the 3 year implementation period suggested by these proposed regulations. This is yet another procedural issue which must be addressed in these regulations.

Response:
EPA agrees with the commenter that the option to categorize the requisite changes as class 1 requiring prior Agency approval is the most desirable, and has pursued that approach in the final rule. The Agency agrees that retaining some regulatory oversight on the modification requests is beneficial both to the permitting agency and to the facility.

EPA acknowledges that there was potential for some of the proposed permit modification options to conflict with existing state regulations. By promulgating the revised modification process prior to the final standards, however, EPA hopes to provide states with sufficient time to address any such conflicts, and to implement streamlined procedures, before any modification requests related to initial compliance with the MACT standards start to come in.

PERM6(commenter 183)
Permit Modifications/Compliance Within 3 Years Many facilities that will be subject to the new MACT standards for HWCs already have RCRA and CAA permits. For these facilities, an efficient permit modification process is important to expedite technology upgrades (either CEM's or APCD's) needed to comply with the standards. 3M is concerned that, even with a combined permit, modifying existing RCRA permits will be a lengthy process. In addition,

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three years may not allow sufficient time to submit a notification of compliance as to all parameters in the MACT rule. In some cases, regulatory agencies may not have the resources to process all of the permits and permit modifications needed to upgrade technologies. In other cases, time needed for public participation or installation of controls will cause delay. While EPA does indicate in the preamble that an additional year may be granted in certain cases, many permits will probably take longer. The potential consequences of failure to comply are severe: given the multiplicity of operating parameters and averaging periods, a facility could be subject to substantial penalties. Thus, contingency planning is necessary to allow for delays that may occur, such as extensive public participation, lack of resources to process permit modifications by the regulatory agency, or technical problems. 3M would support a self-implementing scheme designed after EPA's recent public participation rule. More specifically, it would not require a formal permit modification, but would allow all stakeholders to be involved and would serve as the functional equivalent of a Class 2 permit modification allowing the unit to come into compliance on a faster time track then if a formal permit modification was required: Within 9 months of publication of the final rule, each owner/operator would submit a draft plan to the permit authority describing how the facility would expect to come into compliance with the emission standards. The plan would indicate what changes would be needed to the facility or what studies will be undertaken to determine what changes or upgrades will be needed and give an approximate schedule for compliance. Since this would not require a formal permit modification, the time schedule would only include the time for the facility to come into compliance without any negotiations with EPA/State, There would be no requirement for EPA to respond to the plan. Within 21 months of publication of the final rule, each owner/operator would have to submit their final plan to EPA/State that indicates what changes would be made and what approximate schedule they would commit to. This time schedule would only represent time for the facility to come into compliance and would not include time for EPA/State to have any role. - The facility would place a notice announcing the availability of the final plan in the local paper and send the plan to persons on the mailing list. - The permit authority would establish a schedule of compliance with the facility on approximate time schedule, if facility could not meet standards within 3 years, Certain conditions could be placed on the facility (based on an agreement between EPA/State and the facility) in the interim until the facility certifies compliance. EPA/States will still have a significant role in the facility's compliance, primarily in reviewing the application, notification of the Comprehensive Performance Test (and trial burn plan, if required), and actual writing of the permit. In addition, EPA has a notification/opportunity to participate in the facilities' compliance planning.

Response:
The commenter is concerned about the permit modification process impeding their ability to meet the compliance deadline for the new MACT standards, particularly because of the demand that will be placed on the permitting authority’s resources to process the modification requests, the time needed for public participation, and the time needed to install equipment. EPA recognizes that the existing modification process posed a potential obstacle to meeting the compliance date, and so is promulgating revisions to the RCRA modification process

specifically for changes needed to comply with the new standards. These types of changes are being categorized as class 1 requiring prior Agency approval. To further ensure that review by the regulatory agency does not unduly delay the process, EPA is also adding a time default to the provision. If the permitting agency does not act to approve or deny the request within 90 days, with a possible one-time extension of up to 90 days, the request will be deemed approved. The revised modification procedures, coupled with the expedited schedule for promulgating them, will provide a procedural framework to promote initial compliance with the MACT standards. Although this is not the "self-implementing" approach suggested by the commenter, it does address the commenter's concern about having a process that does not impede a facility's ability to meet the MACT compliance date. Some aspects of the commenter's suggested approach are, however, evident in the process EPA has developed in this final rule for the Notification of Intent to Comply (see 40 CFR 63.1211) and the Progress Report (see 40 CFR 63.1212).

Public participation activities are still being required, but are being taken outside of the actual modification process so that they, too, do not unduly delay the process. As part of the Notification of Intent to Comply (NIC) requirements being promulgated in this rule (see 40 CFR 63.1211), facility owners or operators are required to advertise and conduct an informal meeting with the public to discuss their planned changes. This meeting requirement is modeled after the pre-application meeting requirement promulgated in the RCRA Expanded Public Participation Rule referenced by the commenter.

The commenter states that, since the potential consequences of failure to comply are severe, there needs to be "contingency planning" to allow for delays that may occur due to extensive public involvement or lack of resources to process permit modifications by the regulatory agency. By developing a streamlined approach for processing permit modification requests, and promulgating those procedures on an expedited schedule, EPA does not anticipate that the modification process will create any barriers to compliance. Further, EPA has transferred the public involvement (e.g., the meeting with the public) from the modification process itself to the NIC process. This will ensure that the public remains involved with the facility's plans to come into compliance with the new standards, including any modifications that may be necessary, while not impeding a facility's ability to meet the compliance deadline. No additional "contingency planning" measures are needed.

PERM7.20(commenter 183)

In addition, EPA should streamline the state authorization process and develop an expedited RCRA permit modification procedure.

<u>Response:</u>

EPA agrees that steps had to be taken to facilitate meeting the compliance deadline. As a result, EPA chose to categorize modifications needed to initially comply with the MACT standards as class 1 requiring prior Agency approval. To further expedite the modification

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process, the Agency also incorporated a time default into the review period. If the Director does not act to approve or deny the modification request within 90 days, with a possible one-time extension of up to 30 days, the request shall be deemed approved.

EPA is not streamlining the state authorization process in this rule. If, in other EPA rulemakings, a streamlined authorization process is set forth, the Agency will look into applying that process, to the extent practicable, to requests for authorization for the modification procedures promulgated in this rule. However, it is EPA's intent, in promulgating the modification procedures in advance of the final MACT standards, to provide sufficient time for states to develop comparable procedures or adopt the federal ones before they actually start to receive modification requests following promulgation of the final MACT standards.

PERM6(commenter 191)

101. Page 456 The proposal to allow facilities to make whatever changes they deemed necessary without a permit modification or regulatory oversight is unacceptable. It is unclear how the Agency could propose to make all MACT related changes Class I modifications without examining the impact of the changes. At a minimum, prior approval should be required before allowing a designation as a Class I modification.

Response:

EPA agrees with the commenter that the permitting agency should review proposed changes. The Agency is promulgating revisions to RCRA permit modification procedures to specifically categorize changes necessary to initially comply with the MACT standards as Class 1 requiring prior Agency approval. As such, the Agency, will have the opportunity to review the proposed physical and operational changes to the facility before they are implemented, in order to ensure that these changes do not have other undesirable consequences.

PERM6(commenter 197)

4. 61 FR 17455 61 FR 17456 In reference to the five proposed options for permit modifications, the Hazardous Waste Permitting Section believes that option four would allow a sufficient balance between public participation, regulatory oversight, and the desire to facilitate achievement of the Maximum Achievable Control Technology (MACT) requirements. Since option four allows for the Director to elevate a modification to the Class 2 level, this option would enable elevation of special case modifications to a higher level of public participation while allowing other modifications to proceed under Class I with prior approval. 5. 61 FR 17456 Since changes in the combustion facility treatment process or permit conditions may relate to issues other than the MACT standards, the Hazardous Waste Permitting Section prefers the first approach out of the three proposed approaches to address potential implementation conflict. The first approach would allow the normal implementing agencies to process permitting requests with an eye for how the proposed changes may affect

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other aspects of the facility. The third proposed approach may serve to actually increase conflict because changes may be approved without overall consideration for other aspects of the facility.

Response:
EPA decided not to pursue proposed option 4 in the final rule. EPA agrees with the commenter that there is a need to strike an appropriate balance among public participation, regulatory oversight, and meeting the compliance deadline for MACT. The approach EPA is taking in the final rule achieves this balance. In order to facilitate timely processing of modification requests, EPA has categorized changes necessary to initially comply with MACT as class 1 requiring prior Agency approval, with a 90 day review deadline incorporated into the process. That is, if the permitting agency does not act to approve or deny the modification request within that timeframe, the request shall be deemed approved. This process will facilitate meeting the compliance date for MACT. To ensure that there is public involvement in the process, without causing any undue delays, EPA is finalizing requirements in 40 CFR 63.1211 for a Notification of Intent to Comply (NIC). Under the NIC requirements, a facility must advertise and conduct an informal meeting with the community to discuss their plans for achieving the emissions levels set by MACT. Facilities wishing to take advantage of the streamlined modification procedures must comply with the NIC requirements. In addition, EPA would like to point out that the approach taken in the final rule does not preclude additional public participation activities beyond those required by regulation, where appropriate on a facility-specific basis.

PERM6(commenter 203)
Part Five VI. E. Permit Modifications Necessary To Come Into Compliance With MACT Standards. Proposal: EPA is seeking comment on five options which propose various mechanisms to expeditiously authorize changes made to comply with this rule. Comment: HWP considers reducing all MACT related modifications to a Class 1 to be a gross error in judgement. Based upon prior experience, HWP feels it is necessary to oversee all major modifications to a permit. HWP recommends that the all modifications for compliance with MACT be in accordance with the current Appendix I of 40 CFR 270.42. HWP acknowledges that the public may not be concerned with public participation if facilities are improving their equipment to meet stricter emission standards. So, as another alternative, HWP recommends that all Class 3 modifications listed under 40 CFR 270.42 Appendix I be reclassified as Class 2 for the purposes of MACT compliance. This will still provide for public participation, adequate regulatory supervision, and at the same time expedite the modification process.

Response:
The commenter opposes categorizing modifications necessary to comply with the MACT standards as class 1, stating the need to oversee all major modifications to a permit. The Agency agrees that it is important to retain some regulatory oversight of the modifications. EPA also believes it is necessary to offer some streamlining in the process, beyond

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reclassifying changes from class 3 to class 2, in order to facilitate meeting the compliance deadline. To achieve these goals, EPA is categorizing changes to comply with MACT as class 1 requiring prior Agency approval. Of course, the states may continue to use their current modification procedures; however, the revised procedures offer a potentially more viable way for states to handle the anticipated volume of requests in a more timely manner, and EPA encourages states to pursue using streamlined modification procedures.

The revised modification procedures, together with the public involvement activities required through the Notification of Intent to Comply (NIC) (see 40 CFR 63.1211), will provide for adequate regulatory supervision and public participation while expediting the process.

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PERM6(commenter 205)

Scheduling. While it would be impossible to even consider processing "major" or Class 3 modifications in these time frames, it will also be impossible to even process a Class 1' modification in some states. For example, Texas would have to adopt new rules and change current rules (which mandate Class 3 modifications for the type of unit changes anticipated) to allow a streamlined modification process with class 1 or l' modifications. Such substantive changes to the rules could take several years to enact. TCC does not favor the EPA Region VI office's taking on permit modifications as a result of this rule, and then transferring that activity to the TNRCC when Texas has made the appropriate changes to its rules. Working with two agencies causes confusion, duplication of effort, differences in interpretation, etc. TCC has discussed this issue with the TNRCC, and believes that an appropriate solution would be to promulgate a rule regarding the modifications as soon as possible (rather than with a final MACT package) -and allow the states ample time to adopt the modification process. Further, we support the idea that any modifications be as simple as possible (i.e. Class l) - allow the states to do more intensive reviews during the particular incinerator's next renewal cycle. Even with timely state adoptions of any modification rules, Class 1, 2, and 3 modifications unnecessarily extend the actual permitting process (and hinder the installation/testing of new equipment). TCC does not support any of its member companies pursuing any revisions to incinerators in advance of a final, promulgated rule. Depending on the outcome, significant resources could be spent on things that might not even be a part of the final rule - or significant resources could be spent on things that might turn out to be more stringent in the final rule (and additional work would then have to be done in a less efficient manner). In both situations, it would put any company at a competitive disadvantage to be designing/purchasing/installing in advance of a final MACT.

<u>Response:</u>

The commenter recommends promulgating a rule regarding the modifications as soon as possible (rather than with a final MACT package), and supports the idea that any modifications be as simple as possible (i.e., class 1). Further, the commenter does not support pursuing changes prior to promulgation of final standards, so that resources are not put towards effecting changes that will not achieve the levels required in the final MACT rule. EPA agrees with the commenter, and is promulgating the revised modification procedures prior to promulgating the final standards. EPA’s goal in doing so is to allow states ample time to develop comparable procedures, or adopt the federal ones, before they start receiving modification requests following promulgation of the final standards. The streamlined procedures (i.e., class 1 requiring prior Agency approval), together with the expedited schedule for promulgating them, will facilitate meeting the compliance deadline.

PERM6(commenter 207)

15. Permit Modification Process: New York State is an authorized state under RCRA and will have issued final status permits to allow of its combustion facilities; thus, any facility modifications to comply with the MACT standards will require a modification of the facility's state permit under the state permitting regulations. In the preamble, EPA discusses five possible options to address EPA permit modification requirement; we support option number 3 which treats the modification as class 1 with EPA approval (oversight). Based on our experience, there is much to be gained by having the regulatory agency involved in approving the design standards, etc., of APCE.

Response:

EPA concurs with the commenter that Option 3 provides the best framework for revising the modification procedures, and has pursued this approach in the final rule.

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PERMITTING MODIFICATION COMMENTS ON NODA

(plus permitting comments from proposed rule comment 147)

PERM6(commenter 233)

5.V.1.E. Permit Modifications Necessary to Come into Compliance with MACT Standards

1.Some facilities will be required to change operating parameters or add new or improved emission control technologies to comply with MACT standards. EPA identifies five permit modification options that could be used to accomplish changes to RCRA permits and proposes to allow HWCs use the procedures for Class 1 RCRA permit modifications with prior regulator approval. EPA requests comment on other options for accomplishing these changes under the current RCRA permit modification rules (61 FR 17454-17456). As discussed in Specific Comment 5.VI.B., DOE suggests EPA utilize the permit-by-rule provision. DOE believes this provision can be used to appropriately separate CAA emission standards from a facility's additional RCRA responsibilities, and allow regulators to incorporate emission standards into a single, facility-wide CAA title V permit. If EPA determines that a permit-by-rule approach cannot be selected, DOE favors giving HWC owners/operators the ability to comply with MACT standards without having to first obtain a RCRA permit modification. This option is designated as option 1 at the top of col. 2 on page 17455 and allows any facility modifications to initially comply with MACT standards using a Class I permit modification without prior agency approval. Assuming that CAA and RCRA regulations and permits are not combined, DOE believes that the RCRA permit should automatically be modified (perhaps by reference) to incorporate MACT changes once a facility demonstrates compliance with subpart EEE, part 63. The Department believes employing option 1 is consistent with the CAA statutory authority. As EPA clarifies, these standards apply to all covered sources under CAA authority, regardless of whether a State has been delegated the provisions of the final rule because they are self-implementing (61 FR 17457, col. 3). Furthermore, as EPA explains on page 17456, if option I is chosen, potential permit implementation conflicts are circumvented. Although DOE recognizes that option 1 may alter the timing of public participation and regulator oversight, EPA offers no real argument against option 1 except to observe that steps intended to reduce emissions may not in all cases lead to enhanced environmental protection. While DOE recognizes the potential validity of this statement, the Department believes it is more important to focus on the majority of cases where the steps that are taken to reduce air emissions will lead to enhanced protection of human health and the environment. Moreover, provided EPA establishes emission limits that are protective of human health and the environment and a facility complies with the established limits and the applicable performance standards, enhanced environmental protection is inevitable (i.e., HWCs must meet the limits/standards at all times or cease burning hazardous waste). Although DOE favors the first option because it offers the most streamlined approach, DOE believes that any of the first three options will avoid many of the delays associated with obtaining a permit modification. Accordingly, if option I is determined to be inappropriate, DOE requests EPA consider implementing either option 2 (Class I modifications requiring no prior approval) or option 3 (Class I modifications requiring prior approval). DOE does not support the implementation of the fourth or fifth options, which indicate permit modifications requests would handled as Class 2 or Class 3 modifications. DOE believes the use of Class 2 or Class 3 modifications will result in delays that interfere with efforts to meet the compliance deadlines. The Department shares EPA’ s concerns (as expressed on page 17454, col. 2) that HWC facilities could submit a high number of Class 2 or Class 3 permit modification requests within the CAA's statutory three-year window. This, when coupled with the fact that many state agencies (e.g., Texas) anticipate submittal of incinerator permit renewal applications in the near future, may lead to difficulties in timely processing of modification requests. Further, implementation of these options may also involve extensive public participation activities, increasing costs significantly and extending the period of time before a facility's can begin to initiate efforts that must be completed prior to submitting the initial notification of compliance (i.e., fabricate, install, start up and shake down the modified facility; conduct pre emissions tests- conduct formal compliance testing; analyze samples and evaluate test results; prepare the notification of compliance; and obtain management certification of the results). This is an extensive regulation and the availability of resources within EPA and state agencies is limited. State agencies will be working with EPA trying to obtain state authorization at the same time that HWC facilities are attempting to renew their existing permit and/or obtain regulator approval of their permit modifications. DOE foresees the competition for resources potentially- delaying the permit modification approval process. This could jeopardize a HWC facility's ability to meet the statutory compliance schedule. Should EPA choose to make an agency approval necessary, DOE requests EPA consider crafting a provision that will allow a HWC to continue operations under their current permit if a permit modification request was submitted to the regulating agency in a timely manner (relative to the compliance date of the regulation). This would ensure that a facility is not unduly penalized in the event EPA or an authorized state agency is unable to address its backlog of HWC permit applications/permit modifications.

3.Under RCRA section 3006, EPA may authorize qualified States to administer and enforce the RCRA program within the State. Prior to HSWA, States that received authorization for the base program were obligated to adopt new, more stringent Federal requirements. In the interim, however, new Federal requirements did not take effect. In contrast, HSWA requirements and prohibitions take effect in authorized/unauthorized States on the Federally-mandated effective date. Following the effective date, EPA is directed to implement HSWA requirements until States are granted authorization. EPA is concerned that permit implementation conflicts may arise in States that do not receive authorization to implement the HWC program and requests comment on three approaches to deal with these potential conflicts. (61 FR 17456, col. 2). The Department shares EPA's concerns regarding permit implementation conflicts that may arise in authorized States that fail to obtain RCRA authorization to implement the new HWC pro@ions in a timely or (i.e., in time to handle the necessary RCRA permit modifications). As EPA explains (61 FR 17456, col. 2), if modification option 1 is chosen, the issues and conflicts associated with permit implementation will not arise.[Footnote; Modification option 1 gives HWC owners/operators the ability to expeditiously comply with MACT standards without having to first obtain a RCRA permit modification (61 FR 17455).] As previously stated in DOE's comments to

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5.VI.E, the Department favors modification option 1. DOE believes option I offers the most streamlined alternative and is consistent with the self-implementing authority of the CAA. Moreover, using option I circumvents altogether the conflicts associated with permit implementation. If, however, EPA determines that one of the other modification options (options 2 through 5) is warranted, DOE believes the third approach to modifying permits in authorized States will result in the least conflict relative to expeditiously incorporating the permit modifications necessary to comply with the new MACT standards into existing permits, but could result in the greatest amount of conflict between EPA and State regulators. DOE finds it difficult to support either the first approach or second approach because electing to use either of these approaches may result in permit modification activities that follow two completely separate regulatory/administrative tracks and may be unnecessarily duplicative. As EPA notes on page 17456, col.1, many States have not yet adopted the modification table in Appendix I of 40 CFR 270.42. Therefore, while EPA would utilize Class 1, 2, or 3 modification procedures to address modifications deemed as falling within the scope of HSWA, authorized States could employ major or minor permit modification procedures to address modifications that continue to fall within their authority. In summary, EPA's three approaches to modifying permits in authorized States rely on a determination regarding which portions of the HWC rulemaking are subject to HSWA, and thus may be implemented by EPA in authorized/unauthorized States immediately. DOE urges EPA to adopt permit modification option 1 and avoid the implementation conflicts described in this portion of the preamble entirely.

4. Under the RCRA "permit as a shield" provision (40 CFR 270.4), compliance with a RCRA permit constitutes compliance, for the purpose of enforcement, with Subtitle C of RCRA. Regulations promulgated under CAA authority [40 CFR 70.6(f) and 71.6(f)] also contain similar permit shield provisions. The relationship of the RCRA "permit as a shield" provision is not discussed in the proposed rule. DOE assumes that EPA does not discuss this provision because the self-implementing nature (under CAA authority) of the proposed standards obligate facilities to make the necessary changes and, this in turn, provides the impetus for permitted facilities to submit RCRA permit modification requests. DOE suggests EPA clarify this point in the final rule.

<u>Response:</u>

1. The commenter suggests EPA utilize the permit-by-rule provision to appropriately separate CAA emission standards from a facility's additional RCRA responsibilities, and allow regulators to incorporate emission standards into a single, facility-wide CAA title V permit. This comment pertains to “long-term” implementation strategies, which will be addressed in the final rule promulgating revised MACT standards for hazardous waste combustors.

The commenter also states that the RCRA permit should be automatically modified to incorporate MACT changes once a facility demonstrates compliance with 40 CFR part 63, subpart EEE. EPA would like to clarify that there are two stages at which modifications to RCRA permits will most likely be necessary. First, in the short term, facilities may need to modify their RCRA permits so that they may implement design or equipment changes that will enable them to meet the lower emission levels required by MACT. For example, a facility

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may have to add electrostatic precipitators (ESP) to reduce particulate matter (PM) emissions. These are the types of changes covered by the revised modification procedures in this rule. In the longer term, a RCRA permit may have to modified to remove air emission standards if the emissions standards are to only be put in a Title V permit. Modification procedures for this stage will be addressed in the final MACT rule.

The commenter expresses preference for proposed option 1 regarding RCRA permit modifications necessary to comply with the MACT standards because of its streamlined approach, but also indicates that proposed options 2 and 3 would also be acceptable. EPA chose to pursue option 3 in the final rule (option 3 being to categorize the changes necessary to comply with MACT as class 1 requiring prior Agency approval). To further ensure that option 3 provides the streamlining that facilitates meeting the compliance deadline for MACT emission levels, EPA is also adding a time default into the agency review period. If the permitting agency does not approve or deny the request within 90 days of receiving it, with a possible one-time extension for up to 30 days, the request will be deemed approved. EPA decided not to pursue Option 1. Several commenters argued for the need to retain some amount of regulatory oversight prior to changes being implemented. They stated that oversight by the regulatory agency is not only necessary to ensure that planned changes in one area do not cause undesirable consequences in other areas, but also to “protect” facility owners or operators. They expressed that it would be better for a facility to have approval before making changes, rather than be faced with possibly having to make additional changes if the regulatory agency does not agree with the modifications put in place. EPA found these arguments compelling, and felt that the process would still be adequately streamlined by categorizing the modifications as class 1 requiring prior Agency approval, with the additional time default measure incorporated into the requirements (see 40 CFR 270.42(a)(4)(iii)).

The commenter also expresses concern about the workload on regulatory agencies, given the anticipated volume of modification requests for MACT-related changes coming in on top of anticipated upcoming permit renewal applications. In particular, the commenter is concerned about competing resources between obtaining authorization for revised modification procedures and actually processing the modification requests. EPA was also concerned about the authorization process potentially causing delays. Once the final MACT standards are promulgated, facility owners or operators have three years to begin operating under the lower emission levels. The Agency believes that these three years are better used for processing modification requests, and subsequently implementing the necessary changes, than for going through the authorization process. By promulgating the revised modification procedures on an expedited schedule (i.e., before the final MACT standards), EPA hopes to provide ample time for states to develop comparable procedures, or adopt the federal ones, before they start receiving MACT-related modification requests.

3. The commenter discusses the three options (regarding authorization) included in the proposed rule (see 61 FR 17456, April 19, 1996) to address potential implementation conflicts. EPA is not pursuing any of these options in the final rule. The options were intended to address possible permit implementation conflicts that may have occurred if a State did not become authorized to carry out the provisions of the proposed MACT rule in time to handle necessary modification requests. By promulgating the revised modification procedures

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prior to the remainder of the proposed rule, EPA anticipates that States will have adequate time to implement the streamlined procedures for processing the requisite modifications. Thus, the need to put in place a separate implementation mechanism no longer exists.
4. The commenter asks EPA to clarify that the permit-as-a-shield provision (40 CFR 270.4) is not applicable because of the self-implementing nature (under CAA) of the MACT standards. Section 270.4 says that "Compliance with a RCRA permit during its term constitutes compliance, for purposes of enforcement, with subtitle C of RCRA except for those requirements not included in the permit which: (...)". The provision does not shield a facility from having to comply with other (i.e., non-RCRA) statutory requirements. Under the CAA, facility owners or operators have to comply with MACT emission levels within a specified period of time. EPA believes that facilities will most likely need to upgrade their design or equipment to comply with the MACT standards. These items are normally written into a RCRA permit. So, unless a facility modifies its RCRA permit to reflect any upgrades necessary to achieve MACT compliance, it would be out of compliance with its permit.

PERM6(commenter 084)
VI.C. Clarifications on Definitions and Permit Process Issues The December 11, 1995 Final Rule on Expanded Public Participation for RCRA combustion facilities (60 FR 63417) called for increased public participation for certain hazardous waste combustion permitting activities. The MACT Proposed Rule does not address public participation. The Final Rule should contain guidance for public participation in permit modifications required for facilities to come into compliance. The Final Rule should also clarify its relationship to the Expanded Public Participation Rule. The MACT Proposed Rule allows three to four years for compliance from facilities. As has been demonstrated by previous compliance schedules (BIF for instance), it can be assumed that most if not all of the combustion facilities will delay implementation until the end of this period. The State of Louisiana may have as many as 22 applications to process. The State of Louisiana expects few if any applications in the first year, more in the second year, and most of the applications in the third year of the compliance schedule. The three year compliance schedule does not seem to take into account the approximately 18-month lag between Federal promulgation of Rules and State (at least in the case of Louisiana) adoption of the Rule. Louisiana DEQ, to implement the new program under RCRA, must have regulations in place in the Louisiana Administrative Code. The lag in adoption time could cause delays in LDEQ's processing of RCRA permit modifications, and facilities meeting the compliance schedule. Option 1 - RCRA contains no provisions for self-implementation of such major modifications. The lack of State oversight and public participation are not consistent with the mandates of RCRA. We do not approve of this option for the reasons stated above. Option 2 - 40 CFR 270.42(d)(2)(i) states that "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation." The changes likely to be required for compliance with the MACT standards will almost certainly be more substantial. With the exception of the public notification requirements, there is essentially no difference between Option 1 And Option 2. We do not approve of this option. Option 3 - The LDEQ believes that a Class 1

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Modification requiring prior approval is the best of all the proposed options. This option allows for State oversight of the process while it reduces some of the "red tape" associated with the Class 3 and Class 2 permit modifications. Option 4 - This option gives the Director the option of elevating the status of the modification, but only gives public participation as a criterion. Unfortunately, the Director cannot always accurately anticipate the level of public interest for a particular facility. With this in mind, we would suggest a less subjective method of selecting the class of RCRA permit modification for implementation of the MACT standards. Option 5 - As Louisiana hazardous waste regulations currently stand, implementation of the MACT standards would almost certainly require Class 3 Modifications. As a matter of practicality, the time required for these Class 3 modifications would be prohibitive. Class 3 modifications for all 22 of the State of Louisiana's hazardous waste incinerators would require nearly thirty-six (36) man-years of work (as calculated using EPA FTE (full time equivalent) allotments for RCRA § 3011 grant work). If the Final Rule imposes risk assessment requirements, this number would rise. It should also be pointed out that this work is in excess of the normal RCRA manpower commitments. As such, implementation of MACT in the three-to-four-year envelope, under this option, would be impossible. For the reasons listed above, the State of Louisiana does not approve of this option.

Response:

EPA is committed to enhancing public participation in all of its processes, and has established additional requirements in this rule to provide opportunities, beyond the public notice requirements associated with Class 1 (with prior approval) modifications, to involve the public in permitting changes required to comply with MACT standards. These opportunities are being incorporated into requirements for a Notification of Intent to Comply (NIC) set forth in 40 CFR 63.1211. The general purpose of the NIC is to promote interaction between the facility and its host community, for example, by requiring the facility to host an informal meeting with the community before submitting its Class 1 modification request to the permitting agency for approval. EPA expects that the meeting will be similar in style and intent to the pre-application meetings required under 40 CFR § 124.31 (and promulgated as part of the Expanded Public Participation Rule referenced by the commenter).

The Agency is requiring facility owners or operators to complete the NIC in order to benefit from the streamlined modification procedures. This requirement means that owners or operators will need to submit a final NIC either before, or at the same time as, they submit the modification request. If they do not comply with the NIC requirements, the permitting agency Director will reclassify their request to class 2 or 3.

EPA expects that information about anticipated changes to facility design or operations to initially comply with the more stringent standards will be included in the NIC, and thus will be available for public review and discussion during the pre-submittal meeting. Through the pre-submittal meeting, communities have an early vehicle for learning, among other things, about potential changes to facility design and operations necessary to meet the lower emission levels. Of course, in accordance with the current requirements concerning Class 1 modifications, the public will also be informed about the modifications within 90 days of their approval by the permitting agency (see 40 CFR 270.42(a)(ii)).

The requirements in this rule do not, of course, preclude additional public participation activities beyond the regulations, where appropriate on a facility-specific basis. At certain RCRA facilities, in fact, permitting agencies and facilities have implemented a variety of public involvement activities, such as additional fact sheets or information availability sessions, that have helped affected communities to understand and participate in permit decision-making. EPA has published a practical how-to guidance manual designed to help all stakeholders in the permitting process (permit writers, industry, and communities) determine what types of public participation activities might be helpful. The RCRA Public Participation Manual (EPA530-R-96-007, September 1996) also offers tips on how to conduct a wide variety of activities. Supplemental public participation activities on a site-specific level, geared for a particular facility's operations and tailored to meet the host community needs, could be used to augment community understanding of the changes taking place to comply with MACT standards. In closing, EPA would like to reiterate that facilities are making changes to meet more stringent standards. Requiring facilities to comply with lower emissions levels in a relatively short time frame does offer significant benefits to public health and the environment that communities will generally welcome.

With regard to the lag between federal promulgation of rules and state adoption of rules, EPA recognizes that the authorization process had potential to cause delays in processing modification requests and meeting the MACT compliance date. By promulgating the revised modification procedures prior to the final standards, EPA hopes to provide ample time for states to implement streamlined procedures before they start receiving MACT-related modification requests. Thus, the three years between promulgation of the final standards and the compliance date may be spent on processing and implementing modifications rather than pursuing authorization.

The commenter evaluates all five proposed options and states that option 3 is "the best of all the proposed options." Option 3 formed the basis for the modifications procedures promulgated in this rule.

PERM7.12(commenter 141)

Simply put, if it takes authorized states two (or more) years to make necessary program changes and to approve permit modifications for existing hazardous waste incinerators, those existing sources may not be able to meet the proposed three year MACT compliance deadline. As EPA has acknowledged in the preamble to the proposed rule, [s]ources with RCRA permits can modify their facilities only after complying with the permit modification procedures of 40 CFR 270.42. 61 Fed. Reg,. at 17,416. Among other things, the Agency has proposed to require that advance written approval be obtained before existing permitted facilities may make the initial changes to their operations necessary to comply with the MACT standard. Id. at 17,536 (proposed revision to 40 C.F.R. 270.42, Appendix I). Depending on the nature and extent of the facility modifications needed to come into compliance with the MACT standard (which, as noted by EPA, may include modifications both to the air pollution control system and the operating facility itself), and the time in which it takes

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authorized states to adopt necessary RCRA regulatory program changes and approve required permit modifications, existing sources may not have sufficient time in which to undertake all of the requirements necessary to submit the notification of compliance within the three year timeframe proposed by EPA. See 61 Fed, Reg. at 17,416.

<u>Response:</u>
The commenter makes the point that the time it takes for states to obtain authorization for federal rules, as well as the time needed to process modification requests, will impede a facility's ability to do all that is necessary to meet the three year MACT compliance deadline. To facilitate meeting this deadline, the Agency has taken a two-pronged approach that establishes a procedural framework to promote compliance with the new MACT standards: EPA is categorizing the initial technology changes necessary to meet the MACT standards as Class 1 requiring prior Agency approval, and promulgating the revised modification process on an expedited schedule. The revised modification process offers streamlined procedures that will help facility owners and operators meet two compliance concerns -- compliance with their RCRA permits and compliance with the new MACT standards. The expedited schedule for promulgating the streamlined modification process will provide time for states to develop comparable procedures, or adopt the federal ones, before they have to start processing MACT-related modification requests.

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WASTE MINIMIZATION

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WASTE MINIMIZATION

Waste Minimization: April 19, 1996 Proposal

1. TIME EXTENSION FOR WASTE MINIMIZATION/POLLUTION PREVENTION

WM1.032(commenter 203)
Part One II. Relationship of Today's Proposal to EPA's Waste Minimization National Plan. Proposal: To consider, on a case-by-case basis, extending the compliance deadline for this rule by one year if a facility can show that extra time is need to implement pollution prevention/waste minimization measures in order for the facility to meet the Maximum Achievable 'Control Technology (MACT) standards Comment: This request seems more than reasonable. If industry is making the effort to meet the MACT standards, and the implementation cannot be practically achieved within the allotted three year period, it seems reasonable to extend the compliance deadline on a case- by-case basis. The only foreseeable problem would be to insure that communication is maintained between EPA, the State, and industry regarding the compliance deadline extension.

Response:
EPA agrees with this comment and has retained the one year extension in the fast track rule.

WM2.036(commenter 089)
Pollution Prevention/Waste Minimization. We agree with the waste management priority in that source reduction is preferred to control of air emissions. However, the rigid compliance schedule, with disquieting ramifications if a facility fails to demonstrate compliance by the deadline, appears to dictate "end-of-pipe" control. We are concerned that the three year period, with a possible one year extension, will restrict a facility's ability to consider source reduction/waste minimization alternatives. Therefore, we urge EPA to consider implementation procedures under this rule which would result in reductions of waste generation, particularly the constituents of concern, rather than effectively only requiring costly emission control measures.

Response:

Some companies may be able to identify and install waste minimization measures, and any combustion controls that are also needed to achieve MACT standards, in three years, or three years plus a one year extension. Therefore, the agency is promulgating the one year extension incentive in the fast track rule as an incentive for pollution prevention/waste minimization. EPA agrees with the commenter that, in some cases, neither the three year compliance deadline, nor the three years plus a one year extension may provide enough time to identify and install waste minimization measures and combustion controls. In the NODA published in May 1997, the agency requested comment on an alternative that would allow some companies to enter into a compliance agreement in cases where longer than four years is needed to install waste minimization/pollution prevention measures that would significantly reduce combustion feedstreams. EPA has decided to not pursue this approach in the fast track rule, and instead encourages companies to submit proposals for this approach to the EPA's XL program.

WM2.037(commenter 097)

A. Compliance Schedule Section 112(I)(3)(A) provides that sources must come into compliance with an applicable MACT standard no later than three years after the standard becomes effective. Section I 12(I)(3)(B) provides for a single year extension for facilities that require more time to install control equipment, and EPA has commendably proposed to interpret this provision to include implementation of pollution/prevention and waste minimization measures that will enable compliance but that cannot be practicably implemented in three years. 17417, Vulcan Chemicals strongly supports the proposed one-year extension. Unfortunately, these time frames are simply not long enough for facilities that need to install new pollution control or emissions monitoring equipment to comply with the new rule (i.e., virtually every source), nor are they likely to be long enough for the most aggressive and creative P2/waste min. measures. EPA should do everything in its power to extend these time frames and to expedite the RCRA procedural obstacles that create most of the trouble. All activities cannot be conducted in three years in most cases. Nor can facilities start now, since they can have no confidence that the proposed numbers will not be made more stringent (in which case all or much of the money spent will have been wasted) or less stringent (in which case some or much of the money will again have been wasted or at least place the source at a competitive disadvantage).

<u>Response:</u>

Some companies may be able to identify and install waste minimization measures, and any

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combustion controls that are also needed to achieve MACT standards, in three years, or three years plus a one year extension. Therefore, the agency is promulgating the one year extension incentive in the fast track rule as an incentive for pollution prevention/waste minimization. EPA agrees with the commenter that, in some cases, neither the three year compliance deadline, nor the three years plus a one year extension may provide enough time to identify and install waste minimization measures and combustion controls. In the NODA published in May 1997, the agency requested comment on an alternative that would allow some companies to enter into a compliance agreement in cases where longer than four years is needed to install waste minimization/pollution prevention measures that would significantly reduce combustion feedstreams. EPA has decided to not pursue this approach in the fast track rule, and instead encourages companies to submit proposals for this approach to the EPA's XL program.

WM2.038(commenter 111)
RES maintains that the EPA should delete consideration that a one-year extension might be granted for facilities to implement pollution prevention or waste minimization measures. This would unnecessarily complicate the development of plans to meet the MACT standards and provide an avenue to escape the new standards for the facilities most in need of upgrading to them.

Response:
EPA has reviewed all of the comments on the pollution prevention/waste minimization incentives proposed and believes that the one-year extension for compliance with the MACT standards will give facilities the incentive to identify and install waste minimization technologies to satisfy the standards, without complicating the development of plans to meet MACT standards. Since this a completely voluntary approach, companies that find this approach to be too complicated need not apply for an extension.

WM2.039.a(commenter 124)
5.I.C. One Year Extensions for Pollution Prevention/Waste Minimization. EPA proposes extending the compliance deadline for up to one year (beyond the three-year compliance deadline) on a case-by-case basis, for facilities requesting an extension to implement pollution prevention/waste minimization measures that will enable the facility to meet MACT standards, but cannot be implemented within the three-year compliance deadline (61 FR 17417). DOE supports EPA's proposal to allow an extension for up to one year (beyond the three-year compliance deadline) for facilities implementing pollution prevention/waste minimization measures. In fact, the Secretary of Energy has recently set

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goals for reducing waste generation within the DOE complex [26], One goal is to reduce by 50% the generation of hazardous waste by December 31, 1999, using calendar year 1993 as a baseline year. Achievement of this goal will depend on Congressional appropriations and mandated competing uses for the funds, particularly those related to DOE's cleanup mission.

Response:
EPA agrees with this comment and has retained the one year extension in the fast track rule.

WM2.040(commenter 128)
Pollution prevention/waste minimization. These preferable approaches to achieving compliance will often be even more expensive (at least initially) and time-consuming, since meaningful ones typically mean significant or complete process redesign. Determining what major process changes can produce the same quality product while also generating a less combustion-reheat or less toxic waste stream can be as challenging as any engineering project a CMA member company undertakes. Many CMA members strongly prefer this approach but are unable to research, develop, design-, and construct major new, lower waste manufacturing processes in only four years.

Response:
Some companies may be able to identify and install waste minimization measures, and any combustion controls that are also needed to achieve MACT standards, in three years, or three years plus a one year extension. Therefore, the agency is promulgating the one year extension incentive in the fast track rule as an incentive for pollution prevention/waste minimization. EPA agrees with the commenter that, in some cases, neither the three year compliance deadline, nor the three years plus a one year extension may provide enough time to identify and install waste minimization measures and combustion controls. In the NODA published in May 1997, the agency requested comment on an alternative that would allow some companies to enter into a compliance agreement in cases where longer than four years is needed to install waste minimization/pollution prevention measures that would significantly reduce combustion feedstreams. EPA has decided to not pursue this approach in the fast track rule, and instead encourages companies to submit proposals for this approach to the EPA’s XL program.

WM2.041.a(commenter 130)
The ETC is opposed to extensions in the MACT compliance schedule for pollution prevention considerations (page 17417/1). The RCRA

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Land Disposal Restrictions have already provided strong incentives for waste minimization efforts since 1986. Industry has been working on waste minimization for a long time, and it is hard to see any genuine connection between a MACT combustion rule, which is focused on emissions reductions, and additional waste minimization efforts. Furthermore, the HAPs that are to be regulated under the MACT rule have been well defined since 1993, and there is nothing stopping industry from working on reducing or eliminating those HAPs in feed streams, even before the final rule is promulgated. EPA must not allow pollution prevention/waste minimization to be used as a shield to permit a combustion facility to emit elevated levels of HAPs for an extra year.

Response:
EPA disagrees that there is no connection between a MACT combustion rule, which is focused on emissions reductions, and additional waste minimization efforts. The environmental literature is replete with case studies that demonstrate the environmental and economic benefits of pollution prevention over treatment and disposal in many cases. EPA agrees that the RCRA Land Disposal Restrictions provide incentives for facilities to implement waste minimization efforts and that some facilities have implemented these methods, and that there is nothing stopping companies from working on waste minimization/pollution prevention with or without this rule. However, EPA is committed to exploring incentives that encourage source reduction, especially voluntary incentives such as those contained in the fast track rule. Furthermore, one commercial waste management company submitted specific ideas on how commercial companies could promote pollution prevention under this rule by working with their waste generating customers. There is nothing stopping commercial companies from pursuing the pollution prevention incentives contained in the fast track rule in such cases.

WM2.042.a(commenter 136)
Promulgate the pollution prevention/waste minimization requirement on a free-standing and expedited basis to maximize its benefits and impact, and ensure meaningful public participation in its administration....

Response:
EPA responds to the details of this introductory comment elsewhere in this comment document.

WM2.043.a(1)(commenter 136)

F. One Year Compliance Extension for Pollution Prevention Activities. EPA seeks comment on allowing a one-year, case-by-case extension of the deadline for achieving compliance with the requirements of the instant rulemaking, where facilities legitimately need the extra time to perform pollution prevention activities associated with meeting these requirements. Assuming the additional time can also be used to perform pollution prevention activities necessary to close the combustion facility entirely, the concept of providing a one-year extension of time is an excellent one, and should be pursued by the Agency.

Response:
The Agency agrees with the commenter and is promulgating the one year extension as a pollution prevention incentive in the fast track rule.

WM2.044(commenter 182)
6. While EPA has provided some incentive for source reduction, more time will be needed to implement the needed changes. EPA should provide a mechanism for large, complex projects to pursue pollution prevention options. While EPA has addressed the possibility of implementing source reduction projects in lieu of upgrading incinerators to meet the new standards, EPA has provided sufficient time for many of these projects. As Dow, CRWI, CMA and the state agencies have said elsewhere, to provide a meaningful opportunity for such pollution prevention opportunities, EPA must provide a mechanism in this rule for facilities to realistically explore such opportunities. As crafted, the one year extension will not provide the desired flexibility needed for pollution prevention activities to occur on a scale where companies can eliminate treatment capacity and the waste and elsewhere, to provide a meaningful opportunity for such pollution prevention opportunities, EPA must provide a mechanism in this rule for facilities to realistically explore such opportunities. As crafted, the one year extension will not provide the desired flexibility needed for pollution prevention activities to occur on a scale where companies can eliminate treatment capacity and the waste and emissions from them. By way of example, several years ago, Dow's Midland, Michigan facility began to explore the feasibility of closing one of the two RCRA rotary kilns at the site. These two rotary kilns provide service to over one hundred internal onsite and offsite generators. LDR

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requires that Dow incinerate a large volume of wastewater treatment plant solids which are hazardous because of the mixture and derived from principle. With numerous local and state issues related to this site, development of a workable plan, which could accomplish eliminating one incinerator, took roughly two years. However in order to accomplish that, a Class III permit modification under the state hazardous waste program would be required for the newer incinerator before the older unit could be taken off-line.[5] [Footnote 5 The Class III modification is needed both to comply with these anticipated rules and to allow transfer of some thermal capacity from the older unit to the newer unit.] A permit change of this significance in the state of Michigan and particularly at the Midland Facility takes three to five years because of the regulatory process and public involvement activities at the site. In that time, Dow can not proceed making any changes to its facilities without risking major capital investment dollars and potential legal or enforcement challenge. Only once the regulatory approvals are in hand can Dow begin the efforts to eliminate the second kiln, which in turn reduces the scrubber water and stack emissions associated with its operation. As can be seen, this contemplated change cannot be implemented under the currently proposed timetable without some type of regulatory or legal mechanism to allow it. Although waste generation projects themselves would continue to be implemented, the pollution prevention contribution by shutting down the second incinerator can not. The time pressures of this rule as proposed would force Dow to upgrade the older kiln and just operate it at a much lower operating factor for many years in the future. Once the capital and operating dollars were committed to that upgrade, it would be difficult economically to justify investing a similar amount of money into the newer unit because that money would already have been spent on the older one.

<u>Response:</u>
EPA agrees that some facilities will need more time than the one-year extension beyond the three year compliance deadline to investigate and implement waste minimization efforts to meet the MACT standard. Consequently, the fast track rule allows facilities to submit proposals for such projects to the Agency’s XL program, which is specifically designed to explore cheaper, cleaner, smarter pollution prevention approaches for meeting environmental standards.

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WM3.050.b(commenter 128)

Without significant relief (i.e., several additional years) on the amount of time provided to come into compliance with the final rule, most HWI owner/operators that also generate hazardous waste will be forced to install additional HWI control equipment rather than use P2/waste minimization to meet the technical emission standards....

Response:

Some companies may be able to identify and install waste minimization measures, and any combustion controls that are also needed to achieve MACT standards, in three years, or three years plus a one year extension. Therefore, the agency is promulgating the one year extension incentive in the fast track rule as an incentive for pollution prevention/waste minimization. EPA agrees with the commenter that, in some cases, neither the three year compliance deadline, nor the three years plus a one year extension may provide enough time to identify and install waste minimization measures and combustion controls. In the NODA published in May 1997, the agency requested comment on an alternative that would allow some companies to enter into a compliance agreement in cases where longer than four years is needed to install waste minimization/pollution prevention measures that would significantly reduce combustion feedstreams. EPA has decided to not pursue this approach in the fast track rule, and instead encourages companies to submit proposals for this approach to the EPA's XL program.

WM3.057.b(2)(commenter 136)

B. Enhanced Pollution Prevention Requirements Should be Fast-Tracked. * Promulgate the planning requirement as a free-standing rule, and fast-track the requirement so that pollution prevention/waste minimization is the first mode of compliance with the new rules considered by the source.... Integrate review and approval of the pollution prevention/waste minimization plan with other related aspects of the proposal, such as the one-year compliance extension for undertaking such activities, and the availability of waivers to conduct performance testing using less stringent operating conditions (i.e., higher feed limits).

Response:

EPA agrees with the commenter's suggestion to promulgate pollution prevention/waste minimization incentives in the fast track "fast track" rule. However, based on the comments received and EPA's further analysis of the advantages and disadvantages of mandatory pollution prevention planning versus other pollution prevention incentives, EPA has chosen to not require pollution prevention planning, and instead is promulgating voluntary incentives that encourage pollution prevention planning and provide additional time for identifying and installing such measures where it is needed. The fast track preamble contains a thorough discussion of the options considered and the options selected.

PERM6.32.a(commenter 207)

14.EPA is also seeking comments on a proposal
to granting a one year extension to the initial compliance deadlines on a case-by-case basis if a facility requests an extension for waste minimization/pollution prevention studies to meet the MACT standards. We think that this proposal should not be considered since the waste minimization efforts have been required by statute since the passage of HSWA. Since EPA launched its combustion initiative with lower emission standards in 1993, facilities have been evaluating the feasibility of waste minimization to achieve standards which are lower than those proposed in this rule (except for dioxin). If facilities have made good faith efforts, by this time, they must know the feasibility of waste minimization to achieve the proposed standards and should have implemented these efforts.

<u>Response:</u>

EPA agrees that HSWA provided incentives for facilities to implement waste minimization efforts and that some facilities have implemented these methods. However, based on the waste minimization/pollution prevention policies of codified in the CAA, RCRA and Pollution Prevention Act of 1990, EPA believes that waste minimization should be encouraged in every possible instance. The fast track rule contains voluntary incentives for pollution prevention that allow companies to make incremental pollution prevention decisions that make sense in the context of MACT standards that may not have been apparent or envisioned prior to the upcoming MACT rule. Because EPA believes that some facilities may need more time to investigate and implement waste minimization efforts to comply with the MACT standard, the fast track rule contains compliance time extensions to encourage significant waste minimization efforts.

2. P2 PLANNING CRITERIA FOR ONE-YEAR POLLUTION PREVENTION EXTENSION

WM1.016(commenter 136)

Enhance the proposed pollution prevention/waste minimization requirement by specifying the basic elements of the analysis required, integrating the scope of the required analysis with EPA's waste minimization/combustion/LDR dilution policies, empowering permit writers to issue terms and conditions based upon the analysis outcome, and applying the requirement to all onsite sources....

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Response:
EPA disagrees with the commenter's recommendation to enhance the proposed pollution prevention/waste minimization requirement by specifying the basic elements of the analysis required, integrating the scope of the required analysis with EPA's waste minimization/combustion/LDR dilution policies, empowering permit writers to issue terms and conditions based upon the analysis outcome, and applying the requirement to all onsite sources.

The fast track preamble discusses in detail EPA's assessment of the comments received on this issue, and EPA's further analysis of the advantages and disadvantages of mandatory pollution prevention planning. EPA refers the commenter to the preamble, in which EPA discusses reasons for not requiring pollution prevention planning or any of the items listed above. Instead, EPA has promulgated voluntary pollution prevention incentives that promote pollution prevention planning and at the same time provide the most important incentive identified in the comments, which is additional time for companies to identify and install waste minimization/pollution prevention measures to aid in achieving MACT standards. In cases where a company does pursue a pollution prevention approach, permit writers would be able to include such measures in the Title V permit.

WM2.039.b(commenter 124)
To ensure consistency, DOE recommends that EPA codify a definition for "pollution prevention planning and implementation." To ensure that the complete time line associated with developing a pollution prevention program is considered by regulators making their case-by determination, DOE further recommends that the codified definition include, but not be limited to, those activities beginning at the point a facility-specific decision is made to investigate the establishment of a pollution prevention program (e.g., official memorandum prepared and circulated) through the point the facility begins measuring pollution prevention progress. This period would, therefore, include life-cycle assessments, as well as laboratory screening, and bench-scale and/or pilot-scale testing. Furthermore, the definition should ensure regulators consider the realized or expected impact of pollution prevention/waste minimization measures relative to all points of hazardous waste generation, regardless of whether the waste is generated on-site or off-site, provided the measures, when fully implemented, will ensure the HWC facility meets MACT standards and provided the HWC and the point(s) of generation are owned by the same person.

Response:
EPA agrees with the need to establish some amount of consistency in the way in which

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regulators determine whether a facility will be granted a one-year extension to implement waste minimization techniques to meet the MACT standard. However, EPA also believes that some flexibility should be allowed in order to avoid superseding the variety of approaches that several States use for requiring or encouraging voluntary consideration of waste minimization measures in achieving compliance with regulatory requirements. To blend this desired consistency with flexibility, the fast track rule contains factors that must be considered by EPA Regional offices and states when granting one-year extensions.
Guidance will also be developed to clarify these issues; the guidance draws both on state experience and on EPA's "Pollution Prevention Planning Guide" (May 1992, NTIS #PB92-213206).

WM2.041.b(commenter 130)

At the very least, EPA must clearly define the criteria that a facility must meet to gain an extension for additional pollution prevention initiatives, including examples of acceptable and unacceptable projects. The criteria must not allow the facility to continue emitting excessive pollutants during any extension period in return for a relatively small degree of waste minimization.

Response:

EPA agrees that some guidance must be provided for determining whether a one-year extension is merited. The fast track rule establishes factors to be considered by EPA Regions and States when determining whether a one year extension will be granted.

WM2.043.a(2)(commenter 136)

Since the Agency did not address the administrative process or demonstration required to obtain the extension, additional work will be needed to ensure the extensions are reserved for appropriate cases. In this regard, three suggestions are offered. First, the Agency should use the LDR effective date case-by-case extension authority in Section 3004(h)(3) of RCRA and 40 CFR 268.5 as a model for the process and the nature of the demonstration required to receive an extension. Important concepts contained within provisions are "binding contracts" to undertake the pollution prevention activities, a detailed schedule for completing the project, and an opportunity for the public to comment on the extension request. Second, approved extension requests should be consistent with approved pollution prevention plans for the facility. Otherwise, the pollution prevention activities

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> undertaken may conflict with (and indeed may foreclose) other options which regulatory officials and/or the public prefer pursuing. Therefore, only requests from facilities with approved pollution prevention should be eligible for the extension. Of course, facilities may and should submit extension requests with pollution prevention plans to avoid two separate proceedings. Indeed, as discussed in section IV.C of these comments, the pollution prevention planning exercise should immediately follow fast-track rule promulgation to avoid potentially unnecessary expenditures on engineering controls, thus prompt consideration of the plans and associated extension requests is consistent with and feasible under the administrative scheme presented in these comments. Third, the pollution prevention activity triggering the extension request should meet a threshold level of significance. Such level of significance should correspond to the pollution prevention and waste minimization policies of the Agency. Accordingly, as discussed in Section IV.A of the comments, the activities should be directed toward achieving closure of the combustion unit; a 50% reduction in metals and halogen feeds by 2005; and/or a 50% reduction in other persistent bioaccumulative, and toxic constituents by the same date.

Response:

EPA agrees that guidance must be provided for determining whether a one-year extension is merited on a case by case basis. EPA believes the factors contained in the fast track rule guide EPA Regions and States in determining whether a one year extension should be granted for individual facilities.

With respect to defining specifically for all cases the adequacy of the magnitude of reductions, the Agency notes that there needs to be room for reasonable judgement. If the commenter is advocating the position that a combustion facility may only be granted a one-year extension if the facility uses waste minimization to completely close the facility, EPA does not agree; such a restriction would eliminate the applicability of the waste minimization extension to many facilities which might make environmental gains by utilizing pollution prevention. If the commenter, however, means that closure of a combustion facility is one of several potential positive outcomes of waste minimization, EPA agrees that this process can be used to promote that outcome.

EPA also does not agree that a facility should be required to meet a specific threshold reduction in waste generation to be granted a one-year extension. EPA believes that a facility's reduction in waste generation should be significant, but should be determined on a case-by-case basis without regard to a threshold number. This individual approach for granting one-year extensions is consistent with EPA's goals of 50% reductions in metals and halogen feeds and in other persistent, bioaccumulative, and toxic constituents by the year

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2005 given that these goals are for the nation as a whole and not appropriate for all individual facilities. The evaluation of the adequacy of the proposal by a specific facility will require judgment on the part of the responsible Agency, based on review of the facility's past waste minimization efforts, the nature of its operations, and the opportunities available. Additional guidance will be provided by EPA on criteria to be considered during the review process.
EPA agrees that information submitted by the facility with respect to anticipated waste minimization activities should be the basis for the one-year extension request. EPA does not agree, however, that a pollution prevention plan itself should undergo formal review and approval. Rather, as indicated above, the quality of the plan or other submitted information should be a factor considered in the evaluation of the extension application. Guidance on factors to consider during this review will be provided by the Agency for this rule.

WM2.045(commenter 203)
Part Five I. C.- One Year Extension for Pollution Prevention/Waste Minimization. Proposal: EPA is proposing to allow a one year extension of the compliance deadline on a case-by-case basis, to allow facilities to implement pollution prevention/waste minimization measures that will allow the facility to meet MACT. Facilities must request the extension and explain why the changes could not be completed in the three year allotted time for compliance. EPA is seeking comment on this proposal. Comment: HWP acknowledges that process changes may require more than three years to implement, and thus, advocates an extension. HWP also foresees problems with industry meeting compliance deadlines if HWP does not oversee compliance progress. Therefore HWP recommends that the authority to issue an enforceable Schedule of Compliance be incorporated into MACT. The ability to impose fines for noncompliance should be included as well.

Response:
EPA solicited comment on this issue in NODA 3 (May, 1997). EPA refers the commenter to the fast track preamble for a discussion of the comments received and EPA's decision concerning aspects of the Notice of Intent to Comply and the Certification of Compliance are enforceable and how EPA arrived at this decision.

WM3.054.d(136)
IV. COMMENTS ON ELEMENTS OF PROPOSED RULES RELATED TO POLLUTION PREVENTION/WASTE MINIMIZATION A. Proposed Pollution Prevention Planning Requirements Must be Modified to Effectively Encourage Pollution

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Prevention/Waste Minimization. In the proposal preamble, EPA seeks comment on two pollution prevention/waste minimization information requirements that would be incorporated into the RCRA permit application. Under the first option, all facilities would be required to provide "adequate information on alternative pollution prevention/waste minimization measures that reduce hazardous constituents entering the feedstream, particularly the most persistent, bioaccumulative, and toxic constituents..." 61 FR 17453. Under the second option, regulatory agencies would be provided discretionary authority to require such information, so some facilities may be excused from providing the information based upon compliance with RCRA waste minimization certifications, TRI reporting, and/or state pollution prevention planning requirements. 61 FR 17454. Since the proposed information requirements constitute a critical element for encouraging pollution prevention/waste minimization in the instant rulemaking, the conceptual framework should be modified and strengthened to ensure its effectiveness.

Response:
EPA received a variety of comments on the two pollution prevention planning options and the other incentives proposed. As discussed in the fast track preamble, EPA concluded that mandatory pollution prevention planning is not a crucial requirement for promoting pollution prevention. Instead, EPA's analysis of comments and information available from States and EPA on pollution prevention planning programs indicate that case by case compliance extensions are the best incentives to promote pollution prevention. Rather than requiring pollution prevention planning, EPA is encouraging such planning through the one-year compliance extension contained in the fast track rule. EPA is providing guidance that will further illustrate this process. For example, the guidance will draw on EPA's Facility Pollution Prevention Guide (EPA/600/R-92/088), EPA's Interim Final "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program," and on the guidances or regulations on pollution prevention planning which have been developed by the states which require such planning from some of the larger state manufacturing facilities. It will not be prescriptive, but it will lay out useful parameters for consideration.

WM3.054.g(commenter 136)
In addition, a well crafted information requirement containing basic elements of pollution prevention/waste minimization evaluations, such as process-related information, can help create the dynamic necessary for the cross-fertilization of ideas and data between production and environmental staff at the plant. And if the timing of the information requirement is arranged so that

appropriate plant personnel can focus on the pollution prevention/waste minimization evaluation, EPA can create opportunities for full cost accounting and creative engineering solutions. 2. EPA's Proposal Must Specify Basic Elements of Pollution Prevention Evaluation. Several modifications to EPA's proposal are required to create the driver that will effectively encourage pollution prevention and waste minimization. First and foremost, no regulatory language was proposed for either information requirements option, thus the conceptual framework currently lacks specificity as to the nature and scope of the pollution prevention/waste minimization evaluation process needed to satisfy the information requirements. In this context, the nature of the planning process refers to the basic data gathering and analytical activities that should be conducted for evaluating pollution prevention/waste minimization alternatives to a hazardous waste combustion unit. While extremely detailed instructions may not be feasible given site-specific variability, inclusion of the basic elements in regulatory language would ensure a meaningful level of effort and greater consistency between jurisdictions. The development of such regulatory language would also provide EPA an opportunity to adapt generally applicable pollution prevention/waste minimization guides to the more specific context of replacing or reducing reliance on a combustion device. With respect to the scope of the planning process, this rulemaking is the optimal opportunity for achieving the goals and objectives EPA articulated recently in the waste minimization and combustion policies. Under these policies, EPA seeks to reduce by 50% the amount and toxicity of persistent, bioaccumulative, and toxic constituents generated in the next nine years. In addition, EPA identified toxic metals and halogenated organics as waste constituents that pose particular concerns when combusted, and thus are priorities for the instant rulemaking. Therefore, at a minimum, the facility-specific pollution prevention/waste minimization alternatives to be evaluated should be selected with these program objectives in mind. In addition, the facility owner/operator and/or the public may identify additional candidates for pollution prevention, particularly where other wastes comprise the most significant portions of the waste stream. Moreover, to maximize the environmental and economic benefits of pollution prevention and waste minimization, options which totally eliminate the need for the combustion device should be evaluated. In summary, the information provided on

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pollution prevention/waste minimization measures should reflect the goals of EPA's waste minimization and combustion policies; expressly cover toxic metals (including metals for which EPA did not propose emission standards), halogenated organics, and other persistent, bioaccumulative, and toxic constituents that comprise a significant portion of the feedstream; and include an evaluation of the potential for elimination of the combustion device entirely through pollution prevention, waste minimization, recycling and alternative treatment measures. Express authority to deny a RCRA permit based upon the proposed combustion of inappropriate feeds or the availability of pollution prevention/waste minimization measures should be provided. 3. The Pollution Prevention Evaluation Must Occur Prior to Permitting. The proposed timing of the information requirements is not conducive to meaningful pollution prevention planning. As proposed, the information requirements are part of the RCRA permit application, and therefore may not be triggered until years after final rule promulgation. Accordingly, in many cases, the pollution prevention/waste minimization evaluation process can occur years after the facility owner/operator decides to continue using the combustion device and purchases the pollution control devices needed to meet air emission standards. Under these circumstances, the economic incentives associated with pollution prevention and waste minimization are lost, since the capital expenditure that may be avoided by such measures is already spent. Moreover, even if the RCRA permit application was submitted in a timely manner, application submission may be too late in the permitting process since the facility owner/operator may be reluctant to undertake further pollution prevention/waste minimization analyses once it is committed to licensing the combustion unit. In addition, as EPA recognized in its recent modifications to the RCRA public participation procedures, earlier public involvement is beneficial for all parties. [108] [Footnote 108: See also Pollution Prevention/Waste Minimization During RCRA Permit, Inspection and Enforcement Activities (Revised Draft Handbook), March 25, 1996, p. 12 ("The earlier, the better, seems to be the best rule to follow.").] In some states, the filing of a permit application triggers mandatory time frames for reaching permitting decisions. If those time frames are not met, the state agency may lose permitting fees needed to administer the program. Adding pollution prevention/waste minimization evaluations to the combustion permitting process will create possible disincentives for state agencies to aggressively pursue all available pollution prevention/waste minimization avenues. Therefore, the Agency should promulgate the information requirements as a free-standing RCRA/CAA provision, and the information should be required within one year of the promulgation date. Opportunities for public comment and a hearing (if requested) should be provided on the information and the waste feed data, as discussed below in Section IV.C of these comments. Further, the regulations should establish that, on the basis of the waste feed data, the pollution prevention/waste minimization evaluation, and the public comments provided, the regulatory authority may request additional analyses or information that can ultimately be used (and incorporated into permit terms and conditions) if and when a RCRA or CAA permit (or permit modification) is actually sought for the unit. Significantly, this free-standing information requirement should be "fast-tracked" to facilitate the pollution prevention/waste minimization evaluation in a manner truly independent of engineering controls, and provide sufficient time for facility owners/operators to focus first on evaluating pollution prevention/waste minimization options and subsequently comply with emission standards if the device is still needed following the evaluation. By promulgating the information requirement in an expedited manner, pollution prevention/waste minimization evaluations can be performed while the Agency is working on the final emission standards, and states can be authorized to administer the provisions as soon as possible. In addition, EPA can avoid the specter of condoning the actions of facilities that intend to close but nevertheless continue to burn hazardous waste for three additional years or until compliance with the new emission standards is required. 4. EPA Should Pursue an Enhanced Option 1. This "fast-tracked" information requirement should apply to all onsite facilities under a modified option 1 in EPA's proposal. Source reduction and waste minimization regarding wastes destined for offsite combustion can best be accomplished indirectly through phased-in feed restrictions (in addition to BTF standards based upon currently achievable MTEC reductions), as discussed in Section V of the comments. For the reasons explained immediately below, option 2 will not produce an equivalent level of effort and public involvement in the pollution prevention/waste minimization evaluation to option 1. First and foremost, it is far from certain that the waste minimization program supporting a RCRA certification, and/or the

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state pollution prevention plan a facility may have developed, will include the combustion device and the wastes managed therein. Therefore, EPA priority waste streams destined for combustion, and/or other significant waste streams amenable to pollution prevention measures, may be completely unaddressed in these documents. Second, the quality of the evaluations performed in response to the RCRA waste minimization certificate requirement and state pollution prevention planning requirements will vary considerably from facility to facility, since state planning requirements range widely and little or no substantive oversight/quality control is performed of the RCRA certifications or state pollution prevention plans. Indeed, EPA acknowledges its guidance to generators on RCRA waste minimization plans is "nonbinding". See 58 FR 31118 (May 28, 1993). The same situation exists for some state pollution prevention planning requirements, because the planning requirement itself may be voluntary, or the law lacks specificity as to the nature and scope of the planning exercise. In other states, the regulatory agency may be precluded from reviewing the adequacy of the plan, or elects not to review some plans due to competing resource demands or other reasons. Even where plans are reviewed and comments prepared by state agency staff, the facility may choose to ignore the comments and not make the suggested revisions. Third, even if adequate plans are developed, monitoring to determine compliance will vary greatly from state to state, with the likelihood of little monitoring conducted to determine if the plans are actually implemented in many jurisdictions. The lack of follow-up may be due to lack of legal authority requiring execution, resources, or both. Part of the lack of follow-up is also due to minimal coordination of the planning requirement and the permitting process, even for RCRA TSDS. Fourth, neither the RCRA waste minimization certification requirement nor most state pollution planning requirements provide an opportunity for the public to review and provide input on the adequacy of the programs in place. Indeed, state law may prevent public disclosure of correspondence between facilities and pollution prevention units of state governments.

In summary, the uncertainties in state law regarding the content and adequacy of pollution prevention plans, the ability to effectively review the plans and ensure implementation, and the opportunities for public review and input, should remove option 2 from further consideration as a possible "functional equivalent" to option 1.

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Response:

EPA agrees it is important to encourage cross-fertilization of ideas between environmental and production staff, and to encourage facilities to track the costs of waste management back to the production operations from which they derive. EPA believes that the best way to achieve that objective is through the incentives created under this rule, rather than through a mandatory planning requirement for all facilities subject to the rule. EPA is aware of cases where companies respond to mandatory planning programs by hiring a consultant to complete the report, which does little to accomplish the objective pointed out by the commenter.

The Agency disagrees that pollution prevention planning should be required. EPA has decided not to require either of the specific original planning alternatives. Facilities which make a decision to pursue pollution prevention as a part of their compliance strategy will need to specify that in their extension application. EPA believes that no regulatory requirements are required to specify the elements of a pollution prevention facility plan because most states have already codified such elements, or have published guidance on the elements, or refer to EPA's guidance on waste minimization plans (cited in the fast track preamble). EPA will provide guidance on how to apply for the one-year compliance extension for companies, and for State and Regional staff who will be reviewing the extension applications.

In accordance with the CAA, any request for a one year extension must be received no later than two years after promulgation of the MACT standards. EPA encourages companies to submit such a request as soon as possible and that it should be built on waste minimization/pollution prevention information contained in the NIC, which must be submitted within one year after MACT promulgation.

EPA believes that the combination of incentives and guidance will provide a substantial impetus towards achieving the Agency's overall goal for reductions in PBT chemicals. It should be remembered that the goal of 50% reduction is an overall goal -- not a facility-specific goal. EPA believes that the imposition of too rigid a regulatory process for pollution prevention planning might prove counter-productive to this goal because the burden of completing a paper plan may serve as a disincentive compared to the incentives provided in the fast track rule. EPA has also released its "Waste Minimization Prioritization Tool" that can be used by companies and government to screen for toxic constituents that should be targeted for reduction.

EPA agrees that it is important for facilities to initiate consideration of pollution prevention opportunities before capital and engineering resources are devoted entirely to meeting the technical standards. This is one of the reasons that the Agency has initiated a fast-track rule for the pollution-prevention-based compliance extension. This will enable facilities to begin evaluation of pollution prevention opportunities before promulgation of the final rule.

EPA also agrees with the importance of the role of public review. The NIC process has been established to provide a substantial opportunity for public involvement. Facilities pursuing the one-year pollution prevention extension will need to develop information on their pollution prevention analyses and options as part of the NIC.

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WM3.057.b(1)(commenter 136)
In the proposal preamble, EPA discussed two alternative pollution prevention/waste minimization information requirements. EPA should pursue an enhanced option 1, recognizing that relying upon other authorities to encourage pollution prevention/waste minimization will not ensure a consistent and adequate level of effort throughout the nation. This pollution prevention/waste minimization planning requirement should apply to all onsite sources. Equally important, option I must be substantially modified to be effective. First, EPA should specify the minimum elements of the planning process, including the nature and scope of the evaluation. Scenarios to be considered should include 50% reductions in metal and halogen feeds in the next nine years consistent with EPA's combustion and waste minimization policies; equivalent reductions in other significant waste streams containing persistent, bioaccumulative, and toxic constituents in the next nine years; and closure of the combustion unit. In addition, EPA must make the following modifications to the proposed planning requirement: Incorporate express authority into the rule so that permit writers can enforce the outcome of the pollution prevention/waste minimization analysis through permit terms and conditions, or in the closure plan for the facility, whichever is applicable.... Integrate review and approval of the pollution prevention/waste minimization plan with other related aspects of the proposal, such as the one-year compliance extension for undertaking such activities, and the availability of waivers to conduct performance testing using less stringent operating conditions (i.e., higher feed limits).

Response:
As discussed in detail in the fast track preamble, while mandatory facility planning may appear to force facilities to consider waste minimization/pollution prevention solutions, EPA believes providing regulatory incentives and harnessing the power of public dialogue to encourage companies to identify and install waste minimization/pollution prevention measures will result in more real pollution prevention accomplishments. For this reason, the Agency is not pursuing either of the waste minimization planning alternatives in the 1996 proposal.

WM3.058(commenter 144)
G. New waste minimization plans should only be required when existing programs are not in place. EPA offers two options for meeting waste minimization requirements. Option #1 requires

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waste minimization information as part of the permit application. Option #2 allows case by case evaluation, if a facility already has a program in place. Under option #2, information will not be required as part of the permit if the existing program is determined to be adequate. Taking advantage of existing efforts, as proposed in option #2, will save time and money for both the operator and the Agency, without effecting the quality of waste minimization efforts. Therefore we recommend adoption of Option #2.

Response:
EPA believes that neither option for waste minimization planning should be included in this rule. EPA believes that while mandatory facility planning on the surface may appear to force facilities to consider waste minimization solutions, providing appropriate regulatory incentives and harnessing the power of public dialogue for companies to identify and install waste minimization measures will result in more waste minimization measures. The final rule reflects these beliefs.

WM3.065(commenter 203)
Part Five VI. D. Pollution Prevention/Waste Minimization (PP/WM) Options. Proposal: EPA is soliciting comments on two pollution prevention/waste minimization options for reducing or eliminating hazardous constituents that enter on-site as well as commercial combustor feedstreams, and that can be considered in the definitions of changes in facility operating parameters and/or new or improved control technologies for meeting MACT standards. Comment: HWP advocates case by case determinations for commercial HWCS, but recommends all on-site combustors be required to provide PP/WM information for their sites. HWP feels that this legislation would provide greatest protection to protect human health and the environment if promulgated under 40 CFR 262 (Standards Applicable to General)

Response:
Based on an analysis of the comments received and additional information available from States on mandatory pollution prevention planning programs, EPA believes that neither option for waste minimization planning should be included in this rule. Instead, EPA believes that, while mandatory facility planning on the surface may appear to force facilities to consider waste minimization solutions, providing appropriate regulatory incentives and harnessing the power of public dialogue for companies to identify and install waste minimization measures will result in more waste minimization measures. The fast track preamble and rule reflects this approach.

EPA agrees partly with the recommendation to require facilities to provide pollution prevention/waste minimization information. The NIC requirements of the fast track rule requires all facilities to identify any pollution prevention/waste minimization measures that are considered by the facility.

WM3.068(commenter 147)
III. PROPOSED PERMITTING REQUIREMENTS (FR at 17361,17417 and 17453) Comment requests on pages 17361, 17417, and 17453 of the proposed rule discuss permit requirements for two Waste Min/P2 options. The first option requires all facilities to submit information on the alternative measures that can be instituted to reduce hazardous constituents entering the feedstreams. The second alternative gives the Agencies discretion for requiring the information. EPA in the proposed rule states that many facilities may already be required to submit this information as part of a state-wide pollution prevention requirements. However, the waste minimization guidance (Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program, May 28, 1993) specifies only certification requirements which are necessary under HSWA for generators of hazardous waste or owners and operators of TSD facilities that generate waste on-site. Therefore, Congress did not intend for commercial facilities to be responsible for insuring that waste minimization programs are put in place unless material is generated on-site. Further, the EPA stated in the May 1993, waste minimization guidance that it is the intent of Congress to allow for flexibility in implementing facility specific waste minimization programs. The waste minimization policy is "guidance" and no more.

<u>Response:</u>
The final rule does not contain either of the waste minimization planning options included in the proposal preamble.

X.069.b(commenter 085)
This pollution prevention planning g. waste minimization, and reporting must be designed a separate set of requirements which will be implemented very rapidly.

<u>Response:</u>
As discussed in detail in the fast track preamble, EPA has selected three pollution prevention incentives, which do not include requirements for pollution prevention planning. The reasons for this decision are discussed in detail in the preamble.

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3. WASTE MINIMIZATION/POLLUTION PREVENTION AND THE MACT STANDARD

WM1.002.a(commenter 0097)

2. Cost vs. waste minimization for chemical processes. On page 17453, EPA requested comments on pollution prevention/waste minimization options. Vulcan Chemicals support EPA's general strategy to promote pollution prevention/waste minimization for reducing or eliminating hazardous constituents that enter on-site as well as commercial combustor feedstreams. However, Vulcan Chemicals is concerned that the Agency may be too narrow minded and suggest the "integrated risk analysis" approach proposed by EPA-SAB should be considered. As stated in EPA's Draft Combustion and Waste Minimization Strategy that the strategy seeks to balance waste minimization and incineration while reducing risk to the public. EPA also stated that the overall goal of the waste minimization strategy is "to reduce the amount and toxicity of hazardous waste that is generated in this country, particularly when such reductions will lead to multi-media environmental benefits." Vulcan Chemicals urges EPA to keep these goals paramount and avoid the temptation of reverting back to EPA's traditional single-program, single-focus approach. EPA should try not to reduce the strategy to single-focused programs such as "Stop incineration as much as possible" or "Minimize chlorinated wastes as much as possible." EPA should always evaluate whether its actions will contribute to "true" multi-media environmental benefits from life-cycle perspective and whether the activities do address "true" high risk issues to the society.

<u>Response:</u>

EPA appreciates Vulcan’s support for a risk-based multi-media approach, and agrees this is preferable to a single-medium approach. The Clean Air Act, however, encourages pollution prevention measures. EPA’s approach in this rule is consistent with it overall approach of encouraging companies to use pollution prevention approaches as the first choice for environmental management. The rule provides an opportunity for companies to voluntarily take advantage of the pollution prevention option; nothing in the rule requires them to do so. The commenter’s suggestion to explore life-cycle analysis and multi-media risks and impacts will be considered in guidance that EPA will publish for permit writers and companies that pursue pollution prevention options.

WM1.003.a(commenter 102)

VI. The Proposed Rule Will Be A Disincentive for Waste Minimization. EPA believes the rule will provide strong incentives for hazardous waste generators to minimize their wastes through source reduction and recycling. Waste minimization, in turn, will make it easier for hazardous waste combustors to meet MACT requirements. We disagree. While the NACR generally supports and is actively assisting EPA in promoting waste minimization, we do not support the use of these issues as justification for a rulemaking for technical combustion standards. EPA's role in waste minimization is limited to providing incentives for hazardous waste generators to reduce the volume and toxicity of their waste streams. The current emphasis, embodied in the agency's waste minimization national plan, is on persistent, bioaccumulative and toxic (PBT) waste stream constituents. By assisting generators in identifying and prioritizing for reduction of waste streams high in PBTs, EPA hopes to achieve significant environmental gains through voluntary, cooperative means--a process that the NACR supports. While waste minimization may (or may not) be a consequence of the hazardous waste combustor MACT rulemaking, it should in no way be used as a justification for the proposal.

<u>Response:</u>

Waste minimization is not the justification for this MACT rulemaking. However, as condoned in the CAA, EPA believes that this rulemaking provides an excellent opportunity to provide incentives for companies to use pollution prevention/waste minimization techniques to help comply with the MACT standards.

EPA is not restricted to only working with generators under the CAA, and the incentives promulgated in the fast track rule are not limited only to generators. One commercial waste management company commented that commercial companies could work with their generator customers to reduce combustion feedstreams and believe pollution prevention incentives in a rule would promote this. In particular, the CAA § 112(d)(2) clearly anticipates using waste minimization approaches in setting MACT standards without excluding any emission sources from coverage. Moreover, the waste minimization incentives provided in the final rule are not mandatory.

WM2.039.c(commenter 124)

DOE notes to EPA that Congress expressly defines MACT as the "...application of measures, processes, methods, systems, or techniques including, but not limited to, measures which reduce the volume of, or eliminate emissions of, such pollutants

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through process changes, substitution of materials and other modifications" [CAA Section 112(d)(2)]. {Footnote 26 Memorandum from Secretary of Energy Hazel O'Leary to Heads of Departmental Elements dated May 3, 1996: Subject Departmental Pollution Prevention Goals]

Response:
Finally, EPA agrees with the commenter's characterization of CAA section 112(d)(2).

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WM3.050.a(commenter 128)
d) EPA should not tie waste minimization to obtaining an HWC permit. The Agency proposes (at 17453) two options for requiring facilities to provide information in HWC permit applications on P2/waste minimization measures to reduce the most persistent, bioaccumulative, and toxic hazardous constituents in HWC feeds. CMA member companies have a proven record of success in voluntary pollution prevention and waste minimization. EPA has established a voluntary program under the Waste Minimization National Plan for hazardous waste generators to work toward national goals for reducing PBT constituents in hazardous wastes.... Working toward the reduction goals of the Waste Minimization National Plan should continue to be voluntary and should not be linked to obtaining a permit for a hazardous waste combustor in cases where emissions control is the method of achieving MACT compliance. Both of the Agency's proposed options to require P2/waste minimization information in all HWC permit applications should be deleted from the final rule.

Response:
EPA agrees that voluntary incentives are appropriate.

WM3.061(commenter 170)
B. EPA Needs To Clarify That The Proposal's Pollution Prevention/Waste Minimization Options Apply Only To On-Site Combustion Facilities. The proposal discusses options for pollution prevention/waste minimization measures (17453-54). This provision has as its goal minimization of hazardous waste generation, an aim that CKRC supports. But these efforts must be directed at companies that generate hazardous waste, not off-site RCRA facilities that safely manage and destroy the

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waste. CKRC offers no comments on the details of the pollution prevention/waste management options because we cannot imagine how they could apply to off-site combustion facilities, such as waste-burning cement kilns, that do not produce the hazardous waste they burn. Waste-burning kilns have no control over the amount of wastes generated by other companies. Unfortunately, the proposal does not make the important distinction between on-site and off-site facilities, nor does it clearly state that the requirements would apply only to on-site facilities that generate the hazardous waste they burn. EPA nee ds to clarify in the final rule that whatever such requirements it adopts do not apply to waste-burning cement kilns.

Response:
EPA is not restricted to only working with generators when providing incentives for waste minimization. In particular, the CAA § 112(d)(2) clearly anticipates using waste minimization approaches in setting MACT standards without excluding any emission sources from coverage. Moreover, the waste minimization incentives provided in the final rule are not mandatory. Finally, one commercial waste management company commented that commercial companies could work with their generator customers to reduce combustion feedstreams and believe pollution prevention incentives in a rule would promote this.

WM1.066(commenter 170)
1. EPA is being driven from the top to make hazardous waste combustion a more expensive and less attractive option in a misdirected attempt to force U.S. industry to reduce its generation of hazardous waste ("waste minimization" or "source reduction"); and

Response:
The CAA, RCRA and the Pollution Prevention Act of 1990 clearly state that waste minimization/pollution prevention are preferable over all other environmental management techniques, and do not direct the agency to make hazardous waste combustion more expensive in order to reduce waste generation. EPA believes that the fast track rule provides strong voluntary incentives to accomplish this goal.

X.069.a(commenter 085)
X. IMPLICATIONS FOR EPA'S COMBUSTION STRATEGY The goal of the EPA's Combustion Strategy is source reduction and to "develop and impose implementable and rigorous state-of-the -art safety controls on hazardous waste combustion facilities by using the

best available technologies" and to ensure that "combustion facilities do not pose an unacceptable risk. and use the full extent of legal authorities in permitting and enforcement" (18). Despite this commitment. the Agency has stalled in implementing these goals.... Finally, in addressing pollution prevention. EPA has proposed to put the cart before the horse. EPA has suggested that pollution prevention planning, waste minimization, and reporting requirements become part of the RCRA permitting process. However. the RCRA permit process has come to a near standstill and it is inappropriate to burden this nearly-dead program with yet another requirement. Given that some interim status facilities have been "pursuing" a RCRA permit for a decade while burning hazardous waste and some have even gone out of business before obtaining one, attaching pollution prevention initiatives to, RCRA would be like attaching an anchor to a kite. Pollution prevention planning. waste minimization. and reporting requirements need to be addressed now, separately, up-front. It is EPA policy that the front-of-the-pipe pollution prevention which promotes reduction, reuse, and material recovery of wastes be made a priority.

Response:

EPA agrees that pollution prevention is the highest priority option for reducing the environmental impacts of pollution, agrees with commenters recommendation to promulgate incentives quickly. The Agency notes, however, that the permits affected by this rule are CAA, rather than RCRA, permits.

4. ROLES OF WASTE MINIMIZATION/POLLUTION PREVENTION & COMBUSTION IN ENVIRONMENTAL MANAGEMENT

WM1.024(commenter 139)

This MACT standard appears to intend to force on-site hazardous waste incineration facilities to implement aggressive waste minimization programs to eliminate solid waste generation from manufacturing operations, and therefore eliminate the use of incineration facilities. EPA is ignoring fundamental chemical thermodynamic and kinetic science that dictates the formation of undesirable waste products through uncontrollable side reactions. Waste minimization is an important and effective tool to reduce wastes and increase profits, and we believe that our

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waste minimization efforts are zealous and effective. However, while the formation of undesirable by-products can be minimized, they can never be eliminated and there is and will be a need for treatment. EPA, in this proposed set of regulations, provides no RCRA relief for facilities that wish to minimize waste by treatment and recovery of energy. Further, when FCC's waste minimization and incineration efforts for K104 and K083 are combined, less than one (1) pound of hazardous waste is released per million pounds of wastes generated. If on-site incineration was not available as a cost effective treatment option, significantly more wastes would be released to the environment.

Response:
EPA agrees that the generation of wastes can be minimized but not eliminated. This rule provides incentives for facilities to identify and implement waste minimization opportunities; the rule does not force facilities to “eliminate the use of incineration facilities.” EPA does, however, encourage companies to carefully review pollution prevention options for their operations, since these can provide economic as well as environmental benefits. EPA agrees that incineration is an important treatment technique, and EPA does not believe that the MACT rule eliminates incineration as a treatment option. EPA does not consider treatment of waste, even for energy recovery, waste minimization [40 CFR 261.1].

WM1.031.a (commenter 192)
Other comments on Part One Section II. Relationship of The fast track Proposal to EPA's Waste Minimization National Plan EPA says in the proposal, that a "preliminary analyses of Toxics Release Inventory and hazardous waste stream data indicate that over 3 million pounds of hazardous metals are contained in waste streams being combusted; and that the top 5 ranking metals (with respect to health risk considering persistence, bioaccumulation, and toxicity) are mercury, cadmium, lead, copper, and selenium". EPA paints a picture that these metals are being released to the environment. EPA does not explain its point and leaves the reader wondering what's happening to these metals. Metals are typically found in coal and maybe in other fuels. Further EPA does not address the fact that control equipment is available for controlling these emissions. Clarification on this is suggested.

Response:
This has been clarified in the rule.

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WM2.042.b(commenter 136)
Ensure that waste feed limits for offsite sources reflect EPA waste minimization/combustion/LDR dilution policies....

Response:
The fast track rule does not address feed limits. This comment is deferred to the MACT standards rule.

WM3.049(commenter 124)
7.Arguments and statements made by stakeholders at different junctions of the hazardous waste combustion emissions rulemaking process have called into question the role (relative to EPA's waste management hierarchy) of hazardous waste combustion units. For example, as summarized on page 10 of an EPA document entitled Summary of Roundtable on Hazardous Waste Min and Combustion, "[several members of the audience asserted that the continued identification of sites for incinerators seems contrary to efforts to achieve successful waste reduction. Concern was expressed about EPA's failure to curtail further permitting of toxic waste incinerators for additional capacity." DOE shares other stakeholders' interest in focusing efforts and limited resources on the top of the hierarchy (e.g., source reduction). Some wastes, however, do not lend themselves to such waste minimization opportunities. Techniques responsible for waste minimization (e.g., materials substitution; performing as much work as possible outside of radiologically-controlled areas; and recycle/reuse) are generally not applicable to "legacy waste"; that is, waste currently in inventory and resulting from DOE's former nuclear weapons production operations. Legacy wastes also may include mixed and radioactive wastes in storage and wastes that will be generated in the course of performing environmental restoration and facility decommissioning operations. DOE approximates that 200,000 cubic meters of low-level mixed waste [5] (LLMW) and 69,000 cubic meters of nonwastewater hazardous waste are expected to be generated/managed by DOE over the next 20 years [6]. [Footnote 5 LLMW contains both a RCRA classified hazardous waste component and a radioactive component.] [Footnote 6 DOE, August 1995. Draft Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste: Summary, DOE/EIS 0200, Office of Environmental Management, Washington, D.C.] DOE also

points out that incineration is an effective protective, and in certain instances, required treatment technology. As EPA acknowledges in its final Strategy [7], "...of the limited alternative treatment technologies commercially available today or..over the next 5-10 years, none have been shown ... comparable to combustion..." In addition, for many nonwastewaters, EPA has determined that combustion (i.e., incineration and fuel substitution) qualifies as the best demonstrated available technology (BDAT) under EPA's land disposal restriction (LDR) program. For example, in the September 19, 1994, Federal Register (59 FR 47980), EPA discusses the universal treatment standards (UTS) that must be achieved under LDR for organic nonwastewaters. Specifically, EPA states that "[u]nder UTS, organic nonwastewater standards are based on and achievable by combustion" (59 FR 47990). Furthermore, based on a cursory review of the table found in 40 CFR 268.40 ("Treatment Standards for Hazardous Wastes"), it appears that EPA explicitly specifies "INCIN " or "CMBST" technology codes for more than 180 separate waste codes (both wastewater and nonwastewater forms). When EPA specifies a treatment method as the treatment standard, the waste must be subjected to that treatment before it can be viewed as having met the LDR treatment standard. [Footnote 7 EPA, November 1994. Strategy for Hazardous Waste Minimization and Combustion, page 13, EPA/530-R-94-044, U.S. Environmental Protection Agency, Washington, D.C.] Relative to DOE hazardous and radioactive mixed wastes, DOE Savannah River Site (SRS) studied alternative technologies in 1993 to determine if DOE's Consolidated Incineration Facility (CIF) processes (rotary kiln incineration, neutralization, and solidification) were the best available technologies for site-related hazardous and low-level mixed waste streams. The study found that some commercially available alternative technologies were feasible for treating aqueous wastes contaminated with metals and radio nuclides, or some solid mixed wastes. Because SRS projected waste streams are almost entirely either solid or organic liquid wastes, alternative technologies (i.e., other than thermal treatment) can only treat a maximum of about 8 percent by weight of these wastes. Aqueous wastes would require wastewater treatment and precipitation, while treatment of the solid wastes would probably require acid digestion, wastewater treatment, and precipitation. The other 92 percent of the hazardous and mixed wastes which are organic liquids would still require some type of thermal treatment.

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Incineration is also the preferred treatment option for SRS low-level radioactive waste which does not contain a hazardous component. The alternative treatment option, shredding and compaction, achieves a volume reduction of 10:1, while incineration achieves a 20:1 reduction. In addition, the final waste form resulting from incineration of low-level waste, blowdown, and ash stabilized in concrete, is more resistant to leaching of radio nuclides and metals. In summary, DOE feels that incineration plays and will continue to play an integral role in the waste management hierarchy due to the following: (1) its ability to achieve permanent reductions in waste volume, toxicity, and/or mobility; (2) its ability to treat or manage organic fluids, solids, and sludges; (3) its timely (albeit limited) availability; and (4) the diminished risks posed by residuals from the process or from long term management. Furthermore, DOE feels incineration is a necessary technology for addressing legacy wastes and wastes generated during environmental restoration, neither of which are amenable to source reduction. Finally, in certain instances (e.g., to meet the LDR treatment standards for certain nonwastewater organics), incineration is required to achieve regulatory compliance. DOE feels that these points need to be acknowledged by EPA.

<u>Response:</u>
EPA agrees that incineration will play an integral role in the waste management hierarchy, but EPA continues to assert that waste minimization is preferable to incineration. EPA agrees that legacy wastes and wastes generated during environmental restoration may not be very amenable to source reduction. Finally, EPA agrees that incineration may be necessary to achieve regulatory compliance in certain instances.

WM1.067(commenter 170)
Under the new Draft Combustion Strategy, the Administrator purported to justify more stringent standards for cement kilns and more restraints on waste combustion because such combustion could conflict with the new "waste minimization" or "source reduction" goals over explicit fundamental RCRA requirements. Administrator Browner's Draft Combustion Strategy documents show this quite vividly. As the very first of five listed goals to guide "EPA's future action," Administrator Browner set forth the following: To establish a strong preference for source reduction over waste management, and thereby reduce the long-term demand for combustion and other waste management

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facilities. Environmental Fact Sheet: Source Reduction and Combustion of Hazardous Waste, accompanying Browner's press release and press statement of May 18, 1993. In other words, under the Draft Combustion Strategy, EPA attempted to force industrial facilities to curtail their generation of combustible hazardous wastes. As explained below, she simply had no statutory authority to attempt this. Thus, through her Draft Combustion Strategy, she attempted to place additional impediments on the availability of waste combustion capacity. If such capacity is reduced, so the theory goes, then industrial facilities will be forced to curtail their waste generation because their legal outlets for the safe disposal or treatment of such wastes will be severely restricted. The Administrator's motives in this regard were quite explicit. For instance, her Draft Combustion Strategy provides: "[W]e should broaden our approach to include consideration of how an aggressive source reduction program should factor into a national policy on the permitting of hazardous waste combustion facilities."

Response:
The EPA believes the commenter’s statements fail to consider that the CAA, RCRA and the Pollution Prevention Act all establish policies that encourage pollution prevention over other forms of waste management. EPA today is promulgating voluntary incentives for waste minimization that are consistent with the intent of the CAA.

5. INCENTIVES FOR & IMPORTANCE OF POLLUTION PREVENTION

WM1.014.a(commenter 124)
SPECIFIC COMMENTS 1.BACKGROUND I.II. Achieving Waste Minimization National Plan (WMNP) Goals. Both the RCRA and the Pollution Prevention Act (PPA) encourage pollution prevention at the source. In addition Section 112(d)(2) of the CAA identities pollution prevention as a means of meeting MACT standards. In the proposed rule, EPA recognizes the significance of pollution prevention and waste minimization and discusses the relationship between the proposed rule and the WMNP goals of reducing persistent, bioaccumulative, and toxic constituents in hazardous waste nationally by 25 percent by the year 2000, and by 50 percent by the year 2005 (61 FR 17361). DOE fully supports and is committed to assisting EPA (and the nation) in realizing the goals of reducing persistent, bioaccumulative, and toxic constituents in hazardous waste nationally by 25 percent by the

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year 2000, and by 50 percent by the year 2005. Since DOE voluntarily initiated efforts to reduce the amount of complex-generated waste, great strides have been realized in areas such as material substitution; increasing the accuracy and timing of processes and reagent conditions to minimize excess reagent usage, process volumes, and, in some cases, worker hazards; the recovery, recycle, and reuse of equipment, reagents, or reaction by-products; and novel unit processes, among others [8]. [Footnote 8 See, for example: DOE, 1992. Department of Energy Defense Programs Integrated Contractors "Waste Minimization Program Accomplishments, " Fiscal Years 1990, 91, & 92, Return on Investment Document; Los Alamos National Laboratory, Los Alamos, NM] DOE appreciates the flexibility allowed in the WMNP for individual generators to select a base year for measuring their progress against their own goals and the national goal, to account for reduction they have already achieved [9].

Response:
EPA appreciates DOE's support for the Waste Minimization National Plan reduction goals for PBT constituents in hazardous waste, as well as the opportunity to work closely with DOE in pursuing this goal.

WM1.018(commenter 136)
Whether or not these particular recommendations are adopted, EPA must review and modify the proposal with an eye toward accomplishing the very pollution prevention/waste minimization/combustion strategy objectives the Congress and the Agency developed during recent years. Unless EPA undertakes this effort, the objectives will not be realized, because the regulated community will have already committed their resources and attention in a different direction.

Response:
EPA agrees that it is extremely important for facilities to review the long-term implications of pollution prevention versus pollution control choices before making their investment decisions. EPA believes that the fast track rule encourages facilities to undertake such a review, and that the rule reflects Congress' and EPA's pollution prevention/waste minimization objectives.

WM1.019(commenter 136)

THE NEED FOR AND IMPORTANCE OF POLLUTION of pollutants after they have been generated. In contrast, the advantages of pollution prevention/waste minimization include: increasing the efficiency of raw materials use; reducing the potential liability of generators; reducing accidents in the transportation of the waste; reducing leakage of waste at the locations of production, storage, transportation, and disposal; reducing worker exposure to hazardous materials; and reducing the presence of such materials in consumer products. The elimination of tons of pollutant discharges can also be combined with cost savings estimated from the cost of pollution control facilities not built; reduced operating costs for pollution control facilities; reduced manufacturing costs; and retained sales of products that might otherwise have been taken off the market as environmentally unacceptable. In addition, pollution prevention minimizes the potential for cross-media transfers of contaminants sometimes associated with engineering controls and lessens the impact of releases from accidents and abnormal operating conditions. Because of these clear benefits, federal environmental programs have been following the trend in the past decade of shifting the focus from end-of-the-pipe regulation to pollution prevention. This shift may be seen in legislative developments including the certification and land-ban requirements in RCRA, the Toxic Release Inventory (TRI) of the Emergency Planning and Community Right-to-Know Act (EPCRA), and the enactment of the Pollution Prevention Act (PPA). EPA has also expressed a firm belief that waste minimization will provide additional environmental improvements over 'end of pipe' control practices, often with the added benefit of cost savings to generators of hazardous waste and reduced levels of treatment, storage and disposal. With the passage of the Hazardous and Solid Waste Amendments (HSWA) in 1984, Congress declared that the reduction or elimination of hazardous waste generation at the source should take priority over the management of hazardous wastes after they are generated. In particular, through Section 1003(b) of RCRA, Congress declared it to be the national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment. In this declaration, Congress established a clear national priority for eliminating or reducing the generation of hazardous wastes. At the same time, however, the

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national policy recognized that some wastes will "nevertheless" be generated, and such wastes should be managed in a way that "minimizes" present and future threat to human health and the environment. Building upon the policy in RCRA, Congress enacted the PPA in 1990. Under the Pollution Prevention Act, Congress set up a hierarchy of management options in descending order of preference: prevention, environmentally sound recycling, environmentally sound treatment, and environmentally sound disposal. Pollution prevention was deemed best accomplished through source reduction.[1] [Footnote 1: Source reduction, is defined in section 6603(5)(A) of the Pollution Prevention Act, 42 U.S.C. 13102(5)(a), as any practice which (I) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and (ii) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.] B. National Policy as Embodied in the Pollution Prevention Act, the Resource Conservation and Recovery Act, and the Clean Air Act As discussed above, RCRA embraces the pollution prevention ethic in a general way by declaring it to be "the national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible". Moreover, in section 1003(a)(6) of RCRA, Congress declares an objective of RCRA is the promotion of the protection of health and the environment and the conservation of valuable material and energy resources. The means to achieve this objective is minimizing the generation of hazardous waste and the land disposal of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling and reuse, and treatment." To help achieve the pollution prevention objective, Congress included several certification requirements to promote pollution prevention for hazardous waste. On each manifest accompanying a waste shipment, RCRA requires generators to certify that the generator "has a program in place to reduce the volume or quantity and toxicity of their waste and that the proposed method of treatment, storage or disposal be one that minimizes present and future threat to the

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environment." Similarly, before issuance of a permit to a treatment, storage or disposal facility, the facility, must certify the existence of a waste-minimization program and the sufficiency of treatment, storage or disposal methods to protect present and future human health and the environment." [2] [Footnote 2: RCRA Section 3005(h), 42 USC Section 6925(h) (1988 and Supp. 1993).] In the PPA, Congress declared that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. [3] [Footnote 3: PPA section 6602(b), 42 U.S.C. section 13,101(b) (1988 & Supp. V 1993).] The importance of the PPA in the instant rulemaking is two-fold: the relevant Congressional findings in Section 6602 regarding the need for pollution prevention, and the mandate for EPA action in Section 6604. In Section 6602 of the Pollution Prevention Act, Congress found that there are significant opportunities for industry to reduce or prevent pollution at the source through cost-effective changes in production, operation, and raw materials use. Also, the opportunities for source reduction are often not realized because existing regulations, and the industrial resources they require for compliance, focus on treatment and disposal, rather than on source reduction. [4] [Footnote 4: Pollution Prevention Act, Section 6602(a)(3) and (4).] Based on these findings, the Pollution Prevention Act mandates the following actions on the part of the EPA Administrator: (1) establish standard methods of measurement of source reduction; (2) ensure that the Agency considers the effect of its existing and proposed programs on source reduction efforts and shall review regulations of the Agency prior and subsequent to their proposal to determine their effect on source reduction; ... (6) identify, where appropriate, measurable goals which reflect the policy of this chapter, the tasks necessary to achieve the goals, dates at which the principal tasks are to be accomplished...and the means by which progress in meeting the goals will be measured; ... (10) identify and make recommendations to Congress to eliminate barriers to source reduction including the use of incentives and disincentives. [5] [Footnote 5: Id. at Section 6604(b)(1)(2)(5) and (10).] Significantly, pollution prevention policies are also

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firmly embedded in the Clean Air Act (CAA). Section 101 of the CAA expressly provides that the purpose of the statute is air pollution "prevention" and control. In addition, Section 101 declares that: "A primary goal of this chapter is to encourage or otherwise promote reasonable Federal, State, and local governmental actions, consistent with the provisions of this chapter, for pollution prevention." In the MACT context, this goal is implemented through Sections 112(d) (2) and (3) of the CAA, which direct EPA to promulgate emission standards that apply measures, processes, methods, systems or techniques including, but not limited to, measures which - (A) reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications, (B)enclose systems or processes to eliminate emissions, (C)collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point, (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in subsection (h) of this section, or (E) are a combination of the above. Following passage of these statutes, over the course of several years, EPA developed a number of policies to implement these broad pollution prevention directives. C. EPA Combustion/Waste Minimization Policies 1. Waste Minimization National Plan Published in 1994, the Waste Minimization National Plan declares "The U.S. Environmental Protection Agency (EPA) is committed to making pollution prevention the guiding principle of the Agency's environmental efforts." [6] This commitment is reflected in the following three goals: 1.To reduce, as a nation, the amount and toxicity of the most persistent, bioaccumulative, and toxic constituents in hazardous wastes by 25 percent in the year 2000 and by 50 percent in the year 2005. 2.To avoid transferring these constituents across environmental media. 3.To ensure that these constituents are subject to continued source reduction improvement whenever possible, or, when not possible, that they are recycled in an environmentally sound manner. EPA pledged to promote the incorporation of waste minimization in its inspection, permit writing, and enforcement programs. [Footnote 6: United States EPA, The Waste Minimization National Plan, (November, 1994), p. ES-1.] 2. Strategy for Waste Minimization and Combustion In the "Strategy for Hazardous Waste Minimization and Combustion Policy Statement", also published in 1994, EPA addressed the integration of source reduction and environmentally sound recycling into the national hazardous waste management program, including the role of combustion facilities. One of the principal goals of the Strategy is to reinforce the strong preference for source reduction over hazardous waste management in order to reduce both the long-term demand for treatment, storage, and disposal capacity, and the quantities of persistent, bioaccumulative, and toxic constituents that need to be managed." [7] [Footnote 7: US EPA, Strategy for Hazardous Waste Minimization and Combustion, (November, 1994) p. 2.] Another goal is to maintain an "appropriate" role for combustion, and "... foster the commercial development and use of alternative treatment and other innovative technologies that are safe and effective in reducing the toxicity, volume, and/or mobility of RCRA industrial process and remediation wastes." [8] [Footnote 8: Id.] As part of defining the "appropriate" role for combustion, EPA began identifying priority hazardous constituents that should be diverted from combustion. 3. Setting Priorities for Hazardous Waste Minimization (July 1994) In July 1994, EPA published its first effort at targeting persistent, bioaccumulative, and toxic constituents that should be diverted from combustion. Because of their hazardous nature, EPA prioritized metals and halogenated organic wastes. Metals were identified because they are not destroyed in combustion, and some act as catalysts in the creation of dioxins. Halogenated organics were identified because of their persistence, relationship to dioxin formation, and linkage to depletion of stratospheric ozone. [9] [Footnote 9: Setting Priorities for Hazardous Waste Minimization, OSWER, July 1994, p. ES-6.] 4. Land Disposal Restrictions (LDR) Dilution Prohibition RCRA land-ban requirements prohibit designated wastes from land-disposal unless specified pretreatment requirements (Best Demonstrated Available Technology or BDAT) are deemed adequate to reduce mobility and toxicity of the waste such that the treated residual can be safely land disposed. [10] As a general matter, BDAT cannot be accomplished through dilution. Pursuant to 40 CFR 268.3, dilution is prohibited as a substitute for adequate treatment, to circumvent an effective date, or to otherwise avoid a land disposal prohibition. [Footnote 10: RCRA, Section 3004, (m) 42 USC Section 6924 (m) (1988 and Supp. V 1993).] On May 23, 1994, EPA clarified the application of the LDR prohibition on dilution to combustion of certain inorganic metal-bearing hazardous wastes. [11] In that directive, EPA

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identified listed and metal characteristic wastes which may be considered impermissibly diluted when combusted, since combustion is not typically adequate treatment for the wastes. [Footnote 11: Elliot Laws, Assistant Administrator, RCRA policy Statement: Clarification of the Land Disposal Restrictions: Dilution Prohibition and Combustion Inorganic Metal-Bearing Hazardous Wastes Combustion of Inorganic Metal-Bearing Hazardous Wastes, OSWER Directive 9551.01-01, (May 1994).] On April 8, 1996, EPA promulgated final rules essentially codifying the May 1994 dilution prohibition directive. As the Agency indicated when promulgating the rules, "... if combustion is allowed as a method to achieve a treatment standard for these wastes, metals in these wastes will be dispersed to the ambient air and will be diluted by being mixed in with combustion ash from other waste streams.... Simply meeting the numerical BDAT standards for the ash fails to account for metals in the original waste stream that were emitted to the air and for reductions achieved by dilution with other materials in the ash". [12] [Footnote 12: 61 FR 15587.]

Response:
EPA agrees with the commenter’s statutory references to pollution prevention, the summary of EPA priorities and national policies for pollution prevention/waste minimization, and the emphasis on the benefits of pollution prevention approaches. The Agency believes that the approach in this rulemaking provides an opportunity for facilities to utilize pollution prevention in achieving compliance with the requirements. The Agency’s approach is also consistent with the requirement for facilities issued RCRA permits for the “treatment, storage or disposal of hazardous waste on the premises where such waste was generated...” to certify the existence of “a program in place to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable...” and that “the proposed method of treatment, storage or disposal is that practicable method currently available to the generator which minimizes the present and future threat to human health and the environment.” [RCRA, section 3006(h)]. In providing increased time for facilities utilizing pollution prevention to achieve compliance with the rule, the Agency has provided an opportunity for facilities to invest in process changes and material substitutions as a more practicable means of achieving compliance with the standard -- an opportunity which the Agency is hopeful that many facilities will take.

WM1.020(commenter 136)
6. Economic Advantages of Pollution Prevention/Waste Minimization. Both EPA and industry case studies [87] have demonstrated that a substantial portion of combusted waste can

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be reduced through the application of waste minimization approaches, and waste minimization and pollution prevention yield economic and human health/environmental benefits. [Footnote 87: See, for example, EPA's Pollution Prevention Possibilities for Small and Medium-Sized Industries: Results of the WRITE Projects, May 1995; or Global Environmental Management Initiative's (GEMI's) Finding Cost-Effective Pollution Prevention Initiatives: Incorporating Environmental Costs into Business Decision Making, 1994.] In many instances, EPA has shown that implementing waste minimization measures not only lessen human health/environmental risk, but also save money. Unlike many traditional end-of-pipe treatment approaches, waste minimization opportunities/technologies offer significant potential for reducing manufacturing costs. For example, EPA estimates that up to 633,000 tons of waste - a significant portion of all combusted waste - may be amenable to waste minimization technologies/opportunities, resulting in an estimated industry cost savings of over $1.5 billion. [88] [Footnote 88: EPA offers these estimates in both the preamble to this rulemaking as well as in the Regulatory Impact Analysis (RIA) for this rulemaking. See March 30,1995 Memorandum, "Preliminary Assessment of Waste Minimization Potential for Combusted Wastes", from J. Strauss and P. Von Szilassy, Versar, Inc. to Lisa Harris, EPA OSW and Bob Black, EPA IEC. The Memorandum is included as Appendix C of the RlA for this rulemaking.] In the Regulatory Impact Analysis (RIA) for this rulemaking, EPA consultant Versar, Inc. (Versar) presents an analysis of potential pollution prevention and waste minimization opportunities/technologies that hazardous waste generators may pursue in response to this rulemaking. Versar assessed waste minimization opportunities in several industry sectors and identified the following waste generating processes as the most amenable to implementing waste minimization technologies/opportunities in response to this rulemaking: (1) solvent and product recovery/distillation, with an emphasis on the organic chemicals industry; (2) product processing wastes; and (3) process waste removal and cleaning. Versar identifies the organic chemicals industry as the source of approximately 40 percent of the 633,000 tons of combusted waste most amenable to waste minimization. Specifically, Versar cited solvent and product recovery/distillation and reduction of product processing wastes as excellent opportunities for waste minimization in this industry sector. Versar concluded that generators within the organic chemicals industry sector have practiced recovery/distillation for many years, but could consider the use of multi-stage stills as an additional waste minimization opportunity. Versar estimates that the installation of this technology would require an initial cost investment of approximately $60,000-$180,000, but would reduce total waste streams amenable to recovery/distillation by 75 percent, resulting in an estimated industry savings in combustion costs of $215,171,340. Versar also identified waste minimization opportunities for product processing wastes in the organic chemicals industry. [89] Versar views the primary waste minimization opportunities for these wastes as recovering product and rinsing wastewaters for reuse to the maximum extent possible. These waste minimization measures would include a combination of gravity settling, various stages of filtration, and installation of membrane technology at an estimated cost of $80,000-$300,0,00, and would achieve estimated hazardous waste reductions of 75 percent or higher, with a potential waste elimination of 187,000 tons, and resulting savings in combustion costs of more than $110 million. [Footnote 89: Product processing wastes are defined as wastes resulting from product rinsing, filtering, extraction, and forming, which usually consist of virgin product material mixed with a solvent or water as well as some solids.] Versar also identifies significant waste minimization opportunities for process waste removal and cleaning, with emphasis on the pesticides industry. The contractor identifies the pesticides industry as generating the majority of wastes generated from process waste removal and cleaning, [90] [Footnote 90: EPA notes that the wastes generated from this process usually are comprised of product and intermediates mixed with solid contaminants and water or solvent depending on the cleaning media.] and offers the following as potential waste minimization opportunities for this industry sector: - Product/rinse water/solids recovery through separation technologies and reuse; - Distillation or evaporation of solvent/water from waste product and reuse of product; - Improved process control through automation to reduce water generation; - Improved product management or schedule to reduce change-over; and - Reformulation of spent process materials into useful by-products. Versar concluded that implementation of these waste minimization measures in the pesticides industry alone could eliminate an estimated 42,140 tons, or approximately 20 percent of the total waste destined for combustion, at an

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estimated capital cost of $750,000. EPA estimates cost savings resulting from implementing these measures at $29,683,557. Numerous studies concur with EPA's findings about implementing waste minimization opportunities, and conclude that waste minimization technologies/opportunities save money while protecting human health and the environment. - For example, under Xerox's Waste Free Factory Initiative (WFF), Xerox hopes by 1997 to reduce 90% of each facility's hazardous waste, solid waste, and air emissions, while raising energy efficiency within 10% of the theoretical optimum. Last year, Xerox measured 63% of its facilities and concluded they were, about 70% of the way to meeting those goals. The WFF effort has saved the company close to $50 million since 1993. [91] [Footnote 91: See The Green Business Letter, June 1996 edition, as referenced in Greenwire, published by American Political Network Inc., June 19, 1996 edition.] - A New Jersey Department of Environmental Protection (DEP) review of the impact of the New Jersey Pollution Prevention Act concluded that the Act saved companies $5-8 for every dollar spent on pollution prevention. [92] [Footnote 92: See "Pollution Law Saves Money, Study Says, Renews Debate on Proposed Revision" in New Jersey Record, July 25, 1995, News section, p. A04.] - Another study conducted by the University of Michigan-Ann Arbor examined how 127 companies' pollution cutbacks in 1988 and 1989 affected their financial performance from 1988 to 1991, and concluded that most companies could reduce emissions by 70% before hitting a point of diminishing retums. [93] [Footnote 93: See "Maybe It Is Easy Being Green", in Business Week, February 13,1995, p. 80. This article references a study, which was conducted by Stuart L. Hart, director of the corporate environmental management program at the University of Michigan - Ann Arbor business school. The scope of Hart's study is 127 companies from the Standard and Poor 500-stock index. After accounting for variables such as R&D intensity and size, the study concluded that these companies' operating performance began to improve within the first year- and by the second year, pollution prevention was yielding return on equity as well. The study also notes that the biggest polluters tended to benefit the most, since they had more potential low-cost opportunities from the outset of the project.] Significantly, EPA may have underestimated the amount of combusted waste that could be reduced through the application of waste minimization technologies/opportunities. For example, EPA's estimates do not take into account any wastes that are

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currently combusted but could be processed instead by CEP. CEP
can be used to recycle a wide variety of wastes into useful
products, as noted by the Agency in the instant rulemaking. See
61 FR 17465. Recognized by EPA as a non-combustion technology
that is BDAT for many wastes, CEP can be used in applications
where it may receive wastes from multiple sources, even when
located at the site of and making product for one generator.
[94] [Footnote 94: "Adventures in Outsourcing", EI Digest, May

Response:
As indicated in the RIA, EPA agrees that there is significant opportunity for cost savings for some facilities with respect to wastes which are currently sent for combustion. EPA believes that its approach in this rulemaking provides companies both with the opportunity and the incentive to utilize source reduction approaches to avoid the need for management of the wastes that are generated. With respect to the specific opportunities available to a facility, through any appropriate technology, to minimize waste and achieve savings, each plant needs to determine the potential economic benefits of pollution prevention for itself, considering the specific operating characteristics and requirements of its own operations.

WM1.022(commenter 136)
V. RECOMMENDATIONS TO ENCOURAGE POLLUTION PREVENTION/ WASTE MINIMIZATION IN THIS RULEMAKING A three-pronged program for
encouraging pollution Prevention/Waste minimization in this
rulemaking is needed to ensure the objectives of the Clean Air
Act; RCRA; the Pollution Prevention Act; and EPA's waste
minimization, combustion, and LDR dilution policies are
realized.

Response:
EPA believes that the opportunity for an extended time period to identify and implement pollution prevention alternatives for achieving compliance with the requirements of this rulemaking provides the best approach to meeting the pollution prevention goals of all three acts within the context of the specific applicable MACT and RCRA requirements for this rulemaking.

WM1.023(commenter 136)
VI. CONCLUSION. EPA should fully utilize the opportunities
presented in this rulemaking to encourage pollution
prevention/waste minimization, because the decisions reached in
this rulemaking will profoundly affect EPA's ability to reach
its pollution prevention/waste minimization objectives for many

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years. These comments are intended to provide EPA with the analytical approach and tools necessary to realize such objectives in a timely and coordinated fashion. MMT's comments were prepared by a large number Of Company representatives. EPA personnel are encouraged to contact me at 617-487-7672 should questions regarding these comments arise. Thank you for your consideration of this document.

Response:
EPA agrees that this rulemaking should utilize the opportunities presented to encourage pollution prevention/waste minimization, and EPA believes that the final rule takes full advantage of this opportunity.

WM1.027(commenter 162)
We believe the best way to approach the revision of standards for waste combustors is to adhere to three main goals: 1) They, should encourage pollution prevention, 2) They should provide equal protection for all populations living downwind of these combustors - equal risk demands equal protection, and 3) They should provide the best public health protection based on current scientific knowledge of the risks of potential risks posed by the emissions and operation of all waste combustors.

Response:

EPA agrees with the commenters principles in a global sense. However, in the context of MACT standards under the CAA, EPA believes that the fast track rule provides the best combination of pollution prevention incentives for facilities to implement waste minimization/pollution prevention technologies to meet the MACT standards. In particular, the rule allows facilities to request a one year extension to the compliance period to enable the facility to implement waste minimization techniques instead of or in addition to control technologies. The rule also harnesses public pressure by promoting public comment and involvement through the Notice Intent to Comply (NIC) process, providing an opportunity for the public to encourage waste minimization as a facility’s choice to comply.

WM3.054.a(commenter 136)
G. Waste Combustion Data Demonstrates Need for Action in this Rulemaking. As documented by EPA and other sources, large quantities of routinely generated halogenated and metal-bearing wastes are burned each year. These wastes contain substantial concentrations of the persistent, bioaccumulative, and toxic

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compounds targeted by EPA in the waste minimization and combustion policies. Yet according to EPA's analysis, unless strong pollution prevention/waste minimization drivers are included in this rulemaking, only a small amount of these wastes will be diverted from combustion in the coming years, and the objectives of the waste minimization/combustion policies will not be realized.

Response:
EPA is strongly committed to waste minimization/pollution prevention as the preferred environmental management technique, and EPA believes that the fast track rule contains strong incentives for facilities to implement waste minimization/pollution prevention efforts as part of a their individual compliance approaches to the MACT standards.

WM3.054.e(commenter 136)
In this portion of the comments, the importance of promulgating pollution prevention/waste minimization drivers in the instant rulemaking, aspects of EPA's proposal requiring modification, and the shortcomings of option 2 are discussed. A recommendation summarizing some of the necessary modifications is included in Section V of the comments. 1. Institutional Obstacles to Pollution Prevention Must be Overcome Without drivers favoring pollution prevention and waste minimization in the instant rulemaking, only minimal progress in these areas will be made.

Response:
EPA agrees that pollution prevention/waste minimization drivers are needed to encourage facilities to implement waste minimization. It is important to encourage cross-fertilization of ideas between environmental and production staff, and to encourage facilities to track the costs of waste management back to the production operations from which they derive. EPA believes that the best way to achieve that objective is through the incentives created under this rule, rather than through a mandatory planning requirement for all facilities subject to the rule.

WM3.064(commenter 186)
If EPA is to protect the public's health from further exposure to these dangerous chemicals, it must adopt control strategies which emphasize pollution prevention and a materials policy that has a focus on product substitution, pollution prevention, and the phase out of chlorinated feedstocks.

Response:

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EPA agrees and believes the fast track rule provides strong adequate incentives for waste minimization/pollution prevention.

X.069.c(commenter 085)
According to a recent government report (***), large and small generators cite lack of technical information as impeding pollution prevention initiatives. Facilities also cited various factors which prevent recycling including insufficient capital available. unidentified markets, or "no limiting factor" indicating. perhaps. no sense of direction. Pollution prevention offers an avenue for cooperation between EPA as technical advisor. local banker as financial backers. local business as potential recyclers. the public as boosters of corporate interest in environmental protection, and industry as the catalyst for positive interaction.

<u>Response:</u>
EPA agrees that there is a significant opportunity for the Agency and/or the States to provide pollution prevention technical support to all the parties involved in funding and supporting manufacturing operations; the Agency is engaged in several efforts to work jointly with other parties to promote pollution prevention approaches.

GEN1.088.b(commenter 136)
As part of this effort, the Agency developed a combustion strategy and waste minimization plan to guide the hazardous waste management program over the next decade. The instant rulemaking presents the best opportunity for EPA to translate the broad pollution prevention/waste minimization/combustion strategy objectives into meaningful actions that will produce a tangible effect at the facility level. This rulemaking will establish the emission standards governing most hazardous waste combustion facilities for at least the next decade. In response to the final rules, generators and facility owners/operators will determine how they will allocate millions of dollars in capital expenditures to comply with the new rules, including whether and to what extent they will pursue pollution prevention/waste minimization options in lieu of combusting hazardous wastes. Therefore, through this rulemaking, EPA can create the incentives needed to encourage the exploration and implementation of pollution prevention/waste minimization opportunities. These comments principally assess

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> the merits of EPA's proposal in terms of how effectively it will encourage pollution prevention/waste minimization, consistent with statutory directives and EPA's relevant policies. As explained throughout the comments, the proposal will accomplish little in this regard as presently constructed, according to the Agency's own analyses. Much of the proposal was developed without regard to its consistency with pollution prevention/waste minimization statutory directives, policies or implications. In these comments, the various disconnects between the proposal and encouraging pollution prevention/waste minimization are discussed. Moreover, recommendations for creating the necessary incentives in the instant rulemaking are offered.

Response:
EPA agrees with the commenter’s focus on the significance of pollution prevention/waste minimization. However, EPA disagrees that the Agency’s approach is not consistent with this direction. As discussed in detail in the fast track preamble, the option for sources to request additional time to use pollution prevention/waste minimization as part of their compliance strategy should provide a significant incentive for facilities to pursue pollution prevention options in their investment and compliance evaluations.

6. WASTE MINIMIZATION EXTENSION REQUESTS & PUBLIC REVIEW

WM2.042.c(commenter 136)
Use 40 CFR 268.5 as a model to administer the proposed one-year compliance extension for undertaking pollution prevention activities....

Response:
EPA agrees with the commenter’s intent of constructing a process for requesting and granting one year extensions. However, the Agency believes the factors for permitting agencies to consider contained in the fast track rule provides a more appropriate process that is tailored to the context of the MACT program and will achieve the same ends intended by the commenter. One of the elements in the process contained in 40 CFR 268.5 is public involvement. EPA agrees with the importance of public review and therefore is including public involvement NIC process, discussed in detail in the fast track preamble. The NIC is intended to hold the facility’s plans up to public scrutiny. The Agency will not formally review the submission. However, EPA believes that imposing this process on facilities will encourage facilities to undertake pollution prevention as part of their compliance strategy.

WM3.057.b(3)(commenter 136)

Ensure early and effective public involvement, and access to relevant information, in the pollution prevention/waste minimization plan review and evaluation process, including access to routine waste feed data.

Response:
EPA agrees and believes the fast track regulatory incentives and harnessing the power of public dialogue through the NIC process described in the fast track preamble will encourage companies to identify and install waste minimization/pollution prevention measures.

X.069.d(commenter 085)
Positive public participation in planning, strategy and setting goals for pollution prevention with local facilities could serve as a positive stage f or tougher RCRA and CAA permit processes which may ensue. * Our national goal should be to reduce. reuse. and recycle, obviating the need for any new facilities in future years. Public participation is a critical element for the success of any program which is designed to protect the public interest.

Response:
EPA agrees with the importance of public participation in promoting pollution prevention and includes this in the NIC process described in the fast track rule and preamble.

7. DEFINITION OF WASTE MINIMIZATION/POLLUTION PREVENTION

WM1.030(commenter 180)
I. DUPONT RECOMMENDS A BALANCE INTEGRATION OF THE EMISSIONS STANDARDS RULE AND VOLUNTARY EFFORTS UNDER THE WASTE MINIMIZATION NATIONAL PLAN TO BETTER ACHIEVE THE GOALS OF THE WASTE MINIMIZATION AND COMBUSTION STRATEGY. The EPA's April 19, 1996 hazardous waste combustor (HWC) rulemaking is part of the Agency's Waste Minimization and Combustion Strategy. DuPont understands that the goals of the Strategy include ensuring safe combustion and promoting waste minimization and pollution prevention. The rulemaking proposes a set of MACT technical emission standards for HWCs, including beyond the floor controls for several parameters, and an exhaustive set of requirements for implementing these standards. The Agency is pursuing implementation of the Waste Minimization National Plan in a largely separate effort. The Waste Minimization National Plan

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calls for reducing the amount of target persistent, bioaccumulative, and toxic compounds in hazardous waste feeds to HWCs. The Agency can achieve the goals of the Waste Minimization and Combustion Strategy in a "smarter, cheaper, and cleaner" fashion by setting the final rule's MACT emission standards for all emission parameters at the MACT floor and using the sort of voluntary approach outlined in the Waste Minimization National Plan to encourage annual emissions reductions comparable to what would be achieved by beyond the floor controls. First, the Agency should set MACT regulatory emissions standards at the MACT floor to ensure baseline protectiveness and thereby safe combustion. Second, the Agency should focus the 25% and 50% reduction goals in the Waste Minimization National Plan on annual stack mass emissions of target persistent, bioaccumulative, and toxic compounds (e.g., dioxin, mercury, lead, and cadmium). Such re-focusing of the Waste Minimization National Plan reduction goals to annual stack emissions (rather than HWC waste feeds) would, on an overall mass basis, drive voluntary emissions reductions below the regulatory standards and properly integrate this rulemaking with the Agency's efforts to foster pollution prevention. Adopting this balanced and integrated approach to emissions standard rulemaking and additional voluntary emissions reduction will be more cost-effective and, in the long run, likely lead to lower total annual emissions of priority compounds than would be achieved by a traditional regulatory scheme.

<u>Response:</u>
The fast track rule does not address standard setting. This comment is deferred to the future MACT standard rule.

WM1.035(commenter 212)
If EPA's proposed rule would have the effect of shifting the energy bearing hazardous wastes generated by our economy to commercial incineration from cement kilns, then for every 250 gallons of hazardous waste shifted, EPA will be responsible for increasing overall emissions of S02 and NO. For the approximately 400 million gallons of energy bearing hazardous waste combusted in Lafarge cement kilns 60,000 tons Of S02 and 10,000 tons of NO, emissions have not been emitted into the environment. EPA should not only recognize this as pollution prevention it should encourage the proper use of cement kilns as

combustors of hazardous waste.

Response:
EPA disagrees with part of the commenter's statement. Rather than shift hazardous wastes burned as fuel to commercial incinerators, the fast track rule contains flexibility for facilities to burn wastes that are comparable to virgin fuel. Notwithstanding this additional flexibility regarding burning for energy recovery, this activity is not considered pollution prevention in the CAA, the PPA or RCRA.

8. OTHER

Legacy Wastes

WM1.014.b(commenter 124)
For the purpose of measuring progress, DOE believes EPA should clarify in the proposed rulemaking that while it may be feasible to achieve these goals for wastes that are still being generated, some wastes [e.g., DOE "legacy wastes" resulting from former nuclear weapons manufacturing operations, wastes that will be generated in the course of environmental restoration and facility decommissioning operations, and radioactive mixed waste (RMW) already in storage] do not lend themselves to waste minimization. Although mentioned in a different context, EPA recognizes that waste minimization efforts must focus on wastes routinely generated and identifies certain wastes that do not lend themselves to source reduction and environmentally sound recycling (see page 24 of the Draft Methodology [10]). Specifically, EPA identifies a group of waste that should not be the focus of waste minimization opportunity assessments. This group includes the following non-routinely generated or previously counted wastes: remediation waste spill cleanup, equipment decommissioning, and other remedial activity waste; and residuals from on-site treatment, disposal, and recycling. [Footnote 9 EPA, 1994. The Hazardous Waste Minimization National Plan page 3, footnote 4, EPA530-R-94-045, Office of Solid Waste and Emergency Response, Washington, DC.] [Footnote 10 EPA, 1994. Setting Priorities for Hazardous Waste Minimization, EPA530-R-94-015, Office of Solid Waste and Emergency Response, Washington, DC.] DOE suggests that EPA incorporate into this group those hazardous wastes (including radioactive waste and RMW) that were placed in storage prior to initiation of a generator's documented waste minimization program (i.e., a generator's baseline year).

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Although independent of this rulemaking, DOE further requests that EPA consider incorporating the full list of non-routine/previously counted wastes into the final Waste Minimization Program in Place guidelines as wastes that need not be counted toward generator totals when measuring their waste minimization progress.

Response:
EPA agrees that wastes already generated can not be then source reduced. However, since this is common knowledge, EPA does not believe that this needs clarification in the final rule.

WM3.047(commenter 116)
Medusa Corporation and the cement industry are strong proponents of economic waste minimization. As mentioned above, the cement industry plays an active role in sound recycling practices such as using fly ash or foundry sand as a raw material substitute or used oils, tires or hazardous waste as a supplemental fuel to replace coal or other nonrenewable fossil fuels. Waste minimization in the cement industry is further discussed in a brochure entitled "Putting Waste to Work - A Sensible Solution... Resource Recovery and recycling in cement manufacturing" by PCA (see Appendix A).

Response:
EPA encourages continued waste minimization efforts by the cement industry.

Small On-site

WM3.055.b(commenter 136)
Fourth, the small, onsite facility profile represents the optimal opportunity in this rulemaking for encouraging pollution prevention and waste minimization. As the Agency stressed in its recent pollution prevention handbook for RCRA permit writers, "Within the world of RCRA permits, non-commercial, onsite-TSDs at generating facilities... provide the best opportunities to make tradeoffs between pollution prevention and treatment.[110] [Footnote 110 See Pollution Prevention/Waste Minimization During RCRA Permit, inspection and Enforcement Activities: Revised Draft Handbook, March 25, 1996, p. 17] This generally applicable observation is confirmed by the record in. the instant rulemaking.

Response:
EPA agrees that more opportunities for waste minimization are available for on-site TSD units at generating facilities than commercial TSD facilities.

BIF Rule

WM3.057.d(commenter 136)
D. Application of Pollution Prevention Requirements to Onsite BIFs. While emission standards from onsite BIFs will be promulgated in a subsequent rulemaking, with a proposal anticipated by December 1998 (61 FR 17360), EPA should be concerned about the potential for diversion of wastes in the interim from combustors subject to the instant rules to the less regulated BIFS. The potential for such diversion is acknowledged by EPA in the RIA. RIA at 2-12. For this reason, the pollution prevention/waste minimization planning requirement should be extended immediately to such onsite sources. Moreover, there is no legal, technical, or policy reason for differentiating onsite BIFs from other onsite combustors as far as the need for and the substance of the planning exercise are concerned. Therefore, issuance of the planning requirement need not await publication of proposed emission standards. Indeed, for the same reasons the planning requirement should be fast-tracked in the instant rulemaking, the onsite BIF planning requirement would be more effective if promulgated in advance of the proposed emission standards.

Response:
EPA agrees that companies should consider pollution prevention/waste minimization for all on-site hazardous waste combustion facilities at the same time, since such opportunities all involve consideration of changes in the production processes and materials use. EPA does not believe that this requires change in timing of the BIF rule.

WM(commenter RCSP00__)
I believe the Agency could provide some "good actor" incentives for commercial TSDFs which make the effort to educate their customers regarding available waste minimization resources. Incentives might include reduced RCRA inspection frequency, reduced frequency of comprehensive and/or confirmatory performance testing (for facilities which have repeatedly shown they are in compliance with the MACT standards), etc.
I’ve given this issue some further thought, and think the Agency might also want to consider “good actor” incentives for on-site facilities which choose not to comply with the MACT and

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opt to cease burning hazardous waste early. Incentives for early closure might include reduced RCRA inspection frequency (if any RCRA operations continue), streamlined permit modification procedures (to remove the HWC from the permit), a letter of recognition of some sort by the EPA Administrator, etc.

Response:
EPA appreciates the “good actor” suggestions for promoting pollution prevention efforts by both commercial and on-site TSDFs. EPA believes commercial facilities are not discouraged from pursuing pollution prevention efforts under the fast track rule.

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Waste Minimization: May 2, 1997 NODA

NIC AND WASTE MINIMIZATION

NIC(commenter CS4A-00027)

The Proposed NIC Process May Be Useful Where Public Involvement Is Not Addressed By Other Means. Originally, a principal obstacle to timely compliance with the HWI MACT was the time required for modification of RCRA permits to enable construction of necessary APCDs or other equipment changes. The Agency recognized this in the NPRM, and laid out several options for expedited permit modifications. The Agency has further acted to minimize this type of delay by planning to finalize, on a "fast track" basis, the needed permit modification rules, so that states could get started adopting them. CMA commends EPA for taking these steps. The NODA indicates that the Agency has some concern that a more expedited permitting process may not, however, provide as much opportunity for public participation as the Class 3 mod. rules. The proposed NIC is EPA's response to that concern. CMA understands EPA's concern, and strongly supports public participation. We also support an approach that continues to implement MACT permitting through CAA Title V permitting, without reintroducing RCRA permitting complexities. We do not believe that NIC is the only means to accomplish that end, however.

1. The NIC Process Should Not Be Mandated. The proposed NIC represents an unprecedented extension of public participation beyond existing permit processes. Sources would be required to develop, disseminate, and submit detailed and ambiguous compliance plans under threat of enforcement penalties. As currently formulated, the draft NIC would require information "to provide enough detail so that the public can engage in a meaningful review of the facility's compliance strategy." 24242. Examples of such information include the types of control techniques considered and waste minimization or pollution control options evaluated. Although EPA has identified certain types of information that might be included in the final NIC, facilities would be required to make determinations regarding what information and comments must be included, as well as "significant changes" that require updating the NIC. These requirements would effectively require facilities to make regulatory determinations that are normally performed by regulatory agencies through generic rulemaking. And such determinations would have to be made on a case-by-case basis, subject to second guessing in an enforcement action subject to daily penalties. Developing NICs will divert resources from the numerous tasks required to install control equipment, to make process changes, to institute other waste minimization and pollution control strategies, and to comply with other notification and recordkeeping requirements. As EPA has recognized, official review and approval of NIC submissions could also slow down the rate at which regulators process Title V applications, as the authorities will be compelled, at a minimum, to track all facilities subject to the HWI MACT, to ensure that these facilities take the proper steps at the proper times and that their filings contain the requisite elements, and to take enforcement action whenever any of these things does not occur Moreover, mandating development and dissemination of draft NICs and submission of final NICs is unnecessary. The General Provisions for MACT standards already provide for an initial notification in

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Section 63.9(b). Under Section 63.6(I)(4)&(6), existing facilities that request a compliance extension must submit the request at least 12 months before the compliance date and must detail the air emission controls that will be installed and the schedule for installation and operation. Additional public notice of compliance strategies will be provided through Title V operating permit processes (as well as state new source preconstruction review permit processes), which require a statement "that the source will meet such requirements on a timely basis." 40 C.F.R. § 70.5(c)(8); see also id. § 70.7(h) (public participation requirements).

2. NICs Should Be An Option For Sources Without Comparable Mechanisms For Public Involvement. CMA strongly supports the Agency's performance-based statement that it "supports any process that promotes public notification and interaction with respect to a hazardous waste combustor's future operations." 24241 (emphasis added). Accordingly, we urge the Agency to finalize a more performance- based approach. Below we suggest the outlines of such an approach: As mentioned earlier, NIC seems to be motivated by concerns that public participation will not be provided adequately where permitting authorities do not employ the RCRA Class 3 permit modification process (or the major permit mod. process in states that have not adopted the current federal three-class system). At a minimum, therefore, EPA should clarify that neither NIC nor any other sort of additional public participation mechanism is required where a state does not adopt the expedited RCRA permit modification system that EPA plans to finalize shortly. Many combustion facilities already have effective public involvement/ community relations programs, due either to individual corporate decisions or to industry initiatives like Responsible Care. Under the latter, CMA's members routinely conduct informal public outreach via facility Community Advisory Panels and similar mechanisms. In cases where a facility is already meeting the intent of the NIC process, requiring compliance with NIC would be redundant. CMA therefore recommends that permitting authorities using the expedited permitting rules be given flexibility to determine what sorts of public involvement should be imposed in a given case.

The proposed NIC elements (modified as discussed below) should be finalized as guidance for such authorities. Under this approach, an individual source subject to the HWI MACT would, as part of its initial notification under 40 C.F.R. § 63.9(b), provide the permitting authority with a statement explaining how it intends to provide public involvement <u>comparable</u> to that specified by NIC. (Such notifications are due 120 days after the effective date of the rule.) The permitting authority would then have 90 days to determine if the submitted approach was sufficient or should be modified, or if the source should comply with NIC or an alternative state program. If a NIC approach is required, draft plans should be required to be submitted 90 days after do permitting authority's determination. The final plan should be submitted 270 days after the draft plan was submitted. If EPA finalizes the proposed NIC approach, at a minimum, it must allow more time for compliance. The timing for announcing availability of a draft plan (210 days from the effective date) and for submitting the final plan to the permitting authority (270 days from the effective date) is simply too short to provide adequate time to engage the public in a meaningful dialogue and review. In particular, the time between the announcement of the availability of the draft plan and submittal of the final plan (60 days) is not sufficient to educate both the public and the facility, to share ideas, to gain a mutual understanding of the issues and strategies, and to prepare a final report. Nine months is a more reasonable time period both for (1) preparation of the draft plan and (2) communication between the facility and the public and preparation of the final report. Accordingly, EPA should provide that the draft plan would be due 270 days after the effective date, and the final plan would be due 270 days after that (540 days after the effective date).

Whatever approach EPA chooses, it should also clarify that the approach should include a discussion between the facility and the permitting authority regarding exactly which RCRA permit provisions will disappear when MACT operating limits are defined by the CPT. See Part IV.C, below. If the Agency finalizes the proposed NIC, it should clarify that permitting authority review of the draft and final plans must be like the current RCRA generator certification that the generator has a waste min. plan in place: the duty to certify is clear, but the Agency and citizens essentially have to take the certification at face value unless it is clearly false. Any ability of regulators or citizens to look into details of what is certified will destroy any value of the NIC program, and will also tie up regulators' time, and will distract from important process of getting CPTs done and Title 17 permit issued or revised. This is especially, true of sources' explanations of whether they looked into waste minimization approaches. The Agency should clarify that "as appropriate" (p. 24242/1) means "where sources choose waste minimization approaches to compliance, or otherwise decide to explore such approaches." <u>EPA should not create an enforceable opportunity for anyone to compel sources to do so.</u>

<u>Response:</u>

Regarding waste minimization, EPA agrees with the commenter that the proposed NIC process may be useful, but disagrees that it should only apply to cases where public involvement mechanisms are not already addressed by other means, such as voluntary public participation initiatives. EPA believes that the early public notification and involvement embodied by the NIC process is appropriate and desirable, especially in regard to waste minimization/pollution prevention.

In regard to the statement that permitting authority review of the draft and final NIC plans should be like the current RCRA generator waste minimization certification, EPA reminds the commenter that, as stated in the NODA, EPA does not intend for this submission to undergo formal review by the regulatory agencies involved. The point of the NIC process is to promote public awareness, as well as discussion between a facility and its community. In terms of the level of detail the facility shares with its community, the NIC requires only that it is enough to provide meaningful dialogue. EPA does not believe that citizens' ability to look into some details of a facility's waste minimization and compliance strategies will, as the commenter claims, "destroy any value of the NIC program, and will also tie up regulators' time, and will distract (them) from important (tasks)." As mentioned above, regulators are not involved in NIC review, and the value of the NIC program *is* open dialogue and some sharing of details with affected communities.

The commenter expresses concern that the NIC includes waste minimization information "requirements" that create an enforceable opportunity for anyone to compel sources to undertake waste minimization where they have chosen not to use it as an approach to

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compliance. EPA emphasizes that this is not the case. Preparing a NIC is enforceable, but the specific contents of the NIC are not. Furthermore, facilities are not required to examine or implement any pollution prevention or waste minimization measures if they choose not to. The NIC requires a facility to present any such options that are explored in order to receive the benefit of public involvement.

NIC(commenter CS4A-00036)
NIC AS PROPOSED IS INADEQUATE WASTE MINIMIZATION AND COMPLIANCE TOOL. As proposed in the NODA, combustion facility owners/operators would be required to prepare a public regulatory notification of intent to comply (NIC) shortly after the final emission standards are promulgated. The NIC must include "what they have considered doing to meet the MACT standards, including waste minimization, and how they decided to proceed." See 62 FR 24248. In addition, the facility owner/operator would be required to hold an informal public meeting on the NIC. but regulatory agency review of the NIC is "neither mandated nor expected". Id. Therefore, the NIC can be expected to modify behavior only to the extent interaction with the public provides an indirect waste minimization incentive. As discussed further in Section II of these comments, the NIC mechanism is not a substitute for an effective waste minimization regulatory driver, because it is inadequate both procedurally and substantively. Particularly as proposed, NIC preparation is a pro forma exercise that has more to do with public relations than meaningful improvements in waste policy and practices. Regulatory agencies are completely removed from all aspects of NIC review, and whether and to what extent the ultimate mode of MACT compliance chosen by the facility owner/operator reflects either waste minimization or the wishes of the nearby community is purely a discretionary matter for the facility owner/operator. It is instructive that EPA's description of the NIC process involves a public meeting after the facility has already decided on its course of action. At best the result will be an extremely uneven emphasis on waste minimization in response to the MACT rule. notwithstanding the national policy objectives favoring waste minimization and pollution prevention embedded in RCRA, the Clean Air Act, and the Pollution Prevention Act. At worst, the NIC will accomplish nothing, because as proposed, the NIC will not even foster the "public dialogue" on waste minimization EPA seeks through the NODA. See 62 FR 24246. Insofar as federal and state regulatory bodies defer completely to the court of public opinion on matters related to pollution prevention and waste minimization, the public must be provided the information, time, and ability to influence corporate decision makers through public discourse.

In addition, the NIC rules must also be clear in their intent to empower the public in this regard, and specific as to content so the obligations can be enforced without agency intervention. As proposed, the NIC fails in both respects. First and foremost: the public is not provided access to routine waste feed data in conjunction with the NIC process or otherwise. Consequently, other than the summary information that may be provided in the NIC (see discussion below), the public cannot be assured access to the critical information necessary on waste types, characterization. and generation sources to engage in a meaningful dialogue

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with the combustion facility owner/operator regarding waste minimization priorities and options. The term dialogue connotes a two-way discussion, but EPA does not provide public access to the most basic of waste minimization information needed for a two-way discussion. Significantly, for many combustion sources, the routine waste feed information is not in the public domain. The data is collected for compliance purposes and maintained onsite, out of the reach of the federal Freedom of Information Act (FOIA) and comparable state laws. A graphic illustration of the lack of information on routine waste feeds can be found in the attached report. Notwithstanding the expenditure of substantial resources, SEA was not able to obtain comprehensive routine waste feed information on any cement kiln in EPA Regions III, IV, V, and VII, the Regions where cement kilns in the United States are located. In general, feed data were only available where EPA inspectors had sought such information, and even in those unusual instances, the information was extremely limited in duration or scope. A second graphic illustration of the lack of data access is the almost complete lack of routine waste feed data in the record of this rulemaking compiled thus far. When questioned on this point, EPA staff acknowledge such information is not readily available to Headquarters, because the Regions and states do not have the data that Headquarters can then utilize. This lack of public access to basic information necessary for both waste minimization and compliance purposes is precisely the problem with the existing implementation scheme identified by the EPA Permits Improvement Team. See 61 FR 21862 (May 19, 1996). Ironically, EPA would benefit from improved public access as well, since Headquarters apparently is unable or unwilling to obtain the information using its own information- gathering authorities.

Second, there is no specificity in the NODA as to NIC contents, particularly in the area of waste minimization options identified and considered. Only "general descriptions" of waste minimization techniques considered and the evaluation process used must be provided therefore the NODA fails to require any particular information on waste feeds: does not provide any guidance regarding goals, objectives or priorities regarding wastes or contaminants warranting waste minimization consideration; and does not specify the expected level of effort regarding waste minimization/pollution prevention information development and option consideration. See 62 FR 24242. This complete lack of specificity, if carried into the final rule, will fail to produce the initiation of the public dialogue EPA purportedly seeks through the NIC process, particularly since no regulatory agency review of the NIC is expected. For example, as proposed, the NIC may contain only a cursory discussion of available alternatives to combustion for the wastes currently burned, and little or no information on waste feeds. Since the public lacks access to routine waste feed data, the only recourse available to interested parties is to communicate the objection to the lack of information at the public meeting. The facility then records the objection, perhaps even provides a little additional information after the meeting when there is no subsequent opportunity for the public-to respond, and files the NIC with the regulatory agency. The public then communicates its frustration to regulatory officials, who even if inclined to review the NIC, cannot require anything more from the facility owner/operator because the NIC requirements are too vague to enforce. In the end, the NIC accomplished nothing, except to leave the impression that regulatory agencies are unable or unwilling to take even the most limited steps to reduce the types and quantities of wastes destined for combustion.

Other problems with the NIC as proposed include the public notification procedures, the public lack of review time, and the NIC modification procedures. As proposed, public notification of the NIC and the public meeting would be provided through radio broadcasts and a newspaper. However, interested members of the public would have a greater assurance of notification if, in addition to these mechanisms, they could request in advance that they be placed on a mailing list to receive the requisite notification. Mailing lists are a well recognized and efficient method for notifying the public, and should be included in the NIC notification procedures. Only 30 days are provided for the public to review the NIC and prepare comments for the public meeting. Since a substantial portion of these 30 days may be spent merely obtaining the necessary materials, (The NODA does not require the facility owner/operator to provide copies of the NIC or supporting materials upon request, not does it require that materials be place in a public repository) interested parties may wish to consult with technical and other experts, and preparation of meaningful comments may require substantial research and analysis. 30 days will prove insufficient except in the simplest of cases. A mechanism must be developed whereby all relevant information and additional preparation time will be provided upon reasonable request. Finally, EPA proposes to require NIC modification and a subsequent public interchange only where the change in facility compliance strategy would constitute a Class 2 or Class 3 permit change, as categorized in 40 CFR 270.42. See 62 FR 24242. In the case of combustion waste feeds, only increases which raise permit limits would qualify as a Class 2 or Class 3 modification triggering a revised NIC. Since in many cases, current regulatory limits do not significantly restrict metal and chlorine waste feeds (see attached report), and proposed MACT floor limits do not substantially alter this status quo) (see discussion below), linking NIC modifications to increases in permit limits could allow large increases in routine waste feeds of certain contaminants without any opportunity for the public to respond. If the NIC is intended to foster a public dialogue regarding waste minimization, any significant increases in routine waste feedrates of metals and chlorine warrants a NIC modification, regardless of the applicable permit limit.

In summary, the NIC is not an effective substitute for the proposed waste minimization planning requirement. Moreover, it will not even foster a public dialogue unless EPA's rules ensure routine waste feed data is publicly accessible, the contents of the NIC are specified in detail, and the public is provided sufficient notice and time to review and respond to the document.

Response:

EPA believes that the early public notification and involvement embodied by the NIC process is appropriate and desirable, especially in regard to waste minimization/pollution prevention. The Agency believes that an early dialogue between the public and the facility will encourage facility commitment to seeking waste minimization/P2 alternatives as part of their compliance strategies. While it is true that companies enter the NIC process, i.e, with a draft NIC and material presented at the public hearing, with selected possible routes for compliance, including any waste minimization/pollution prevention measures considered, it is hoped that

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public interaction may encourage facilities to either look for more meaningful reductions or, if they have not considered waste min./P2 effectively, to change their stance and move towards more committed waste min./P2 analyses. In short, EPA believes facilities will view the prospect of presenting a NIC that contains waste minimization more positively than the prospect of presenting a NIC that contains no waste minimization, and that facilities may alter their compliance strategies based on public input.

While regulators are not involved in NIC review, EPA believes the value of the NIC program is to foster open dialogue and some sharing of details on waste minimization/P2 and compliance strategies with a facility's affected community. EPA is also preparing guidance that explains the types of waste minimization information that would be helpful in preparing NICs and requests for a one-year extension. EPA is also recommending that facilities coordinate the development of their NIC with any subsequent request for a waste minimization one year extension. The guidance will outline possible levels of detail that could be included in the NIC and extension requests, including waste volumes, types, projected reductions, process-flowcharts, etc.

EPA does not believe that public access to all waste feed data is an effective approach to promote pollution prevention and waste minimization. The public already has access to useful waste generation data, as well as some emission and chemical release/transfer data, and waste reduction data in the RCRA Biennial Report and the Toxic Release Inventory. Moreover, in some states, facility waste minimization/P2 plans and progress reports are publicly available.

NIC(commenter CS4A-00044)

Public and Regulatory Notification of Intent to Comply The Public Notice and Regulatory Notification of Intent To Comply (NIC) has been described alternatively as a means to require an early end to waste burning at sources that will not comply with the standards, and a regulatory driver for waste minimization. [37] [Footnote 37: See NPRM, at 24246-48, 24241] In fact, it is neither.

1) The NIC Requirements Will Not Cause Non-Compliant Sources To Stop Burning Waste Earlier. The initial purpose of the NIC was to: identify the sources that will not comply with the final standards so that those sources could be forced to terminate waste burning activities as soon as possible following the effective date of the final HWC rule.[38] [Footnote 38: NODA, at 24241.] EPA, abandoned this goal however, because of its concern: that it is not feasible to use a submission that identifies only a facility's future "intentions" as the legal basis to force a facility to terminate waste burning activities before the statutorily based compliance period of three years.[39] [Footnote 39:Id.] EPA should explain its feasibility concerns in detail. It seems obvious that if a source does not intend to comply with the HWC rule, or does not know how it will do so, that source is very unlikely to achieve compliance. Under these circumstances, the source should stop burning hazardous waste as soon as possible. Legally, EPA has the authority to require sources to comply with the HWC rule at any time after the effective date of the rule. Indeed, the Clean Air Act directs EPA to require compliance "as expeditiously as possible" after the effective date.[40] [Footnote 40: Clean Air Act,

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112(i)(3)]. Therefore, it is reasonable for EPA to condition any extension of the compliance date past the effective date of the rule on a detailed submission by sources that explains exactly how they will comply. Since EPA intends to extend the compliance date all the way to the three year statutory maximum (and past it, as a practical matter), requiring sources to detail their compliance plans and submit those plans to public and regulatory approval is particularly appropriate. EPA's substitute goal for NIC, is "to promote public awareness as well as discussion between a facility and its community".[41] [Footnote 41: NODA, at 24241] Even if EPA had designed requirements that would provide for a meaningful public dialogue, this goal could hardly provide the same benefits to the public as an early end to waste burning at non-compliant sources and the careful and timely scrutiny of all compliance plans by regulatory authorities. Given the toothless public involvement requirements that the NODA actually contains, however, the new NIC is virtually meaningless.

First, to comply with the HWC rule sources could continue to emit excess toxics for more than three years after the effective date, stopping if and only if it were eventually discovered to be out of compliance. Neither the RCRA permitting process nor the Title V permitting process would necessarily provide a backstop for this inadequacy because <u>it is unclear that sources would have to apply for any type of permit before effective date of the rule or even before the final compliance date</u>.

Second, the NODA does not specify the quality of information that must be provided to the public. Who would decide what is "enough detail so that the public can engage in a meaningful review of the facility's compliance strategy"? [42] [Footnote 42: NODA, at 24242] It appears that the source itself would, since the NIC would not have to undergo regulatory review. This hardly provides a guarantee that the public will get adequate and timely information.

Third, if the public were dissatisfied with a source's compliance strategy, it would have little or no ability to change it. If compliance strategies had to undergo regulatory review in conjunction with public review, the public could point out flaws to the regulatory agencies and have some expectation that changes would be made. Because there will be no regulatory review, the public can only make their objections to the source (assuming that the public would have enough information to formulate an opinion), without any power to compel the source to consider those objections seriously.

2) The NIC Requirements Will Not Require Pollution Prevention or Waste Minimization. In the absence of direct pollution prevention/waste minimization requirements, EPA appears to rely on the NIC requirements to drive pollution prevention. Any such reliance is unreasonable. As noted above, the NIC requirements have evolved into a public relations exercise for sources rather than a requirement to provide the public with meaningful information or develop an effective compliance strategy. This applies especially to pollution prevention/waste minimization measures, because these measures are not required elsewhere in the NODA. Because the NODA requires no regulatory review of sources' NIC submissions, sources have complete discretion over the extent to which they include pollution prevention/waste minimization measures in their compliance strategies. The obligation to submit some information on these plans to the public, <u>after</u> a source has already chosen a compliance strategy, creates no additional incentive to include pollution prevention/waste

minimization measures. Indeed, because the public has no recourse by which to address bad compliance strategies anyway, even the complete absence of pollution prevention/waste minimization measures will not be affected by the NIC process.

3) The NIC Process Creates a False Impression of Public Participation and Regulatory Review. The NIC process will provide the appearance but not the substance of public participation and regulatory review of sources' compliance strategies. This creates the false impression that the public, directly and through its government representatives, understands sources' compliance strategies and approves them. In reality, the public will not be represented in this process; it will not have the opportunity to fully understand the compliance strategies of HWC; nor will not have the opportunity to effectively object when those strategies are inadequate. EPA should not create a false impression of public involvement. Where meaningful public involvement does not exist, it is better that this fact at least can be recognized.

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Response:

EPA believes that the early public notification and involvement embodied by the NIC process is appropriate and desirable. Especially in regard to waste minimization/pollution prevention, the Agency believes that an early dialogue between the public and the facility will encourage facility commitment to seeking waste minimization/P2 alternatives as part of their compliance strategies. We disagree with the commenter that "the NIC is virtually meaningless". EPA believes the NIC, taken together with the other regulatory incentives contained in the fast track rule, including the one-year compliance extension and the promulgation of the fast track rule several months ahead of the promulgation of the MACT standards and compliance period (which will provide facilities with valuable planning time), will encourage companies to identify and install waste minimization/pollution prevention measures.

The NIC process requires facilities to provide enough details to engage in meaningful public discussions. It is expected that facilities will provide enough detail to allow the public to frame significant questions. EPA is recommending that facilities prepare NIC information in coordination with the development of one year extension requests. EPA is developing guidance that outlines more concretely examples of pollution prevention and waste minimization information that could be included in NICs and requests for one year extension applications, including waste volumes, types, projected reductions, and process-flowcharts. EPA does not believe that public access to all waste feed data is an effective approach for promoting pollution prevention and waste minimization. In the numerous studies on barriers to pollution prevention and waste minimization in the environmental literature, public access to incinerator waste feed data has not been identified as an important factor. Therefore, it does not make sense to pursue this as a regulatory requirement in the instant rulemaking. Furthermore, some waste generation data and emission and chemical release and transfer data are already in the public domain, via the Biennial Report System and the Toxic Release Inventory. Moreover, in some states, facility waste minimization/ pollution prevention plans and progress reports are publicly available.

EPA does not believe the lack of regulatory review of NIC submissions will form a barrier to meaningful facility/community dialogue on waste minimization issues. And while it is true that the NIC does not require pollution prevention or waste minimization to be implemented, EPA believes the prospects of presenting a NIC that contains pollution prevention options is more desirable to companies than the prospect of presenting a NIC that does not contain pollution prevention options.

NIC(commenter CS4A-00058)

Public and Regulatory Notification of Intent to Comply (Part Three, Section IV.A). EPA is considering a notification requirement, called the Public and Regulatory Notification of Intent to Comply (PRNIC), that would involve the facility submission and public disclosure of a plan that relates to whether and how the facility intends to come into compliance with the final MACT standards. This would require sources to prepare a draft notification, announce the availability of the draft notification as well as a future informal public meeting to discuss the draft notification, hold an informal public meeting, submit the final notification to all appropriate regulatory agencies, and update the notification as necessary. The Agency intends that the information included in the draft notification "provide enough detail so that the public can engage in a meaningful review of the facility's compliance strategy." Air Products fully supports public participation and interaction in all of its manufacturing operations. CMA members, such as Air Products, actively promote public participation and interaction by routinely conducting informal public meetings via facility Community Advisory Panels and similar mechanisms. In our opinion, the proposed PRNIC represents a viable option for sources without comparable mechanisms for public involvement. However, for CMA member companies, the proposal creates an additional and redundant set of regulatory requirements. Developing PRNICs for a small on-site type facility like Air Products, which already has strong public participation activities, is redundant and will divert resources from the numerous tasks required to install control equipment, make process changes, institute other waste minimization and pollution control strategies, and comply with other notification and recordkeeping requirements of the proposed MACT rule.

Response:

EPA recognizes and applauds CMA members, such as Air Products, who actively promote public participation and interaction by routinely conducting informal public meetings via facility Community Advisory Panels and similar mechanisms. The Agency, however, does not agree that the proposed NIC creates an additional and redundant set of regulatory requirements, regarding waste minimization and pollution prevention. The Agency believes the commenter's existing process could be integrated with the NIC process and can enhance opportunities to promote waste minimization and pollution prevention alternatives.

NIC(commenter CS4A-00045)

Option 2 (NIC) discusses the requirement to provide information on waste minimization alternatives to reduce hazardous wastes entering combustion feed streams. EPA has already proposed to require a discussion of waste minimization in the Public and Regulatory

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Notification of Intent to Comply. Because there is much work to be done in evaluating compliance alternatives with this rule and a limited amount of time in which to implement compliance options, Eastman strongly objects to additional requirements for reporting with regard to waste minimization. Eastman does not believe that the result will be substantial innovation with regard to waste minimization.

Response:

EPA disagrees with the commenter that the NIC requires additional reporting requirements for pollution prevention and waste minimization. The NIC requires facilities to report any waste minimization alternatives considered. If none are considered then none need to be reported. In addition, permitting agencies will not conduct a formal review of the NIC. The Agency believes the NIC will provide an early dialogue between the public and the facility, and that facility will view the prospect of presenting a NIC that contains waste minimization and pollution prevention alternatives as more desirable than presenting a NIC that does not contain waste minimization and pollution prevention alternatives. Furthermore, EPA believes the NIC, taken together with the one-year compliance extension in addition to the several months of valuable planning time the fast track rule provides before the start of the MACT compliance period, provides a strong set of pollution prevention incentives for facilities that combust hazardous waste.

NIC(commenter CS4A-00068)

The rulemaking proposes to use "public dialogue to advance waste minimization efforts." We do not believe that "public dialogue" alone, as proposed in this Notice, will be sufficient to move industry toward pollution prevention. In particular, extending the compliance deadline, combined with the difficulty in communicating complex engineering issues to the public, may result in weak public support for pollution prevention compliance strategies. Furthermore, the possibility of public dialogue about facility processes may serve as a disincentive for facilities to choose pollution prevention compliance options.

More appropriate would be a requirement that facilities that propose in their "Public and Regulatory Notification of Intent to Comply (NIC)" a compliance strategy that does NOT include pollution prevention to justify the approach. Facilities should be required to describe what pollution prevention strategies have been previously implemented, and why further prevention is not feasible. This section concludes that "This approach will achieve many of the same ends more efficiently than a detailed and prescriptive mandatory waste minimization planning requirement." It is not clear that this proposed rulemaking will indeed encourage facilities to embrace pollution prevention as the primary route to compliance with the MACT standards. We are concerned that, while this strategy attempts to allow for facilities to comply with the proposed MACT via waste minimization, this will depend entirely on the facility's desire to implement pollution prevention. It appears that facilities that wish to comply via pollution prevention, or a combination of prevention and control, may incur more uncertainties, more oversight, and potentially endure a longer period of noncompliance with the MACT than facilities that simply comply via end-of-pipe technologies. We believe that

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a better approach would be to evaluate pollution prevention as a fundamental part of the MACT standards, using mandatory planning as the avenue for achieving the MACT, thereby removing much of the uncertainty for the facilities.

Response:
The Agency disagrees with the commenter's statements that the public dialogue about facility processes may serve as a disincentive for facilities to choose pollution prevention compliance options, that a better approach is to require facilities to justify why they have not explored pollution prevention (if, in fact, they have not done so), and that a better approach is for EPA to require mandatory pollution prevention planning for all facilities.

In the many studies in the environmental literature on barriers and incentives to pollution prevention and waste minimization, public involvement has not been identified as a significant impediment to pollution prevention. In fact, many companies emphasize that public involvement is a key to their corporate policy, and many publicly emphasize their pollution prevention accomplishments as a key element of their environmental strategies. The Agency believes that an early dialogue between the public and the facility in the instant rulemaking will enhance corporate commitments to waste minimization and pollution prevention as part of their compliance strategies

The commenter expresses concern that "while this strategy attempts to allow for facilities to comply with the proposed MACT standards via waste minimization, this will depend entirely on the facility's desire to implement pollution prevention." The commenter recommends that EPA should "evaluate pollution prevention as a fundamental part of the MACT standards and require mandatory pollution prevention planning as the avenue for achieving MACT, thereby removing much of the uncertainty for the future."

EPA has explored a variety of ways to remove barriers and provide incentives to pollution prevention and waste minimization. This effort began in 1993 with extensive outreach meetings to gather input from public stakeholders, including industry, states and citizen and environmental groups, on the best approach for accomplishing this objective. One of the consensus items reached in those meetings was that, in the context of potentially costly end-of-pipe waste treatment regulations, pollution prevention can be promoted most effectively by providing voluntary pollution prevention incentives in combination with the costly end-of-pipe control requirements.

It was also recognized in the public stakeholder meetings that pollution prevention solutions must be made by individual facilities on a case by case basis--they can rarely be mandated. The government's role is to remove barriers and provide incentives that help this to happen. In light of the broad variation in the types of facilities, complex production processes, waste types/volumes and waste constituents, and in light of the constrained compliance period during which facilities would need to accomplish all the pollution prevention and emission control tasks involved, EPA believes it is even more important for facilities to have the ability to determine whether they use pollution prevention in the MACT compliance scheme.

EPA proposed six alternatives for promoting pollution prevention which take into context the feedback from EPA's stakeholder meetings. EPA considered all the comments received in response to its proposals, and in the fast track rule, EPA is putting in place three incentives

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that, in balance, provide what the Agency believes will best promote pollution prevention for this regulated community. Since the fast track rule does not address setting MACT standards, the commenter's comment regarding evaluation of pollution prevention in setting MACT standards will be deferred until action is taken on the MACT standards rule.

NIC(commenter CS4A-00068)
On page 24248, the Notice states: "This [NIC] approach would harness the power of public opinion to urge facilities to consider waste minimization alternatives to end-of-pipe ways of meeting the MACT standards." While we believe that this approach would be aggressively used by the public when opposing the siting of a new combustion facility, we are skeptical that this will be an effective substitute for aggressive regulatory action.

<u>Response:</u>
EPA does not believe "aggressive regulatory action" is necessary or appropriate to promote waste minimization and pollution prevention in this rulemaking. EPA concludes that the best way to encourage the Agency's waste minimization objectives in the context of this rulemaking is through incentives, rather than through a mandatory requirements. Therefore, as explained in the fast track preamble, the Agency has decided not to promulgate either of the pollution prevention facility planning alternatives that were proposed. EPA is instead providing a time based compliance incentives, which respond to several state and industry comments, that allows facilities which make a decision to pursue pollution prevention as a part of their compliance strategy and to request a one year compliance extension to accomplish this objective.

NIC(no comment number)
Facilities should be required, in their "Public and Regulatory Notification of Intent to Comply (NIC)," to describe pollution prevention accomplishments. Facilities that intend to comply solely by improving combustion capacity should be required to demonstrate why further pollution prevention is not feasible to meet the MACT standards.

<u>Response:</u>
The NIC requires submission of information, including a description of any waste minimization and/or pollution control techniques considered, as well as an assessment of their effectiveness and a description of the evaluation process used to select the waste minimization and/or pollution control options. Since it is not likely that anyone outside the facility could ever second guess the technical and/or economic factors involved in process redesign and pollution prevention options explored by a facility, it makes no sense, then, to require a facility create paperwork that rationalizes why options were/were not selected. Nevertheless, EPA is developing guidance to assist facilities, permitting facilities and the public in addressing pollution prevention options in an organized way. EPA believes that the NIC

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process will harness public dialogue to explore just such issues, but does not think it would be productive to require a formal demonstration.

ONE-YEAR COMPLIANCE EXTENSION

WMPP(commenter CS4A-00020)
Laidlaw does not support the allowance of additional year to comply with the MACT standards in cases where facilities need additional time to identify and install waste minimization measures that would reduce hazardous wastes entering combustion units. We agree that stringent limits on pollution control devices can provide a strong incentives for companies to pursue less costly waste minimization measures. We do not understand why the Agency continually fails to realize that waste minimization is an economic issue. Even without a federal mandate to develop and implement waste minimization programs, companies would do so because it is in their best economic interest. EPA itself states: "Waste minimization measures can, in many cases, provide companies with a variety of benefits, including: improvements in production yields, reduced worker exposure, reduced waste volumes, reduced waste management costs, reduced liability, and reduced compliance burden. This reduces down into one factor: reduced operating costs. Over the last 10 years the commercial hazardous waste industry has contracted for this very reason. Waste management is expensive, and in order to be more competitive, generators have reduced the volume of waste produced in order to reduce costs. Federal mandates have had little to do with this especially since they have generally not been widely or uniformly enforced by EPA or the States on generators. We do not believe the argument that facilities need the additional time to implement waste minimization is compelling. The combustion MACT rules have been in development in one form or the other since the 1993, the Agency developed and implemented the CETRED program. Anyone involved in waste combustion knew that more stringent standards were inevitable and should have been thinking then about how reducing waste volumes would fit into their compliance strategy. In addition, the availability of this extension is limited, from a practical standpoint, to on-site combustors since commercial combustors have few direct opportunities to pursue waste minimization. In summary, Laidlaw opposes prescriptive mandatory waste minimization requirements and recommends that the Agency allow the forces of economics and the marketplace provide the needed incentive.

<u>Response:</u>
EPA agrees that facilities have had much time to consider waste minimization to reduce waste generation. Waste minimization is generally considered to be an ongoing process. However, the CAA clearly allows facilities to request a one-year extension to install controls, including pollution prevention and waste minimization technologies, to comply with MACT standards.

EPA clearly realizes in the proposed rule and the NODA that waste minimization is an economic issue. However, EPA also points out that there are numerous studies available that point to various regulatory impediments to pollution prevention that the government should

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reduce or remove, and there are various regulatory incentives that the government can provide to promote pollution prevention. The waste minimization incentives contained in the fast track fast-track rule embody the Agency's work on reducing regulatory impediments and providing regulatory incentives in the context of the instant MACT rulemaking.

WMPP(commenter CS4A-00027)

EPA should give a one year extension to all HWIs, not just those adopting waste minimization **approaches to compliance.** If it does not, EPA should clarify the enforcement status of facilities that have to abandon waste minimization strategies because they were unsuccessful. EPA Should Grant A One-Year Compliance Extension To All HWIs. CMA appreciates EPA's revised approaches to compliance demonstration timing, Pre-COCs and enforcement response. CMA also supports the proposed approach of granting a fourth year to facilities that choose a waste minimization approach to compliance. Each of these will improve the predicament in which many HWIs will find themselves in attempting to comply with the HWC MACT. Nonetheless, many other HWIs will still find themselves unable to comply within the statutory three year period. Waste minimization approaches simply are not feasible in all cases, and it may take more than four years to plan, design, test, and install air pollution control technology. Our NPRM comments documented this contention at 95-98. To supplement those comments, we have attached a timeline developed by a member company that illustrates the amount of time their engineers believe is necessary to upgrade three HWIs located at a single site. See Exhibit A. (Many of our members have multiple HWIs at a single facility.) This timeline estimates exactly three years, without any allowance for delays attributable to needed permit modifications. Any such delays would extend the compliance time into a fourth year, and some amount of permit delay seems unavoidable, even under the proposed expedited approach. CMA thus strongly urges EPA to grant an automatic one-year extension to all HWIs, and to provide for additional case-by-case extensions beyond four years without recourse to consent agreements or consent orders (discussed in Part III.D.6 below).

EPA Should Clarify The Enforcement Status Of Sources That Adopt Waste Minimization Approaches But Later Conclude They Are Inadequate. As EPA recognizes, short compliance deadlines are one of the most significant obstacles to successful source reduction and waste minimization. 24244. Under the proposed approach to compliance extensions, however, facilities may unintentionally be penalized for expending time and effort to evaluate alternative compliance strategies. This is because the substantial time and effort must be invested that will reduce the time available and divert the attention of personnel required to comply with standards through traditional installation of control technology. If alternatives ultimately are rejected, the facility may no longer be able to install controls within the three year compliance deadline (or four years if a compliance extension is granted). Worse yet, facilities might be denied a compliance extension because regulators believed the facilities were "able to comply" had they not undertaken the alternative strategy evaluations. Facilities cannot know in advance of expending significant time, effort, and capital whether alternative waste minimization strategies still be feasible and will meet EPA's criteria for approval and

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for compliance extensions. Such evaluations cannot, if performed appropriately, be conducted quickly. In many cases, it may take more than a year simply to perform "scoping analyses" that canvass alternatives but do not develop detailed plans for actually employing an alternative. Few facilities will meaningfully investigate alternative compliance strategies when such efforts may make subject them to the Hobson's choice of shutdown or risking civil and criminal penalties.

To truly encourage waste minimization approaches, EPA should provide in the final rule that, when the permitting authority agrees to a one-year extension of the compliance data for waste minimization purposes under Section 63.6(I), the authority should also make a finding that the proposed approach has been chosen in good faith, and with a reasonable expectation that it will be successful. It should further provide that, based on those findings, sources that subsequently discover that the proposed approach will not work will still have the full four-year period in which to comply using control devices. CMA doubts that sources would make spurious waste minimization claims merely to gain an extra year, since the expense of formulating and beginning to implement and test a waste min. approach would almost surely exceed the cost of delaying the installation of traditional controls. If the Agency felt some sort of precaution is necessary to prevent this from occurring, it could enable the permitting authority to require reasonable milestones within the four year period at which the ultimate viability of the waste minimization approach would need to be decided.

Response:

The fast track regulation allows any facility to request a one-year compliance extension to install control equipment that is necessary to comply with MACT standards. However, the CAA is explicit that facilities must request such an extension, and the Administrator or approved State program must review such requests on a case by case basis. Furthermore, the CAA contains no provision for the facilities subject to these MACT standards to receive more than a one year extension. In the fast track preamble, EPA encourages facilities who need longer than four years to install pollution prevention controls that yield significant environmental improvements to apply to the Project XL program.

Facilities that receive a one year extension to install pollution prevention measures and find they are in noncompliance because the pollution prevention measures fail to perform adequately should notify the Agency immediately to address the problem under the current audit and penalty policies.

EPA also acknowledges that one commercial hazardous waste facility stated that commercial facilities could reduce hazardous waste entering combustion feedstreams by working with their customers to implement waste minimization measures. Based on this input, EPA encourages commercial facilities to implement creative programs such as this one.

EPA also agrees with the commenter that companies should indicate and make known to the permitting agency reasonable milestones for installing pollution prevention or other control measures. The provisions for the NIC and requests for a one year extension require these milestones.

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WMPP(commenter CS4A-00035)
Although the ETC supports incentives to waste minimization and pollution prevention, we find many of the proposals in this section unacceptable. A company could hide behind a waste minimization plan for several years and delay implementation of MACT. During this delay in the name of waste minimization, the company would continue to be burning the waste, and emitting HAPs at levels that do not comply with the MACT emission standards. EPA's discussion at 62 FR 24244-46 regarding the time pressures of end-of-pipe pollution control compliance deadlines is irrelevant here. All companies that combust hazardous waste have known since 1990 that a MACT rule would be promulgated that would control hazardous waste combustor emissions. Other events such as the National Combustion Strategy announced in 1993, the CETRED document released in 1994, and other technical studies by EPA used in the development of MACT, have been clear signals that the emission standards would be stringent and protective. Companies have had years thus far to pursue waste minimization alternatives that could preclude the combustion of these wastes. In addition, there will be 3 more years to complete waste minimization projects after the MACT rule is promulgated in 1998. This totals a 10 year window, before the compliance deadline of the MACT rule, for companies to have developed waste minimization alternatives. It is inappropriate to allow additional open-ended time beyond the compliance deadline of the MACT rule for companies to delay emissions controls. Particularly given that hazardous waste will continue to be burned during this period, and given that there are no assurances that any true waste minimization will come out of the studies or process work conducted during these extension periods. With regard to the statements at 62 FR 24245, col. 3, and 24246, col. 1, concerning the economics of the MACT standards, it is not likely that the economics will change significantly from the costs predicted in the NPRM. The types of APC control equipment required to meet the MACT standards will not change, unless EPA is considering very dramatic further reductions to the standards (i.e., PM standard of 0.002 instead of 0.015 grains/dscf or D/F standard of 0.01 instead of 0.2 ng/dscm TEQ). The adjustments in the MACT emission standards expected before the final rule should not impact the selection of MACT control technology. It is also noteworthy that EPA has not changed its identification of MACT control technology with regard to APC equipment significantly between the NPRM and this current NODA-3. Therefore, companies have had a good basis since April 1996 to determine the economics of compliance with the MACT emission standards and to determine if waste minimization process changes would be more economical. The ETC is opposed to any additional time being granted to explore waste minimization options beyond the compliance date of three years for the MACT rule. Three years combined with the additional time companies have had is sufficient to explore waste minimization options. It is inappropriate to delay the MACT standards past the compliance date, merely to allow evaluation and planning for waste minimization options. Waste minimization options can be pursued at any time, and are not prohibited by the MACT rule. It is a greater environmental detriment to allow companies to escape MACT compliance and continue to emit HAPs out of compliance with the MACT emissions standards, while they research waste minimization options. At the end of the term of the extension, it is possible that no specific waste minimization process changes would have been identified and all that a company has

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done is escape compliance with MACT emission standards for several years.

If EPA does promulgate an allowance for waste minimization extensions, then at a minimum there still must be a requirement to submit the pre-certification of compliance notification described on 62 FR 24236, with the operating limits specified in Table V.2.1 of the NPRM (as revised based on ETC's NPRM comments). These operating limits must be specified and enforced strictly, given that the combustion unit will continue to process hazardous waste for the entire term of the waste minimization extension. In addition, any waste minimization extension must be justified in great technical detail, with specific process change objectives provided in the petition. The ETC agrees with the minimum components of the request that are delineated by EPA at 62 FR 24246, col. 3, at the bottom. In addition this request must be thoroughly reviewed by EPA or authorized state to ensure that it represents a credible waste minimization effort, as opposed to a delay tactic to avoid compliance with MACT emission standards.

The ETC agrees with the proposed four minimum components of the request for a waste minimization extension, that are delineated at 62 FR, 24247, col. 2. In particular, the ETC agrees that the magnitude of hazardous waste reductions must be significant to warrant the extension, and that the reductions in hazardous waste entering combustion feed streams are not shifted to increase pollutants to other media. These cross media effects must be evaluated for all of the HAPs covered by the MACT rule, because no environmental progress is made if these pollutants are discharged at even greater levels to air, land or water as a result of the waste minimization process change. The MACT rule will achieve a great deal reducing emissions of HAPs to air, and a waste minimization alternative to combustion that results in greater emissions or releases of those HAPs would be counter-productive and must not be approved. Therefore, the petition for a waste minimization extension must include detailed mass balance calculations demonstrating the fate the HAPs in the hazardous waste streams and documenting the expected quantity of these HAPs to be emitted or release to land, water and air. These mass balance calculations must be reviewed thoroughly by EPA or authorized state to ensure that the information is valid, and the environmental gains of a waste minimization alternative are clearly real. The ETC also agrees that the company must clearly document why the waste minimization process change cannot be completed within the three year compliance period for the MACT rule. In addition, the company must document why it is not cost effective to implement MACT emission controls for all or some of the HAPs.

The ETC also supports EPA proposal to define legitimate waste minimization factors in a guidance document 62 FR 24247, col. 2. This document should clearly state a minimum required waste reduction demonstration that would qualify for a waste minimization extension. The ETC agrees that a 5% reduction in waste entering a combustion device does not justify a waste minimization extension. Given the low emissions from combustion devices following compliance with the MACT standards, even a 25% reduction is not justification for granting a waste minimization extension. The ETC agrees that the content of these waste minimization extension petitions must be made available at the public and must be part of the NIC.

<u>Response:</u>

EPA agrees that facilities have had many years to consider ways to reduce waste through pollution prevention and waste minimization, and many facilities have made significant progress. However, the CAA explicitly allows facilities to request a one year extension to install control technologies, including process changes (i.e., pollution prevention or waste minimization) to meet MACT standards.

EPA has explored a variety of ways to remove barriers and provide incentives to pollution prevention and waste minimization. This effort began in 1993 with extensive outreach meetings to gather input from public stakeholders, including industry, states and citizen and environmental groups, on the best approach for accomplishing this objective. One of the consensus items reached in those meetings was that, in the context of potentially costly end-of-pipe waste treatment regulations, pollution prevention can be promoted most effectively by providing voluntary pollution prevention incentives in combination with the costly end-of-pipe control requirements.

It was also recognized in the public stakeholder meetings that pollution prevention solutions must be made by individual facilities on a case by case basis--they can rarely be mandated. The government's role is to remove barriers and provide incentives that help this to happen. In light of the broad variation in the types of facilities, complex production processes, waste types/volumes and waste constituents, and in light of the constrained compliance period during which facilities would need to accomplish all the pollution prevention and emission control tasks involved, EPA believes it is even more important for facilities to have the ability to determine whether they use pollution prevention in the MACT compliance scheme.

EPA proposed six alternatives for promoting pollution prevention which take into context the feedback from EPA's stakeholder meetings and the specific affects of the MACT standards. EPA considered all the comments received in response to its proposals. Several companies and States urged EPA to adopt time based incentives to encourage facilities to pursue pollution prevention and waste minimization in the context of the instant MACT standards. In the fast track rule, EPA is putting in place three incentives that, in balance, provide what the Agency believes will best promote pollution prevention for this regulated community.

EPA emphasizes, in response to the commenters concern that there will be no assurances that waste minimization will actually result from the one year extension, that facilities will be required to identify in any request for a one year extension, milestones and estimates of waste reductions. EPA is also developing guidance that will outline and provide examples of the types of pollution prevention and waste minimization information that should be included in the NIC and in any subsequent requests for a one year extension prepared by a facility.

EPA disagrees that a detailed mass balance must be submitted by a facility to receive a one year extension. This approach is extremely resource intensive and would serve as a disincentive to pollution prevention rather than an incentive.

Finally, as is well documented in the environmental literature, setting specific reduction goals must be accomplished on a site specific basis. Furthermore, the great diversity of production processes and waste generation demonstrated in this regulated community indicates there is no single percentage cutoff that can be viewed a priori as the right number. From a common sense point of view, some facilities may have completed many "low hanging" pollution prevention projects, which may make the next incremental reduction more difficult, expensive

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and smaller as a percent reduction--but may nevertheless be significant viewing that facility alone. EPA includes this notion in its construct of the one year extension.

WMPP(commenter CS4A-00068)

Regarding granting regulated facilities the opportunity to request a **one year extension** to the three year compliance period allowed under the CAA in cases where the additional time is clearly needed to identify and install waste minimization measures: for onsite facilities, we believe that additional time may be needed for design and installation, but that identification of pollution prevention strategies should not be a problem, since these facilities should be well on their way to identifying pollution prevention strategies as part of their existing pollution prevention/waste minimization programs (i.e., state mandated planning or federal waste minimization certification requirements).

We also do not believe that a time extension for compliance with the MACT, in order to allow for additional pollution prevention analysis and implementation, truly is an "incentive" We believe that the requirements to demonstrate potential results and progress associated with the waste minimization compliance option will impose additional administrative burdens on industry, and do not believe that most facilities will choose this option voluntarily. For this reason, we do not believe that it is sufficient to merely allow flexibility regarding compliance deadlines to facilitate pollution prevention. The standards should be written in such a way as to require that generators of combustible wastes implement pollution prevention approaches as part of their compliance efforts. Such standards should specify feed limit reductions in BTF (i.e., below emissions limits achievable with current technology) emissions standards, to reduce the quantity of toxic constituents in combustible feed streams.

Response:

EPA agrees with the commenters concern that requiring to much information on the pollution prevention measures to be installed becomes a disincentive. However, the information required for the one year extension, as contained in the fast track rule, parallels the information requirements contained in the CAA for one year extensions, except that it adds information that is specific to pollution prevention that may not have otherwise been included. EPA believes that this clarifying information will enable the permitting agency to determine whether the pollution prevention approach described will reduce the amount and/or toxicity of hazardous waste entering combustion feedstreams. EPA will issue guidance that gives examples of the type of information that would be appropriate, not too burdensome, and not beyond what the facility would have to prepare for their own internal planning purposes.

The commenter recommends that EPA include in the MACT standards a requirement for “generators of combustible wastes [to] implement pollution prevention approaches as part of their compliance efforts.” EPA notes that, as with all enforceable requirements, it would be necessary for facilities to maintain records that document compliance--which in effect begins to resemble the same paperwork disincentive the commenter is concerned about. In thinking these options through, EPA chose to create a one-time extension request, with no Federal paperwork or monitoring of pollution prevention performance required after the facility

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achieves compliance.

WMPP(commenter CS4A-00068)
U.S. EPA is requesting comment on a proposal to include four factors that must, at a minimum, be considered in approving or denying requests for one year compliance extensions for hazardous waste burning incinerators, Light Weight Aggregate Kilns, and cement kilns. In general, we feel that these factors, with the anticipated U.S. EPA guidance, will be sufficient to ensure that pollution prevention compliance approaches will effectively allow a company to reach compliance, and that any additional time granted through an extension will be justified by the amount of waste reduced via a company's pollution prevention activities. We recommend that the third factor be amended to read: "A clear demonstration that reductions of hazardous wastes entering combustion feed streams are not merely shifted as increases in pollutants emitted through other regulated media."

<u>Response:</u>
EPA is retaining the proposed requirement for permitting agencies to consider a uniform set of factors in reviewing requests for a one year extension. To improve consistency, EPA is requiring states to consider the factors required in the one year extension application. These factors include the four factors proposed.

WMPP(commenter CS4A-00031)
Waste Minimization and Pollution Prevention. In the May 2 NODA, EPA again recognizes that waste minimization should be encouraged over end-of-pipe controls and offers two options designed to further this goal: (1) a one-year extension to the compliance date if process changes (i.e., measures) that minimize the waste combusted at a facility are affected and approved by the regulatory agency; and (2) the option for HWC owners/operators to enter into a consent order or compliance agreement with the regulators to implement such waste minimization measures. The second of these options would provide for a longer period of compliance than the one-year extension. DOE appreciates and strongly supports both of these proposed options and the inherent flexibility that they offer to both the regulators and the regulated community. DOE believes, however, that the list of measures that constitute waste minimization [and hence the definition of "process changes" under 40 CFR 63.6(I)(6)(I)(B) should be expanded to reflect two additional measures.

The first of these are measures aimed at reducing the amount of waste resulting <u>after</u> treatment. DOE has an existing inventory of MW which must be treated. DOE is investigating means of treatment which would not involve incineration. However, DOE is also pursuing approaches to minimize secondary waste generation following incineration and to reduce the volume of the final waste form. These approaches to modifying treatment processes should also be considered as appropriate waste minimization measures justifying extensions for achieving compliance with the standards. Although not directly related to this rulemaking, DOE notes that under EPA's May 4, 1995 Supplemental Environmental Projects

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(SEP) policy, if the pollutant or waste stream already has been generated (as is the case for DOE's inventory of MW), a project that decreases the amount and/or toxicity of any hazardous substance, pollutant, or contaminant is categorized as a "pollution reduction" project and may qualify as a SEP.

The second measure pertains to activities that fall under the term "environmentally sound recycling." Although EPA includes environmentally sound recycling under the definition of process changes (62 FR 24247, col. 1), DOE notes that the recyclability of certain materials depends on the material first meeting criteria that are often pre-established and typically site-specific (e.g., free-release criteria used at DOE's Idaho Falls site). For example, recovery of mercury from organic liquids (i.e., an incinerable waste) may be driven by the liquid's mercury concentration and, for DOE wastes, its radiological activity. Although not prevalent throughout the DOE complex, some of the Department's potentially incinerable legacy feedstreams have not been fully characterized. Although this waste is conservatively considered to be MW and, therefore, is being managed in accordance with the Atomic Energy Act and RCRA Subtitle C, its specific characteristics/ composition and (more importantly for this discussion) its treatability and/or recyclability is currently unknown. DOE believes that if given the opportunity, proper characterization (which DOE believes is a necessary prerequisite to proper treatment and/or environmentally sound recycling) may reveal that the waste is amenable to treatment that will reduce the amount and/or toxicity of the hazardous constituents entering combustion devices. In some cases, characterization may reveal that the incinerable wastes are excellent candidates for environmentally sound recycling. DOE is concerned, however, that responding to tight MACT compliance deadlines may preclude the Department from pursuing longer-term treatment/waste minimization activities such as the development of recovery technologies that are capable of effectively and efficiently recovering hazardous constituents from the Department's often unique incinerable wastes (e.g., mercury retort systems that can effectively handle radioactive components). That is, in an attempt to comply with end-of-pipe standards, DOE may determine it is necessary to direct funds toward end-of-pipe pollution controls rather than more desirable recycling technologies.

To assist DOE's program offices and field organizations in justifying the need to direct future funds toward pursuing proper treatment/environmentally sound recycling technologies rather than expending ever-shrinking funds on end-of-pipe pollution control technologies, DOE requests that EPA consider the appropriateness of including within the definition of process changes the term "incinerable-waste inventory analysis." Provided an inventory analysis plan which fully characterizes the waste for compliance purposes and assesses the potential recyclability of the otherwise incinerable waste is in place and being implemented, the site or facility would be eligible for either the one year or longer term extension dependent on site-specific conditions. To be eligible for a compliance extension using incinerable-waste inventory analysis as the underlying justification, DOE believes that either the individual site (or DOE Headquarters for wastes that are prevalent throughout the DOE complex) should demonstrate conclusively that: 1) the inventory to be analyzed contains constituents that possess some intrinsic value, either commercially or within the complex; 2) the proposed recycling technology appears technically and economically feasible and there is an end-market for the recovered material; 3) removal of the specific waste(s) from DOE's inventory of

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HWC feedstreams will result in significant reductions in the amount of hazardous wastes entering the combustion waste stream; 4) the recycling activity will recover, not merely transfer the hazardous constituents to another media; and 5) due to the magnitude of potentially recyclable wastes requiring characterization, the individual site (or sites for complex-wide wastes) cannot complete its characterization efforts within the three-year compliance period. DOE agrees that consistency should be promoted and that the four factors proposed by EPA under the refined approach are thoughtful and reflect a great deal of insight. The Department believes, however, that EPA should acknowledge that both of the additional measures outlined above constitute measures that fall within the definition of process changes and, therefore, may be offered as justification by persons requesting a compliance extension.

Response:

The commenter recommends that EPA include in the definition of process change, reductions in the amount of waste resulting after treatment, and incinerable-waste inventory analyses. EPA believes RCRA, the Pollution Prevention Act, and the Clean Air Act are clear in defining process changes, source reduction and recycling activities as separate, distinct and preferred over treatment and disposal. Modifying the definition of process change, which is intended to mean production process changes before combustion, to include treatment and/or post treatment activities make the terms indistinguishable.

Identifying wastes and waste sources is an activity that is currently identified in EPA and state guidance on pollution prevention facility planning practices, and will be reiterated in the upcoming guidance. If a time extension were needed to complete such an analysis and identify and install pollution prevention measures that would reduce the amount of hazardous waste entering combustion feedstreams as part of a facility's compliance plan, the facility would be eligible to request an extension as described in the fast track rule.

WMPP(commenter CS4A-00031)

Compliance Extension Eligibility Requirements. As noted above, in the May 1997 NODA, EPA refines the compliance extension eligibility requirements by proposing that EPA Regional offices and approved or delegated State programs consider, at a minimum, four factors when determining whether a one-year compliance extension is warranted. These factors are intended to, provide a degree of consistency while allowing regions/states flexibility in decision-making (62 FR 24246, Col. 3; 24247, col. 1). DOE believes that although EPA has captured the essential factors that should be considered by persons charged with approving or denying requests for compliance extensions, two additional considerations - the impact both the Federal facility funding cycle/procurement process and site- specific negotiated interagency agreements have on a Federal facility's ability to progress toward implementing its waste minimization compliance activities - do not appear among these factors. DOE is subject to 71 active interagency agreements whose terms require DOE to meet a schedule of activities that serve as enforceable milestones. These milestones play an integral role in DOE's year-to-year planning, budgeting, and priority setting. DOE is concerned that by not specifying a timeline for conducting waste minimization activities, some regions and/or States could require Federal agencies to comply with arbitrary and capricious percent-complete timelines. A Federal facility's ability to proceed with its waste minimization compliance activities, however, is predicated upon negotiated priorities, the availability of funding, and the period of time associated with the Federal procurement process. DOE believes that EPA's factors, as well as its anticipated guidance, should recognize that the timelines associated with Federal agency waste minimization compliance activities are dynamic and can be dramatically impacted by year- to-year funding/procurement issues, as well as site-specific considerations that are driven by the terms of DOE's interagency agreements.

Response:
The one year compliance extension promulgated in the fast track rule provides any Federal facility the opportunity to request up to one extra year to identify and install pollution prevention measures that reduce the amount of hazardous waste entering combustion feedstreams. Facilities must describe major milestones for achieving compliance in this process. If the time required to procure pollution prevention measures are major factors in a facility’s compliance plan, then it would be appropriate to include that factor in the facility’s request for a one year extension. As noted in the fast track preamble, facilities that need longer than the one year extension to install pollution prevention measures that significantly improve environmental results, are encouraged to apply to the Agency’s Project XL program.

WMPP(commenter CS4A-00045)
EPA recognizes that many facilities have made substantial progress in waste minimization. As Eastman discussed earlier, reduction of "hazardous wastes entering a waste stream" may not reduce the amount of hazardous waste which is reported or managed. RCRA reporting requirements are confusing and inconsistent from state to state. Eastman believes that it is inappropriate to complicate existing waste minimization reporting requirements already required by many states. It appears that Option 1 (one-year compliance extension) is yet another paperwork exercise with little to compel or encourage a facility to implement waste minimization projects which will reduce the amount of hazardous waste entering a combustion waste stream. Eastman agrees with EPA's comment at 85 FR 24246, which states the following: "A Federal mandatory and prescriptively detailed waste minimization planning requirement would be, at best, marginally effective in causing large companies (which make up the population of facilities affected by the fast track regulation) to identify and install waste minimization measures beyond what they would do under current requirements."

Response:
EPA’s proposals to provide compliance extensions for pollution prevention reasons are in direct response to facilities who claim that time based compliance incentives are important. Unfortunately, the CAA only allows a one year extension to be granted on a case by case basis. As discussed in the fast track preamble, facilities that need longer than the one year

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extension to install pollution prevention measures that significantly improve environmental results, may are encouraged to apply to the Agency’s Project XL program.

WMPP(commenter CS4A-00017)
We recommend deleting this item from these present rules. Tennessee's waste minimization program is experiencing excellent progress. The program is working well as is. We believe that no changes are needed or warranted at this point.

Response:
As discussed in the fast track preamble, comments received from States on the proposed waste minimization incentives supported and opposed the various options. EPA is promulgating incentives today that do not preempt any State program, allow States to build on existing programs, if they so choose.

WMPP(commenter CS4A-00056)
Elf Atochem agrees with EPA's position to continue requiring and encouraging waste minimization and source reduction activities. However, EPA must realize that in some chemical manufacturing facilities, ongoing efforts to reduce the organic and inorganic constituents which comprise the majority of a particular waste may concentrate rather than reduce the concentration of the constituents regulated in this proposed rule. EPA must plainly identify a "uniform criteria" with which waste minimization would be an allowable alternative. This is of particular concern where the risk from the constituents proposed in this ruling are substantially less from those which will be removed in typical waste minimization efforts. Elf Atochem agrees with CMA in supporting compliance extensions because three years is not sufficient time to evaluate and install source reduction or waste minimization strategies.

Response:
The commenter says in the second sentence: “in some chemical manufacturing facilities, ongoing efforts to reduce the organic and inorganic constituents which comprise the majority of a particular waste may concentrate rather than reduce the concentration of the constituents regulated in this proposed rule.” EPA take this to mean that in some cases pollution prevention process changes may reduce the volume of hazardous waste entering combustion feedstreams, but might actually increase the concentration of some of the constituents regulated in this proposed rule. EPA recognizes that process changes may create a different mix of wastes and constituents in waste. In light of this, EPA’s intent is that there is a net decrease in hazardous waste entering combustion feestreams in volume and/or toxicity, and that the facility will be in compliance with MACT standards. For example, installation of pollution prevention process changes could result in a significant decrease (say 25%) in the volume of a hazardous waste entering a combustion feedstream. However, the concentration of some constituents might increase by, say 5%, even though the net mass of that constituent entering the combustion feedstream might still be significantly lower due to the nature of the

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process change. So long as the MACT standards are met, including floor standards or BTF standards which might be based on feedstream limits, this approach could be considered for an extension.

CA/CO OPTION

CA/CO(commenter CS4A-00027)
OECA The proposed compliance order approach will not be very attractive to facilities, due to EPA's perverse insistence on recouping the "economic benefit" of waste minimization. The Proposed Compliance Order Approach Offers Little Incentive. CMA's NPRM comments expressed skepticism that the proposed compliance order approach would prove attractive to many facilities. The NODA's further explanation of the concept only deepens that skepticism. A threshold question is whether the audit policy would even apply. The situation confronting the Agency and facilities alike is the recognition by some facilities, well in advance of the compliance date, that they may not be able to meet it. The audit policy, by contrast, is addressed to persons who discover ongoing or past noncompliance in the course of conducting an environmental audit or otherwise operating an environmental "due diligence" system. See generally 60 Fed. Reg. 66706 (Dec. 22,1995). The definition of "due diligence" does include systems designed to "prevent ... violations," id. at 66710, and so arguably an entity's system for evaluating whether it will be able to comply with the HWI MACT could be considered a "due diligence" system. Arguably further, once the compliance date has passed, a facility would be in violation and could then report that violation to EPA under the terms of the audit policy.[8] [Footnote 8: The audit policy only requires that the noncompliance be disclosed within 10 days, unless the complexity of the violation necessitates a longer period of time to determine noncompliance. Id. at 66708. The NODA goes substantially beyond this requirement, though, by requiring a notice within one year of the rule's effective date and entrance into a compliance order "immediately" after the compliance date. 24248.]
The more fundamental question is how attractive this option would be given the Agency's expressed intention to"recover any economic benefit gained as a result of noncompliance." 24248. CMA is more than a little astonished that EPA seems more interested in collection of fines than it is in promotion of waste minimization. If the Agency truly believes that waste minimization is the preferred approach to compliance, it is self-defeating to penalize sources taking that route merely because it may also be "more cost-effective." Id. Wiping out any cost savings of waste minimization will go a long way toward discouraging sources from adopting that approach. The perverse result is that more sources will abandon the waste minimization approach and remain with the combustion approach that the Agency has set out to deter. The well-documented unfairness of the Agency's BEN model for determining economic benefit will only exacerbate this problem. Nonetheless, the compliance order process may be the only way that some sources can comply, and CMA does not recommend that EPA will drop it. We do, however, urge EPA to rethink it; mechanical adherence to the concept of economic benefit, and to consider whether the importance of waste minimization

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may trump that concept in this instance.

Response:
The Agency was aware, when it proposed the compliance agreement/compliance order option the commenter refers to, that recouping economic benefits during the period of non-compliance under the Audit policy could offset some of the potential cost savings resulting from the installation of pollution prevention measures. However, the Agency was aware at the time it proposed this option that granting some companies a delay in compliance, especially in cases that are specifically designed to save money (vis a vis pollution prevention measures), would put the government in the untenable position of creating an uneven economic playing field. In balance, the government has no choice in non-compliance situations, but to recoup benefits accrued during the non-compliance period. Furthermore, the Agency is aware that most pollution prevention process changes would be designed to provide long term cost savings--hopefully significant enough to outweigh the amount recouped during the noncompliance period.

Notwithstanding this earlier thinking, the Agency has decided to not pursue this option, and instead encourages companies to pursue long term pollution prevention approaches under the Agency's Project XL program, which is specifically craft site specific approaches to explore pollution prevention.

CA/CO(commenter CS4A-00068)
We believe that the strategy of entering into written consent agreements or consent orders in cases where more than four years is needed to identify and install pollution prevention measures that significantly reduce hazardous wastes entering combustion feed streams may serve as a disincentive for facilities to adopt a pollution prevention approach. We agree with the proposal to clarify the term "process changes" in 40 CFR 63.6(I)(6)(I)(B) to make it clear that waste minimization measures are included. However, we are not convinced that this will "encourage" the use of waste minimization for facilities subject to this rule. It will, at least, allow it. As stated earlier in these comment, we feel that it is important that U.S. EPA not take a passive approach to pollution prevention in this rulemaking.

Response:

Review of comments from States and industry indicates that installing pollution prevention process changes in complicated chemical manufacturing plants may often take longer than three or four years. Unfortunately, the compliance period limitations contained in the CAA place specific constraints on time based incentives. After reviewing all the comments, EPA has decided to not pursue this option, and instead, encourages companies to propose projects under the Agency's Project XL program, which is specifically tailored to this sort of approach.

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CA/CO(commenter CS4A-00031)
Time Requirements for Installation of Waste Minimization Measures. In the 4/19/96 proposed rule, EPA proposed extending the HWC compliance deadline for up to one year (beyond the three-year compliance deadline) when facilities require additional time to identify and install waste minimization measures that will reduce the amount of hazardous waste entering the combustion feed stream. In the May 1997 NODA, EPA recognizes and agrees with several commenters concerns that three years plus a one-year extension may not be sufficient time for certain facilities to identify and install waste minimization measures that achieve compliance (62 FR 24245, col. 3; 24247, col. 3). EPA further states that it may be appropriate to grant such facilities additional time provided they can demonstrate three years plus one year is insufficient. EPA further indicates that because these facilities are technically in violation, it will require these facilities to enter into written consent agreements/consent orders **(CA/COs)** (62 FR 24246, col. 3; 62 FR 24247, col. 3). DOE continues to advocate EPA's proposal to allow an extension for up to one year (beyond the three-year compliance deadline) for facilities implementing pollution prevention/waste minimization measures. Moreover, the Department agrees with EPA that additional time (i.e., more than four years) may be necessary and should be granted to those facilities that make the proper demonstrations. DOE, however, questions whether EPA has considered the legal costs and impact on the judicial system, as well as the opportunity for stakeholder participation associated with entering CA/COs versus other enforceable avenues. For example, it appears that facility-specific RCRA permits could be written to include or modified to incorporate a schedule of compliance (40 CFR 270.33) as an enforceable condition of the permit. In fact, this was the implementation approach proposed by EPA in the Subpart S proposed rule (55 FR 30879; July 27, 1990). More recently, EPA has elected to use "schedules of implementation" to. ensure tanks, containers, and surface impoundments come into compliance with EPA's Subpart CC air emission standards [see 40 CFR 265.1082 and 270.27(a)(7)]. DOE suggests EPA consider additional options before electing to follow the proposed judiciary approach. In summary, DOE agrees that a Federally mandated and prescriptively detailed waste minimization planning requirement would be, at best, marginally effective.

Response:
EPA has considered all of the aspects of the Agency's proposal to allow facilities to enter into CA/COs for periods of longer than four years to install pollution prevention measures, and has decided not to pursue this option, as discussed in the fast track preamble. Instead, EPA encourages facilities to propose such an extension under EPA's Project XL program, which is specifically designed to address case-by-case proposals to modify environmental requirements that achieve superior environmental results.

CA/CO(commenter CS4A-00035)
The ETC also supports the use of consent orders to agreements as enforceable vehicles to ensure compliance with the schedules and content of the waste minimization plan (62 FR

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24246, col. 3 and 24247, col. 3). These waste minimization extensions cannot be loose or open-ended grace periods that allow a company to escape the MACT standards, without any specific credible process improvements and implementation schedules to achieve further waste minimization. The information listed on page 24248, col.1, must be included and supported with valid and comprehensive mass balance engineering calculations for each HAP. The ETC agrees with strict enforcement of the penalty policy for failure to achieve compliance, as detailed on page 24248, col. 2. The ETC agrees with cost recovery applied to the penalty policy that considers also economic gain from avoiding compliance with the MACT emission standards. The ETC does not support the extension of time allowed for pursuit of waste minimization alternatives beyond the one year period even with a consent order mechanism. In this case, besides the consent order, the company must also cease burning hazardous waste after the one year extension period, or install MACT controls. The continued burning of waste without MACT emission controls cannot be allowed beyond the one year extension. There are other options available to the company, including the use of a commercial combustion facility that is meeting the MACT emission standards. The consent order would be nothing more than a license to pollute, if the company were allowed to continue to burn the hazardous waste after one year without MACT emission controls in place.

Response:

The commenter "supports the use of consent orders to agreements as enforceable vehicles to ensure compliance with the schedules and content of the waste minimization plan (62 FR 24246, col. 3 and 24247, col. 3)," and recommends valid and comprehensive mass balance engineering calculations for each HAP as part of this approach. The commenter also opposes the extension of time allowed for pursuit of waste minimization alternatives beyond the one year period even with a consent order mechanism.

EPA believes the commenter may have misinterpreted the requirements described at 62 FR 24246, col. 3 for a one year extension for waste minimization/pollution prevention purposes. In cases where a one year extension is granted, consent orders are not required. However, the terms contained in the written extension would be enforceable provisions that must be met on the date of compliance. In the option described at 62 FR 24247 col. 3, compliance orders would be required to ensure compliance.

In the fast track rule, EPA is promulgating language that makes clear that pollution prevention/waste minimization measures are eligible and, in fact, are preferred methods for requesting a one year extension. After further review of the proposal to allow facilities to enter into CA/COs for periods of longer than four years to install pollution prevention measures and the comments received, EPA has decided not to pursue this option, as discussed in the fast track preamble. Instead, EPA encourages facilities to propose such an extension under EPA's Project XL program, which is specifically designed to address case-by-case proposals to modify environmental requirements that achieve superior environmental results.

CA/CO(commenter CS4A-00045)

In evaluating the three proposals discussed at 85 FR 24245, Eastman strongly supports Option 3 (CA/CO). In certain cases Option 3 may provide the incentive to implement innovative compliance alternatives, which will result in waste minimization progress.

Response:
EPA has considered the advantages and disadvantages of this option, and has decided not to pursue it in this rulemaking. EPA, instead, encourages companies to propose pollution prevention projects that require longer than four years to EPA's Project XL program, which is specifically designed to address case-by-case proposals to modify environmental requirements that achieve superior environmental results.

CA/CO(commenter CS4A-00072)
ALLIED SIGNAL SUPPORTS EPA'S EFFORTS TO REDUCE IMPLEMENTATION OBSTACLES AND TO PROVIDE POLLUTION PREVENTION FLEXIBILITY. EPA Should Clarify its Use of Pre-Certification and Compliance Agreement/Consent Orders in Conjunction with Time Extensions for Waste Minimization. In its analysis of the limitations of the three year compliance deadline, EPA considered allowing the facility to provide "pre-certification" and to verify the validity of the certification during a 240 day period after the three year compliance date. EPA is encouraged to allow a similar precertification/ verification process at the close of a 4 year period for facilities who have successfully demonstrated the need for the one year waste minimization compliance date extension. The facility should not be required to submit pre-certification as to the end of pipe operating conditions before it has had an opportunity to complete construction and verification of its waste minimization modifications. In the absence of a similar pre-certification mechanism, the certification sampling/submission process will likely consume a significant portion of the one year extension (see EPA's own analysis regarding the need for the "precertification" alternative).

Response:
All facilities are required to submit a pre-certification that pertains to their compliance date, including cases where the compliance date has been extended one year. The pre-certification covers compliance with MACT standards for whatever pollution prevention and/or end-of-pipe controls are used to comply.

OVERALL INEFFECTIVENESS OF NODA IN ENCOURAGING POLLUTION PREVENTION and SUGGESTED CHANGES TO MAKE IT EFFECTIVE

WMPP(commenter CS4A-00036)
In these comments on the NODA, MMT principally focuses on issues related to the effectiveness of the MACT rulemaking in encouraging pollution prevention consistent with statutory directives and EPA's relevant policies. As explained throughout these comments,

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the concepts and discussions contained in the NODA largely represent a substantial retreat from even the weak pollution prevention measures contemplated in the April 1996 proposal. As described in the NODA, pollution prevention planning would no longer be required. and is instead replaced by a public dialogue mechanism that will have little or no impact as designed. Further, notwithstanding EPA's legal obligation to consider feed reductions in evaluating potential beyond-the-floor (BTF) emission standards, EPA still has not conducted the requisite feed reduction cost effectiveness analyses. In addition, a variety of exemptions and variances are proposed that would potentially result in greater combustion of hazardous waste, including the burning of feeds containing high concentrations of metals purportedly disfavored by the Agency. In short, the NODA compounds rather than corrects the pollution prevention shortcomings in the April 1996 proposal. Consequently, the Agency should revisit its approach toward emission standard development and implementation issues in the instant rulemaking, and promulgate regulations that will encourage pollution prevention and waste minimization consistent with the waste management hierarchy firmly embedded in federal law and Agency policy. Such regulations include BTF emission standards based on feed reductions, waste minimization planning requirements and increased public access to routine waste feed data.

Response:
Since this rulemaking does not address methods for developing MACT standards, the commenter's statements regarding methods for emission standard development is deferred to the future promulgation of MACT standards.

WMPP(commenter CS4A-00036)
INADEQUATE RATIONALES FOR ABANDONING PROPOSED WASTE MINIMIZATION PLANNING REQUIREMENT. In the NODA, EPA indicates it no longer favors requiring waste minimization planning to reduce the types and quantities of hazardous wastes that are combusted. Instead, the Agency seeks comments on a substitute approach that relies principally on voluntary actions by the combustor owner/operator. In support of this modified approach, EPA advances a number of rationales, each lacking an adequate factual and/or policy foundation.

First, EPA contends the purely voluntary scheme will produce greater waste minimization. No evidentiary support is offered for this position, and none can be provided. As demonstrated by the recently released TRI data for 1995, the quantity of TRI chemicals in production - related waste has increased by 7% from 1991-1995 . (EPA 1995 Toxics Release Inventory Public Data Release Report, May 20, 1997, Table 15) Projections for 1996 and 1997 show very little change in this trend. In EPA's own words, "The data indicate that, overall, facilities do not anticipate discernible progress in moving up the waste management hierarchy in the next two years". (Id. At 12.) Accordingly, in announcing the TRI data, Assistant Administrator for Prevention, Pesticides and Toxics states, "The increase in generation of waste reported continues to underscore the need for more pollution prevention in American manufacturing". (EPA Press Release on 1995 TRI Data, May 20, 1997, p. 1.)

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Similarly, EPA's Pollution Prevention Policy Office recently compared TRI results for 1993 and 1994 from a sample of large manufacturers and found the number of manufacturers who increased the amount of TRI chemicals entering waste streams was about the same as the number that decreased such chemical introduction into wastes. (Draft "Study of Industry Motivation fro Pollution Prevention", EPA Pollution Prevention Policy Office, 1996, Section 3.2.2 (hereafter "EPA P2 Motivation Study".) Clearly, the status quo of voluntary federal programs is not producing the desired results. Moreover, since a mandatory waste minimization planning requirement can also include the incentives EPA provides to encourage waste minimization (i.e., additional time to achieve compliance, a serious public dialogue regarding the facility's intentions). whatever waste minimization that is achieved through these incentives would also occur in a mandatory program. In addition, if EPA promulgated a mandatory waste minimization planning requirement in conjunction with these incentives, a level of effort commensurate with the requirement by all facilities would be assured and the results subject to greater substantive scrutiny by regulatory agencies and the public. (In contrast, the proposed NIC alternative is not subject to a substantive review by regulatory officials, and the facility can simply ignore public comments.) These features of a mandatory waste minimization planning requirement can only add to the actual waste minimization achieved.

Second, EPA suggests that state waste minimization programs already exist in some jurisdictions, therefore a federal requirement may only be marginally beneficial. However, as EPA acknowledges the majority of hazardous waste incinerators (56%) are in states that do not have mandatory waste minimization planning requirements. (In addition, some state mandatory planning programs may be inadequate for this purpose because of a lack of follow-up or public participation. See MMT's August 1996 Comments at 57-58. Therefore, a federal requirement would have a substantial impact on the majority of incinerators, and would equalize the appropriate role of waste minimization throughout the country.

Third, EPA argues it would be inappropriate for the Agency to impose mandatory waste minimization requirements in states that have not already elected to develop such requirements under state law. This argument is particularly difficult to understand given the express national policy favoring pollution prevention and waste minimization in the Pollution Prevention Act, the Clean Air Act, and RCRA. More importantly, Congress expressly incorporated into the definition of MACT measures which "reduce the volume of, or eliminate emissions of such pollutants through process changes, substitution of materials or other modifications". And as discussed in Section III below, pollution prevention is the preferred means of accomplishing emissions reduction in the MACT standard-setting process. Therefore, the absence of existing state planning requirements is not even a relevant basis for failing to meet MACT obligations under the CAA. Indeed, EPA's argument is akin to not setting dioxin emission standards become some state programs currently lack such requirements, an approach clearly inappropriate under the statute and not contemplated by EPA. Waste minimization/pollution prevention planning is no different in this regard. Moreover, the rulemaking record does not reflect any opposition to mandatory waste minimization requirements from states currently lacking such requirements under state programs. Only three states actually commented on the proposal: New York, Texas, and

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Missouri. Not one of these states opposed the proposal on the basis of state sovereignty.

Fourth and finally, EPA argues that large companies generally have the staff, information and resources to pursue waste minimization "where it makes sense to do so", and as a result whether such companies pursue waste minimization measures depends on a variety of factors that "outweighs attempts to identify additional waste minimization alternatives". See 62 FR 24246. On this point, EPA is partially correct. In the absence of regulatory drivers, whether waste minimization is pursued is the result of a complex set of factors, including but not limited to economic benefits. These factors, such as a company's required rate of return and accounting methods, may substantially restrict available waste minimization options, even where such options "make sense" in that the options save money and achieve superior environmental performance. Therefore, EPA and MMT apparently agree that regulatory drivers are needed to achieve waste minimization beyond the status quo. However, insofar as EPA suggests mandatory pollution prevention planning would accomplish little because companies are already adequately planning and under-taking pollution prevention on their own volition, the Agency position lacks a factual basis.

For example, in a recent evaluation of New Jersey's mandatory pollution prevention planning program, Hampshire Research Associates found that planning appeared to be successful in leading some facilities to identify new pollution prevention opportunities, the required planning resulted in higher reduction goals than if the goals were set without the required planning, and that facilities previously engaged in pollution prevention set greater pollution reduction goals than facilities starting new, thereby indicating significant pollution prevention involves more than simply "picking the low hanging fruit". (Evaluation of the Effectiveness of Pollution Prevention Planning in New Jersey, Hampshire Research Associates, May 1996, p. 9 (hereafter "New Jersey P2 Report").) Indeed, the New Jersey requirement precipitated the first facility-wide examination of non-product output at 17% of the facilities surveyed, and 63% of the facilities believe the planning effort made important contributions to facility operations. (New Jersey P2 Report at 11.) More than half of the facilities reported that at least some pollution prevention options identified in the mandatory plan were not identified as a result of previous planning activities. (Id. Ar 40. Also, one-third of facilities reported that a project identified through the mandatory planning process would receive priority even if it had a cost saving lower than applicable to other projects. In addition, 19% reported cost accounting changes as a result of the planning requirement.) Similarly, a March 1997 evaluation of the Massachusetts mandatory pollution prevention planning program found that since the program began, approximately 40% of the firms surveyed were more actively involved in tracking quantities of waste generated, tracking chemical usage, setting waste reduction goals, and reviewing production process changes for their environmental impact. (Evaluation Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation, prepared by the Massachusetts Toxics Use Reduction Programs, March 1997, Executive Summary, p. 11 (hereafter "Massachusetts TURA Report").) The program has produced a 3O% decline in by product generation between 1990-1995, a figure normalized to take into account changes in levels of production. (Id. At iii.) Seventy percent of facilities identified pollution prevention opportunities as a result of preparing their 1994 plan. (Id.) In EPA's study of pollution prevention motivators, 59% of large manufacturers

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indicated that state pollution prevention planning requirements were "very important" in encouraging the consideration of environmental issues in facility operations. (EPA P2 Motivation Study, Section 3.3.3.) The percentage rose to 76% of manufacturers from Massachusetts and New Jersey, the states with the most rigorous planning requirements. Therefore, the Agency should return to and strengthen the waste minimization planning requirement proposed in April 1996. Specifically, EPA should promulgate an enhanced Option 1, as discussed in MMT's August 1996 Comments at 53-58.

Response:

The commenter urges the Agency to require waste minimization planning requirements in MACT standards development. While the fast track regulation does not address MACT standards development, EPA will address the comment because the issue is closely related to the pollution prevention and waste minimization incentives included in the fast track rulemaking.

EPA disagrees with the comment that EPA's rationales are "lacking in adequate factual and/or policy foundation" and that "no evidentiary support is offered for this position [that the pollution prevention incentives selected provide the best incentives in the context of the instant rulemaking], and none can be provided." The fast track preamble contains a substantial analysis of the comments received and of information on State pollution prevention planning programs.

EPA believes the statement, "the status quo of voluntary federal programs is not producing the desired results," has little or no basis as a justification for the commenter's recommendation for a one size fits all mandatory pollution prevention planning approach that will "equalize the appropriate role of waste minimization throughout the country." The commenter's conclusion that the preferences for pollution prevention and waste minimization contained in the Pollution Prevention Act, the Clean Air Act, and RCRA somehow lead to a conclusion that mandatory pollution prevention planning is the method of choice and should be required in the instant MACT rulemaking. Mandatory pollution prevention planning is not mentioned in the laws cited, nor is it convincingly supported as the most appropriate choice for this particular regulation by the commenter's analysis. In fact, EPA is cautioned against such an approach in the legislative history of RCRA. In contrast, in its analysis, EPA considers available information on mandatory pollution prevention planning, as does the commenter. However, it is clear EPA's analysis, in contrast to the commenter's analysis, considers factors specific to this particular regulation that strongly affect the best choice of pollution prevention incentives to use in the fast track rule. EPA has clearly explored a variety of approaches, requested comment on these approaches, reviewed all comments, and has balanced the pros and cons of all the various choices in reaching the fast track decision. The commenter's analysis seems to be predisposed to a particular mandatory approach and does not clearly weigh all the advantages and disadvantages of other approaches in arriving at a recommendation.

EPA disagrees with the commenter's assertion that pollution prevention is the preferred means of accomplishing emissions reduction in the MACT standard setting process, and that not doing so fails to meet MACT obligations under the CAA. Section 112 (d)(2) does not

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establish any hierarchy among the standard setting methods listed, nor does it require EPA to use pollution prevention planning or any other form of pollution prevention in setting MACT standards.

EPA disagrees with the commenter's conclusion that whatever incentives would be included in a voluntary approach would also be included in a mandatory pollution prevention planning program. The commenter's recommendation to require a one-size fits all mandatory pollution prevention planning approach is contrary to widely accepted consensus reached in EPA's intensive Waste Minimization and Combustion public outreach effort that concluded: blanket mandatory waste minimization requirements are not appropriate, and instead (based on experience with RCRA's costly end-of-pipe land disposal restrictions program) the best approach is to implement voluntary programs that are tailored to reduce barriers and provided incentives regarding specific end-of-pipe requirements. This latter approach is, in fact, the approach taken by EPA in the fast track regulation.

First, EPA notes that there is nothing in the commenter's citing of national TRI trends that can be used to support the commenter's contention that mandatory pollution prevention planning is the only effective pollution prevention approach for all companies affected by this regulation. More specifically, the commenter attempts to interpolate national TRI trends (which aggregate the reports of thousands of diverse companies responding without regard to pollution prevention incentives or barriers caused by any particular regulation) to a narrow and unique subset of companies covered by the instant rulemaking (which comprise far less than one percent of the TRI universe). This procedure is not valid, since, it would be necessary to break down national TRI information to account for the particular characteristics of the regulated subpopulation affected by the fast track regulation, and then examine the applicability of available options that make sense for that subpopulation. The commenter's approach would be analogous to interpolating national census trends for the US population as whole to a particularly small ethnic group in the population, and then concluding that the trends found in the whole population represent trends in the small microcosm, and also that a particular policy applied to the whole would work equally well for the small microcosm. This approach is clearly invalid.

In contrast, EPA has looked at the particular characteristics of the facilities affected by the fast track regulation--large complex chemical plants which operate on-site combustion units, and commercial hazardous waste incinerators, light weight aggregate kilns, and cement kilns, and identifies how these facilities are unique relative to other industrial sectors, especially from a pollution prevention perspective. Large plants have been identified in the pollution prevention literature as a generally distinct from medium and small plants because they generally have the access to technical information, capital and staff resources they need to pursue pollution prevention. Large chemical companies generally operate much larger and much more complex production processes than other SIC sectors covered by State pollution prevention planning programs, making the task of pollution prevention planning significantly much more complex and time consuming than for other sectors. This was reflected in several sets of comments from States and industry. One State, New Jersey, focused on chemical companies through a multi-year pilot program in which significant time and resources were spent working with companies on an individual basis to promote pollution prevention. EPA

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believes it is not appropriate to assume that any other State would or should be expected to match this type of effort. The economic motivators of large companies and the way they make environmental decisions is completely different than for medium or small sized companies. The commenter partially acknowledges this difference, but nevertheless maintains that mandatory pollution prevention planning will significantly improve environmental protection over other methods.

The effect of compliance periods imposed by the CAA in the instant rulemaking on the ability of large chemical companies to complete pollution prevention planning, install pollution prevention measures, and design and construct combustion devices in the time frames allowed is another crucial distinguishing factor. It is recognized in the comments from several states and companies that these complex facilities have much greater time requirements than say smaller less complex production operations of other types of production facilities and therefore generally need longer than the time allowed under the CAA to complete these tasks. Furthermore, the most important incentive identified by States and several companies in the comments, is the need for sufficient time to design and install pollution prevention measures and any remaining combustion devices that may be necessary to comply with MACT standards. The opportunity for a one year extension for companies who are able to install pollution prevention within that timeframe, and the upfront planning time offered by the fast track fast track rule, goes part of the way toward providing an adequate time incentive, but not far enough for the remaining companies covered by the fast track rule.

In contrast to the situation faced by companies covered by the fast track regulation, none of the States cited by the commenter examine the ability of companies to implement pollution prevention measures in response to specific statutory deadlines. Many studies, including some cited by the commenter point to the tendency of industry to implement standard technology end-of-pipe solutions rather than pollution prevention solutions in the face of approaching regulatory compliance deadlines. EPA looks carefully at this effect in the context of the fast track rulelmaking.

The commenter cites studies of State pollution prevention planning programs which reflect apparent successes. EPA agrees that the results of those studies indicate success in those States. However, EPA believes it is crucial to recognize that the state programs studied are all very different in design and implementation, were created by States who were ready and dedicated the resources necessary to implement such a program, and do not require results to be implemented in response to any particular end-of-pipe environmental standard. The commenter also fails to recount an important point made my New Jersey that it has no explanation as to why many of its large companies were implementing important pollution prevention changes before the State's mandatory pollution prevention planning program was even enacted. The commenter fails to account for the fact that unfunded mandates imposed by EPA will likely not see the same results as States who have designed and funded pollution prevention planning programs to meet individual State needs. It is also inevitable, considering the fact that each of the State programs cited is tailored to meet that State's needs, that a one size fits all federal approach will not meet the needs of individual States and may in fact be counterproductive for this reason. Furthermore, other States which have mandatory pollution prevention planning programs have not provided results to assess the success of their programs. In addition, some States, like Tennessee, maintain that they have made impressive pollution prevention progress using entirely voluntary technical assistance programs. In balance, EPA believes the commenter's assessment of State pollution prevention planning programs and the conclusion that a one size fits all mandatory pollution planning program will work universally well in all States is not well founded. The commenter has not considered all the aspects of this multi-faceted issue.

Finally, the commenter fails to consider the added cost and paperwork burden that may be imposed on companies. EPA has a limited paperwork burden and is committed to reducing it even further. This is of particular concern in the instant rulemaking if companies were required to prepare pollution prevention plans but were precluded from installing any beneficial pollution prevention measures because of the time constraints imposed by the statute's compliance deadlines. In these cases, additional paper work burdens is not justified.

WMPP(commenter CS4A-00036)

EPA Admits Cost Effectiveness of Feed Reductions. In its comments on the April 1996 proposal, MMT referred to EPA and other sources of information on the cost effectiveness of waste minimization and pollution prevention strategies that would reduce the combustion of chlorine and metals in hazardous waste feeds. In the NODA, EPA and other commenters echo this MMT presentation. For example, in describing the comments received on waste minimization approaches, EPA notes onsite incinerator owners/operators indicated "waste minimization can provide a cost effective approach to compliance." See 62 FR 24245 (May 2, 1997). Similarly. the Agency recognizes that companies may save money by pursuing waste minimization compliance options, and has incorporated the benefits into potential enforcement strategies for implementing the MACT rulemaking. "EPA realizes that some waste minimization compliance measures may be more cost effective than combustion based approaches." 62 FR 24248 (May 2, 1997). Such statements by EPA and the regulated community provide additional impetus for conducting comprehensive BTF analyses based upon feed reductions, since such reductions may be accomplished at little or no cost. (According to EPA's May 1997 Hazardous Waste Minimization and Combustion Strategy Update, the Agency is "identifying opportunities for WM/P2 that apply to facilities generating streams sent to combustion onsite." EPA 530-N-97-001, May 1997, p.4. This effort should provide important information for the required BTF analysis.) Significantly, these statements are confirmed by recent studies of pollution prevention benefits. For example, the State of New Jersey recently estimated that planning paid for itself eight-fold, and Hampshire Research Associates found that "planning pays for itself." (New Jersey P2 Report, p.11) Sixty-seven percent of survey respondents in Massachusetts indicated they saw direct savings as a result of implementing pollution prevention benefits. (Massachusetts TURA Report at vi.)

<u>Response:</u>

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Since the fast track rulemaking does not address MACT standard setting, this comment will be deferred to the future MACT Rulemaking.

WMPP(commenter CS4A-00036)
CONCLUSION. EPA should revise the MACT proposal, and the concepts contained in the NODA to fully realize the pollution prevention/waste minimization opportunities presented by this rulemaking. In particular, EPA should finalize an enhanced planning requirement for onsite facilities proposed in April 1996, conduct the required BTF analyses based upon substantial reductions in chlorine and metal feeds, make routine waste feed data publicly accessible, phase in chlorine and metal feed reductions for offsite facilities in accordance with EPA's waste minimization policy, expand public participation opportunities throughout the implementation scheme (including variance and compliance extension processes, and set emissions standards for individual metals in the hazardous waste feed.

Response:
EPA has addressed each of these comments in more detail in other portions of this document. Comments related to standard setting are deferred to the future MACT rulemaking.

WMPP(commenter CS4A-00044)
Both EPA and Congress repeatedly have emphasized the importance of pollution prevention and waste minimization as a means to reduce air pollution. With regard to air toxics, the Clean Air Act directs EPA to set MACT standards through the application of measures which: reduce the volume of or eliminate emissions of such pollutants through process changes, substitution of materials or other modifications.[25] [Footnote 25: Id, 112(d)(2)] Significantly, the Act lists these pollution prevention measures first among the specified methods for reducing toxic air pollution, which include enclosure, end-of-stack technologies, and standards for design, equipment, work practice, operations and operator training. Accordingly, the legislative history of the 1990 Amendments to the Clean Air Act emphasizes Congress's intent to use pollution prevention and waste minimization measures to reduce toxic air pollution. The report of the Senate Committee on Environment and Public Works states: The technologies, practices or strategies which are to be considered in setting emission standards under this subsection go beyond the traditional end-of-the- stack treatment or abatement system. The Administrator is to give priority to technologies or strategies which reduce the amount of pollution generated through process change or the substitution of materials less hazardous. Pollution prevention is the preferred strategy wherever possible.[26] [Footnote 26: Legislative History of the Clean Air Act Amendments of 1990, S. Rep. 101-228, 101st Cong., 1st Sess. (1989) at 8508 (hereinafter "CAA Leg. Hist.")(emphasis added).] Responding to the Clean Air Act's requirements, as well as language in RCRA and the Pollution Prevention Act of 1990, EPA has also emphasized the importance of pollution prevention. In the NPRM, EPA stated that: [a]lthough the Agency has devoted significant effort to evaluation and promotion of waste minimization in the past, the Hazardous Waste

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Minimization and Combustion Strategy, first announced in May 1993, recently provided a new impetus to this effort. The Strategy had several components, among which was reducing the amount and toxicity of hazardous waste generated in the United States.[27] [Footnote 27: NPRM, at 17361]. This led to EPA's Waste Minimization National Plan, released in 1994, which: focuses on the goal of reducing persistent, bioaccumlative, and toxic constituents in hazardous waste nationally by 25 percent by the year 2000 and 50 percent by the year 2005.[28] [Footnote 28: Id.] Despite these laudable strategies and plans, the NODA fails to require, or even encourage, pollution prevention and waste minimization.

1) <u>The NODA Fails To Require Waste Minimization</u>. The NPRM included two possible pollution prevention/waste minimization requirements. One would have required all facilities: to provide adequate information on alternative pollution prevention/waste minimization measures that reduce hazardous waste constituents entering the feedstream, particularly the most persistent, bioaccumulative and toxic constituents, in all permit applications.[29] [Footnote 29: NPRM, at 17453.] The other would have given EPA regions and states discretion: to make case by case determinations regarding whether a facility must provide adequate information for reducing measures, including pollution prevention/waste minimization measures, that will minimize hazardous waste constituents entering the waste stream. [30] [Footnote 30: NPRM, at 17454.] Neither option was adequate. The first and better of the two options would only have required sources to provide information on pollution prevention/waste minimization measures, but would not have required sources actually to implement those measures. In addition, it would not have required sources to take any steps until the time of their RCRA permit application. Since sources may not need to submit permit applications for years after the final rule is promulgated, many sources' evaluation of pollution prevention/ waste minimization, alternatives would occur too late. Such sources already would have decided to continue to use their combustion device, and would have invested in pollution control equipment. Under these circumstances a source would have little economic incentive to consider alternatives. Nonetheless, the NPRM at least contained some pollution prevention/waste minimization requirements to substantiate EPA's broad policy level commitments to these measures. The NODA contains none. EPA's explanation for this change is incoherent. At one point EPA states that mandatory pollution prevention requirements are unnecessary because the large companies to which the rule applies already undertake pollution prevention activities "where it makes sense to do so."[31][Footnote 31: NODA, at 24246.] Logically, this rationale must rest on the belief that companies should decide when it makes sense to use pollution prevention measures, even though their decisions will not necessarily take the public interest into account. This belief clearly conflicts with the language of the Clean Air Act, the intent of Congress, and EPA's repeated emphasis on the importance of pollution prevention and waste minimization, all of which indicate that EPA, representing the public, should set standards for pollution prevention.

EPA also justifies its abandonment of pollution prevention requirements by arguing that "it is not appropriate" for EPA to require planning where states have declined to do so, even though mandatory pollution prevention requirements may produce significant results, and less than half of the incinerators are in states with mandatory planning requirements.[32]

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[Footnote 32: NODA, at 24246, 24244-45.] Of course, this rationale also conflicts with the Act, the intent of Congress, and EPA's stated goals. Indeed, it is in conflict with the most basic purpose of EPA and federal environmental regulation: to ensure adequate and consistent protection of public health and the environment throughout the country. By abdicating its responsibility to require pollution prevention measures, EPA will ensure inconsistent protection from air toxics generated by HWC, and expose the unlucky citizens of states without adequate pollution prevention requirements to toxic air pollution that could be prevented.

Response:

EPA disagrees with the commenter’s assertion that the NODA fails to require, or even encourage, pollution prevention and waste minimization. In addition to the waste minimization options proposed in the NPRM, the NODA clearly proposed several additional innovative incentive-based pollution prevention waste minimization options that encourage.

The commenter states that neither of the two waste minimization facility planning options proposed in the NPRM were adequate because neither would have required facilities to implement pollution prevention/waste minimization measures identified in their facility plans. There is nothing in the CAA or any other Federal law that requires pollution prevention planning, much less implementing particular pollution prevention measures that might be identified in a plan. Among the 15 States that have mandatory pollution prevention planning programs, only two or three have requirements for implementation of measures identified in facility plans. However, there is little experience in these States regarding implementation of this requirement.

The commenter claims neither of these options would have required sources to take any steps until the time of their RCRA permit application. The options proposed in the NPRM and the NODA clearly referred to implementation and compliance in the context of the CAA MACT and Title V programs. The NODA clearly focused on steps required for companies to demonstrate compliance with the CAA and the steps required to receive an extension of the CAA compliance period in cases where pollution prevention/waste minimization measures are installed. EPA has also addressed the issues involved with making RCRA permit modifications in a fashion that would make RCRA requirements consistent with the CAA. The commenter’s concern that no steps would be taken until years after a RCRA permit application seems to be unfounded.

The commenter asserts that the NPRM proposals substantiated EPA’s commitment to pollution prevention, and that the NODA contains none. EPA reminds the commenter that the proposals contained in the NODA were proposed in addition to the proposals in the NPRM. Given the limited guidance in the CAA regarding possible pollution prevention approaches, the act of seeking public comment on proposals in the NPRM and additional proposals in the NODA reflect EPA’s clear intent to explore as many innovative pollution prevention approaches as possible, which is entirely consistent and supportive of the intent of the CAA.

The commenter remarks that EPA’s opinion that mandatory pollution prevention requirements are unnecessary because the large companies to which the rule applies already undertake pollution prevention activities "where it makes sense to do so."[31][Footnote 31: NODA, at 24246.] is incoherent because it must rest on the belief that companies should decide when it makes sense to use pollution prevention measures, even though their decisions will not necessarily take the public interest into account. The commenter asserts that this belief clearly conflicts with the language of the Clean Air Act, the intent of Congress, and EPA's repeated emphasis on the importance of pollution prevention and waste minimization, all of which indicate that EPA, representing the public, should set standards for pollution prevention.

EPA disagrees with the commenter's reasoning which is based on an assertion that the CAA intends for EPA to set standards for pollution prevention. While there is a clear intent in Section 112(d)(2) for EPA to consider "process changes, the substitution of materials or other modifications" (which EPA interprets to mean pollution prevention) and other possible methods including closed systems, treatment processes, changes in work practices, operating standards and other approaches in setting MACT standards, there is nothing in the CAA that suggests EPA should set standards for pollution prevention. In fact, EPA has considered a variety of options for causing the regulated community to identify and install pollution prevention measures, either alone or in combination with treatment measures to meet environmental standards which protect the public.

The commenter disagrees with EPA's rationale for not favoring mandatory pollution prevention requirements. The commenter asserts that EPA is abdicating its responsibility to require pollution prevention measures, and that this will ensure inconsistent protection from air toxics generated by HWC. EPA assures the commenter that the concerted effort made by EPA to determine MACT standards for this regulated community will meet the goals and objectives of the CAA, and that there is nothing in the CAA that implies the public health can only be protected if pollution prevention requirements are promulgated.

WMPP(commenter CS4A-00068)

U.S. EPA appears to come to the conclusion that mandatory planning is ineffective, and that U.S. EPA should <u>not further burden states and facilities</u> with additional requirements. We disagree with this conclusion. Many of the facilities covered by this rulemaking are already required to prepare state-mandated plans. For those facilities in states without mandated planning, or, in states where offsite (commercial) facilities are specifically exempted from state planning requirements (such as in California), the RCRA "program in place" requirement could and should be used more effectively to require planning, as the federal guidelines for these programs closely parallel state mandatory planning programs. We understand that making the "program in place" requirements more effective has been problematic for U.S. EPA. However, the time has come to advance more than rhetoric with respect to pollution prevention. Failure to do so now, in this rulemaking, will result in a substantial expenditure of time and money to upgrade combustion capacity that may be neither necessary nor appropriate. This expenditure will result in substantial disincentives for pollution prevention. For reasons that will be discussed later in these comments, reliance on existing state

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mandatory requirements will be insufficient to meet U.S. EPA's pollution prevention goals in this rulemaking. U.S. EPA should ensure that mandatory planning requirements proposed in this rulemaking specifically identify combustible wastes as foci for reductions, and contain aggressive reduction goals.

U.S. EPA should not misunderstand the nature of existing facility pollution prevention planning requirements. In general, these requirements encourage facilities to reduce or eliminate waste and pollutants. There is a great deal of flexibility among the state programs regarding how much waste is reduced, and which wastes are reduced; furthermore, the facility planning programs generally do not require a specified amount of reduction of a waste stream or hazardous constituent. For these reasons, reliance on existing state mandatory requirements will be insufficient to meet U.S. EPA's pollution prevention goals in this rulemaking.

The Notice states: "It would not be appropriate for EPA to either add additional burden to State waste minimization programs that already exist or to States that have chosen not to have waste minimization planning programs." U.S. EPA has not hesitated in the past to impose regulatory burdens when to do so serves U.S. EPA's policy goals and/or legislative mandates. Why would U.S. EPA refrain from doing so in this rulemaking? By crafting a hazardous waste combustion rule that would force the implementation of pollution prevention, U.S. EPA would simultaneously:

- reduce the need for hazardous waste combustion;
- reduce emissions of toxic constituents from combustion facilities;
- conform to U.S. EPA policy, as expressed in RCRA, CAA, PPA, the Waste Minimization National Plan, U.S. EPA's strategy for waste minimization and combustion; and U.S. EPA's goals for persistent, bioaccumulative, and toxic chemicals;
- facilitate cost reductions and efficiency improvements for hazardous waste generators;
- conform to U.S. EPA policy regarding environmental justice (since many incinerators are located in low-income areas); and
- reassure the public that U.S. EPA is indeed doing all it can to reduce the impact of hazardous waste in their communities.

Such a rulemaking would illustrate U.S. EPA's intent to follow through on these legislative and policy commitments. Failure to do so in this important rulemaking will bring into question U.S. EPA's commitment to pollution prevention.

Response:

The commenter strongly recommends that EPA implement mandatory pollution prevention planning requirements that are more stringent than existing state mandatory requirements because reliance on State programs is insufficient to meet U.S. EPA's pollution prevention goals in this rulemaking. The commenter states this is because there is a great deal of flexibility among the state programs regarding how much waste is reduced, and which wastes are reduced; furthermore, the facility planning programs generally do not require a specified amount of reduction of a waste stream or hazardous constituent.

EPA disagrees with the commenter’s reasoning for several reasons. First, it is not clear, based on comments from the States, that a Federal mandatory pollution prevention planning will provide a better environmental result than an incentive based voluntary approach. California and the National Pollution Prevention Roundtable argue for such an approach. On the other hand, one State that operates a completely voluntary technical assistance program reports important success and stated its opposition to a mandatory pollution prevention planning approach. Another State that operates a mandatory pollution prevention planning program stated its opposition to waste minimization/ pollution prevention requirements in this MACT rule. New Jersey, which operates one of the most prescriptive mandatory pollution prevention planning programs, states in its program evaluation that its large companies were pursuing important waste minimization/pollution prevention reductions well before the State’s pollution prevention planning legislation was enacted--and the State notes that it can not explain why or how much of the pollution prevention success in recent years would have happened despite State legislation. Finally, as reported by several States and large companies affected by this rule, the most important incentive needed to install pollution prevention measures is sufficient time to redesign production processes and install the necessary pollution prevention and treatment measures to meet MACT standards--in many cases four years (including three years plus a one year extension, allowed under the CAA) will not be long enough. Therefore, a Federal requirement for pollution prevention planning, could, in many cases, be a wasted effort without sufficient time to install measures identified in the plan.

Thus, there is a variety of reasons why a Federal requirement for mandatory pollution prevention planning is not wise at this time.

WMPP(commenter CS4A-00068)
Mandatory Pollution Prevention Planning Effectiveness. In response to a company's argument that mandatory waste minimization planning should be made a MACT requirement, U.S. EPA states: "While mandatory facility planning on the surface may appear to force facilities to consider waste minimization solutions providing appropriate regulatory incentives and harnessing the power of public dialogue for companies to identify and stall waste minimization measures will result in more waste minimization measures... A Federal mandatory and prescriptively detailed waste minimization planning requirement would be, at best, marginally effective in causing large companies... to identify and install waste minimization measures beyond what they would do under current requirements." The notice then states: "Large companies generally already have the necessary staff, information, and resources to pursue waste minimization alternatives where it makes sense to do so. Whether large companies choose waste minimization solutions over end-of-pipe solutions depends on a variety of economic and other factors that outweigh attempts to identify additional waste minimization alternatives."

While we agree with the fact that companies are dealing with a variety of motivators when choosing waste management options, we would like to stress that, as a matter of federal and state policy, it is incumbent that regulatory programs be implemented in such a way as to

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consistently stress the primacy of pollution prevention. This emphasis is needed because, based on our experience, we have not observed that companies always "pursue waste minimization alternatives where it makes sense to do so." Regulatory programs should create environments where pollution prevention is always the primary compliance method, with pollution control coming second. The U.S. EPA should ensure that this MACT creates a technical environment that ensures that it "makes sense to do so."

With regard to the effectiveness of mandated pollution prevention planning: we are curious how U.S. EPA came to the conclusion that mandatory planning is ineffective, and that "Some States believe that mandatory waste minimization planning does not improve waste minimization results". Studies completed by seven states with mandatory planning requirements came to no such conclusion. [4] [The studies include "Evaluation of the Effectiveness of Pollution Prevention Planning in New Jersey--A Program-Based Evaluation", May 1996; "Is Pollution Prevention Planning Beneficial in Texas?," 1995, Gayle Bowles Haecker, Baylor University; Minnesota Office of Environmental Assistance" 1996 Pollution Prevention Evaluation Report"; the Massachusetts Toxics Use Reduction Program, "Evaluating Progress--A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation," March 1997; "Oregon's Toxic Use Reduction Program--How Well is it Working?," presentation by Sandy Gurkewitz,

Toxics Use Reduction Program Coordinator, November 1996; "Report by the State Auditor of California--Review of the California Department of Toxic Substances Control's Implementation of the Hazardous Waste Source Reduction and Management Review Act of 1989," 1993; and the Washington State "Evaluation of Participant Feedback," Washington State Department of Ecology Pollution Prevention Planning Program, Martha Prothro, R. Marc Steiner, Ross & Associates, December 1995.]

A majority of the programs found that the pollution prevention planning program: - was effective in identifying pollution prevention opportunities, - was effective in facilitating "improved environmental management," - was associated with cost benefits, and - was associated with expected future benefits, and - was associated with expected future benefits. Generators also noted other benefits, including "less regulation" as a result of the planning activities (often due to moving from large to small quantity generator status), better relationships between environmental and production staff at the facility, and other improvements, such as energy and water conservation improvements (as a result of planning). The cost-effectiveness of facility planning is well-documented in these studies. New Jersey found that the average savings from reductions projects outweighed planning cost, and that planning paid for itself eight-fold, including administrative program costs. Texas found that 77 percent of the facilities "broke even or had a net cost savings form pollution prevention activities" (48 percent with a net cost savings of $40k or greater). In California, analysis of the pollution prevention plans prepared by the petroleum industry indicated an annual savings for the industry ranging from eleven to sixty-seven million dollars, with additional projected savings of between four and a half to twenty-seven million dollars. Finally, in Washington State, 79 percent of the facilities surveyed for the study have realized direct cost savings. Finally, U.S. EPA's Pollution Prevention Policy Office recently conducted a "Study of Industry Motivation for Pollution Prevention." In its draft (February 1996) Executive

Summary, U.S. EPA found that both large and small generators found mandated planning requirements significant for motivating planning and for getting them to consider environmental issues in their jobs. It is clear that mandated planning has been effective in motivating facilities to evaluate and implement pollution prevention opportunities.

<ins>Response:</ins>
The commenter observes that companies do not always "pursue waste minimization alternatives where it makes sense to do so," and states that regulatory programs should create environments where pollution prevention is always the primary compliance method, with pollution control coming second, and that EPA should ensure that this MACT creates a technical environment that ensures that it "makes sense to do so."

EPA agrees with commenter's observation that companies do not always implement waste minimization where it makes sense to do so (from the government's perspective). However, EPA disagrees with the commenter's assumption that requiring a Federal mandatory pollution prevention planning program that is more stringent than any of the State mandatory pollution prevention planning programs will cause companies to always select a pollution prevention solution that the government believes makes the most sense. No matter whether EPA uses mandatory or incentive based approaches that may influence companies to identify pollution prevention alternatives, individual companies will always be the entity that decides what makes sense to install. As the commenter agrees, the internal economics and other corporate factors are the strongest influencers of corporate decision making. Government programs can, at best, create incentives that could lead to pollution prevention solutions. After reviewing the information available on this issue, EPA does mandatory pollution prevention planning does not provide the appropriate incentive in the context in this rulemaking.

WMPP(commenter CS4A-00068)
Mandatory pollution prevention facility planning requirements should also be imposed on facilities generating combustible wastes. Such requirements should include aggressive reduction goals for combustible waste streams. The mandatory planning requirement would serve as a complementary strategy to prevention-based MACT standards and would ensure that facilities consider pollution prevention as a first choice in meeting the MACT standard, rather than enhancing combustion capabilities. Active implementation of planning goals would assist facilities in meeting the U.S. EPA's waste minimization strategy objectives, and the MACT standard itself. This approach would enable U.S. EPA to communicate its expectation that industry actively work to reduce combustible waste, thereby reducing the need for combustion facilities.

U.S. EPA should ensure that mandatory planning requirements proposed in this rulemaking specifically identify combustible wastes as foci for reductions, and contain aggressive reduction goals. It could be argued that a MACT BTF standard would itself drive facilities to conduct pollution prevention planning, rendering additional mandatory planning requirements unnecessary. We would respond that this rulemaking should contain such a requirement in order to ensure that facilities plan in a consistent, comprehensive fashion, with

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a meaningful level of effort. Including mandatory planning as a requirement in this rulemaking would also ensure that facilities consider pollution prevention prior to combustion facility upgrades when meeting the MACT. We recommend that a such a planning requirement also address other constituents targeted by U.S. EPA in its various programs, including metals for which U.S. EPA did not propose emissions standards, halogenated organics, and other persistent, bioaccumulative, and toxic constituents that are addressed in other U.S. EPA initiatives. Facilities should include an evaluation of the potential for elimination of the combustion of these wastes entirely through pollution prevention and alternative treatment measures.

U.S. EPA should use the existing RCRA hazardous waste minimization "program in place" guidance to identify appropriate elements of pollution prevention planning. This guidance parallels state mandatory planning requirements and, if effectively implemented, should assist industry in meeting the mandatory planning requirement for this rulemaking. U.S. EPA should ensure that mandatory planning requirements for these facilities consider, and augment, [1] where needed, existing state planning programs. [Footnote 1: This could be achieved by adding specific requirements to plan for reducing combustible wastes, and by establishing reduction goals for these wastes.]

Response:

The CAA MACT standard setting authority addresses the concept of pollution prevention in regard to the facilities at which the MACT standard applies. The commenter’s recommendation to impose mandatory pollution prevention planning requirements on hazardous waste generators that are not subject to this MACT rulemaking is outside the scope of this rulemaking. RCRA also does not contain authority to require mandatory pollution prevention planning for generators. In fact, the legislative history of RCRA cautions EPA to avoid such an approach.

WM(no commenter number)

Mandatory pollution prevention facility planning requirements should also be imposed on facilities generating combustible wastes. Such requirements should include aggressive reduction goals for combustible waste streams. The mandatory planning requirement would serve as a complementary strategy to prevention-based MACT standards and would ensure that facilities consider pollution prevention as a first choice in meeting the MACT standard, rather than enhancing combustion capabilities. Active implementation of planning goals would assist facilities in meeting the U.S. EPA's waste minimization strategy objectives, and the MACT standard itself.

U.S. EPA should use the existing RCRA hazardous waste minimization "program in place" guidance to identify appropriate elements of pollution prevention planning. This guidance parallels state mandatory planning requirements and, if effectively implemented, should assist industry in meeting the mandatory planning requirement for this rulemaking.

U.S. EPA should ensure that mandatory planning requirements for these facilities consider, and augment, where needed, existing state planning programs.

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Response:
EPA disagrees with the commenter's reasoning for several reasons. First, it is not clear, based on comments from the States, that a Federal mandatory pollution prevention planning will provide a better environmental result than an incentive based voluntary approach. California and the National Pollution Prevention Roundtable argue for such an approach. On the other hand, one State that operates a completely voluntary technical assistance program reports important success and stated its opposition to a mandatory pollution prevention planning approach. Another State that operates a mandatory pollution prevention planning program stated its opposition to waste minimization/ pollution prevention requirements in this MACT rule. New Jersey, which operates one of the most prescriptive mandatory pollution prevention planning programs, states in its program evaluation that its large companies were pursuing important waste minimization/pollution prevention reductions well before the State's pollution prevention planning legislation was enacted--and the State notes that it can not explain why or how much of the pollution prevention success in recent years would have happened despite State legislation. Finally, as reported by several States and large companies affected by this rule, the most important incentive needed to install pollution prevention measures is sufficient time to redesign production processes and install the necessary pollution prevention and treatment measures to meet MACT standards--in many cases four years (including three years plus a one year extension, allowed under the CAA) will not be long enough. Therefore, a Federal requirement for pollution prevention planning, could, in many cases, be a wasted effort without sufficient time to install measures identified in the plan.
Thus, there is a variety of reasons why a Federal requirement for mandatory pollution prevention planning is not appropriate.

WMPP(commenter CS4A-00068)
To provide a predictable economic environment for facilities that generate combustible hazardous waste, a graduated fee could be applied to these wastes, increasing over time. This would provide additional incentives for facilities to reduce or eliminate these wastes, in a predictable economic environment. It is imperative that U.S. EPA promote pollution prevention in this rulemaking, in order to avoid additional investments in combustion technologies that would serve as a disincentive for years to come to facilities considering investing in pollution prevention for combustible wastes. U.S. EPA should conform this rulemaking with national policy as set in the Pollution Prevention Act (PPA), the Clean Air Act (CAA), and RCRA. In addition, U.S. EPA's Waste Minimization National Plan strategy for waste minimization and combustion, and its prioritization for persistent, bioaccumulative, and toxic constituents both contain pollution prevention goals for combustible wastes and direct U.S. EPA to consider pollution prevention as a priority.

Response:
The CAA does not provide authority to impose a national fee on waste generation in the MACT standard setting program.

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WM(no comment number)
To provide a predictable economic environment for facilities that generate combustible hazardous waste, a graduated fee could be applied to these wastes, increasing over time. This would provide additional incentives for facilities to reduce or eliminate these wastes, in a predictable economic environment.

Response:
The CAA does not provide authority to impose a national fee on waste generation in the MACT standard setting program.

WMPP(comment CS4A-00068)
An example of regulatory approaches that minimize upstream generation of hazardous constituents is the discharge limits imposed via National Pollution Discharge Elimination System (NPDES) permit requirements on publicly owned treatment works (POTWs) in the south San Francisco Bay area. These metals limits, imposed because of documented health risks in the south Bay, are too low to be economically (and perhaps technically as well) met via POTW treatment. The POTWs created "influent reduction programs" to reduce the amount of these constituents entering the treatment plants. The programs consist of technical assistance to dischargers, public education, and in one case, a city ordinance requiring that metal finishers implement certain pollution prevention strategies in order to discharge to the POTW. These programs have been remarkably successful in enabling the POTWs to meet these limits in a very cost-effective manner (both for the POTWs and the dischargers, who have generally saved money through their pollution prevention efforts). For this rulemaking, we believe that mandatory pollution prevention planning for combustible hazardous waste generators is the analog to this POTW approach. Another example of this approach was implemented by California's Air Resources Board (ARB) in 1988. ARB adopted an airborne toxics control measure (ATCM) to control emissions of hexavalent chromium from chrome plating and chromic acid anodizing operations. The ATCM contained both an interim requirement (based on best available end-of-pipe control methods) and a technology-forcing requirement for platers that emitted more than ten pounds of hexavalent chromium per year. This "technology-forcing" requirement forced into implementation a compliance strategy that combined pollution prevention and pollution control techniques; pollution control techniques alone could not meet the standard. Tests of this approach showed that control device-only emissions were further reduced by approximately fifty percent when both process modifications (i.e. pollution prevention) and a control device were used. [2] [See Pollution Prevention in California, an Overview of California's Pollution Prevention Programs and Technologies, California Department of Toxic Substances Control, July 1992, pp. 78-83.]

Regulatory approaches that force pollution prevention must be an integral part of U.S. EPA's regulatory approach to conform to legislative and U.S. EPA's directives to promote pollution prevention as the pollution management strategy of choice. Failure to use its regulatory authority in this rulemaking to aggressively push combustible hazardous waste generators toward pollution prevention management options will result in significant investments in continued reliance on incineration for these waste streams. This will result in disincentives for reduction of these wastes, and will commit us to continued incineration, in opposition to policy establishing pollution prevention as the management strategy of choice. It is important to realize the significant additional benefits that a full integration of pollution prevention into this rulemaking would achieve. These include: - increased efficiency, resulting in raw materials savings for industry and reduced demand for toxic materials (as feedstocks), - the reduction of additional hazardous constituents not necessarily targeted in this rulemaking, - decreases in occupational exposures within facilities, - reduction of community exposure to hazardous substances, and - avoided waste management costs for generators.

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Response:
The CAA MACT standard setting authority addresses the concept of pollution prevention in regard to changing production processes at the facilities at which the MACT standard applies. The commenter's recommendation to impose mandatory pollution prevention planning requirements on hazardous waste generators that are not subject to this MACT rulemaking is outside the scope of this rulemaking. RCRA also does not contain authority to require mandatory pollution prevention planning for generators. In fact, the legislative history of RCRA cautions EPA to avoid such an approach.

WM(commenter NPPR)
The U.S EPA should ensure that emission standards set for hazardous waste combustion facilities mandate the implementation of pollution prevention (source reduction) by the generators of the waste feed. The "maximum achievable control technology" should presume a significant reduction pf hazardous constituents in feed streams. This can be achieved by phasing in feed reductions for offsite facilities, and assessing substantial feed limit reductions in beyond-the-floor (BTF) emission standards.

Response:
The CAA MACT standard setting authority addresses the concept of pollution prevention in regard to the facilities at which the MACT standard applies. The commenter's recommendation to impose mandatory pollution prevention planning requirements on hazardous waste generators that are not subject to this MACT rulemaking is outside the scope of this rulemaking. RCRA also does not contain authority to require mandatory pollution prevention planning for generators. In fact, the legislative history of RCRA cautions EPA to avoid such an approach.
EPA is considering the extent to which restrictions on waste feed at the regulated combustion facility in the development of MACT standards. This portion of the comment is deferred to that future rulemaking.

WM(commenter NPPR)

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It is imperative that U.S. EPA promote pollution prevention in this rulemaking, in order to avoid additional investment in combustion technologies that would serve as a disincentive for years to come for facilities considering investing in pollution prevention. EPA should integrate this rulemaking with national policy as set in the Pollution Prevention Act (PPA), the Clean Air Act (CAA), and the Resource Conservation and Recovery Act (RCRA). In addition, U.S. EPA's Waste Minimization National Plan's strategy for waste minimization and combustion, and its prioritization of persistent, bioaccumulative, and toxic constituents both contain pollution prevention as a top priority.

Response:
EPA agrees with the commenter's recommendation to promote pollution prevention in this rulemaking in order to avoid additional investment in combustion technologies that would serve as a disincentive for years to come for facilities considering investing in pollution prevention. EPA should integrate this rulemaking with national policy as set in the Pollution Prevention Act (PPA), the Clean Air Act (CAA), and the Resource Conservation and Recovery Act (RCRA).

OVERALL SUPPORT OF NODA WASTE MIN. INITIATIVES

WMPP(commenter CS4A-00039)
Dow supports waste minimization and the waste management hierarchy of source reduction, reuse/recycling, treatment and disposal. Dow also agrees with EPA that waste minimization is an ongoing process that should be under continual investigation. However, EPA should recognize that even ongoing waste minimization programs may not be able to anticipate the best combination of waste minimization and treatment measures to achieve compliance with newly promulgated standards. Dow agrees with EPA that in some cases, particular large complex manufacturing operations, the three year (or three years plus one year extension) compliance period may not be sufficient time to consider waste minimization measures. Dow therefore supports the agency in promulgating regulatory incentives that are intended to encourage the pursuit of waste minimization measures to reduce or eliminate hazardous wastes entering combustion feed streams. Dow feels that the three regulatory initiatives proposed (the one year extension to the three year compliance period allowed under the Clean Air Act in cases where the additional time is clearly needed, extending the agency's current audit and penalty policies to allow some companies to enter into a written consent agreement or consent order (CA/CO) for periods that extend beyond four years and the NIC approach) provide companies with appropriate incentives to pursue waste minimization measures to achieve compliance.

Response:

EPA acknowledges the commenter's support for the waste minimization incentives proposed, and the commenter's caution that the time incentives proposed may not be adequate incentive in some cases.

WMPP(commenter CS4A-00023)
CRWI supports waste minimization and the waste management hierarchy of source reduction, reuse/ recycling, treatment and disposal. CRWI also agrees with EPA that waste minimization is an ongoing process that should be continually under investigation in all companies. However, EPA should recognize that even ongoing waste minimization programs may not be able to anticipate the best combination of waste minimization and treatment measures to achieve compliance with newly promulgated standards. CRWI agrees with EPA that in some cases, particularly at large complex manufacturing operations, the three year (or three years plus one year extension) compliance period may not be sufficient time to consider waste minimization measures. CRWI supports the agency in promulgating regulatory incentives that are intended to encourage companies to pursue waste minimization measures to reduce or eliminate hazardous wastes entering combustion feed streams. CRWI feels that the three regulatory initiatives proposed (the one year extension to the three year compliance period allowed under the Clean Air Act in cases where the additional time is clearly needed; extending the agency's current audit and penalty policies to allow some companies to enter into a written consent agreement or consent order (CA/CO) for periods that extend beyond four years; and the NIC approach) provide companies with appropriate incentives to pursue waste minimization measures to achieve compliance.

Response:
EPA acknowledges the commenter’s support for the waste minimization incentives proposed, and the commenter’s caution that the time incentives proposed may not be adequate incentive in some cases.

WMPP(commenter CS4A-00024)
The NACR supports waste minimization. Counseling generators on waste minimization opportunities is one of the obligations assumed by NACR members through Responsible Recycling SM, and members will continue to do so, with or without additional regulatory incentives. Where significant additional gains that benefit all stakeholders can be realized through cooperative efforts (as both EPA's proposal and NACR's comments suggest), we welcome the opportunity to continue to explore all reasonable alternatives with the agency.

Response:
EPA acknowledges the commenter’s support for the waste minimization incentives proposed.

WMPP(commenter CS4A-00048)
The Agency is asking for comment on a refined approach that encourages facilities to consider waste minimization alternatives, uses public dialogue to advance waste minimization efforts, and provides regulatory incentives for companies to pursue waste minimization

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solutions. Glaxo Wellcome Inc. supports the use of regulatory incentives especially those that would build in permit flexibility. However, in order for this concept to be useful to the regulated community, it must still be implemented within the framework of the MACT standards because that is where flexibility will be critical.

Response:
EPA acknowledges the commenter's support for the waste minimization incentives proposed.

WMIN(commenter CS4A-00041)
CKRC Supports EPA's Source Reduction Goals But Is Concerned With Several Aspects Of The Agency's Attempt To Address The 5000 Btu/Lb. "Policy." CKRC supports EPA's national goals for source reduction of the most persistent, bioaccumulative and toxic hazardous constituents (PBT's) in hazardous wastes and would support stakeholder discussions on this topic. However, we believe achieving those goals will require the active involvement of all industrial sectors including all segments of the hazardous waste treatment and disposal industry.

Response:
EPA agrees with the commenter's assessment and looks forward to proactive involvement by industry sectors.

WMPP(commenter CS4A-00031)
Moreover, with the exception of the NIC approach, DOE believes that the additional provisions offered by EPA provide sources, including DOE, with appropriate incentives to consider waste minimization measures to achieve compliance with MACT standards.

Response:
EPA acknowledges the commenter's support for the proposed incentives, with the exception of the NIC option.

WM(commenter NPPR)
We support U.S. EPS's attempt to incorporate pollution prevention in this rulemaking. However, we believe that stronger measures are needed in order to implement EPA's National Waste Minimization Plan, ensuring that facilities minimize the quantities of hazardous waste requiring combustion.

Response:
EPA acknowledges the commenter's support for pollution prevention incentives. EPA refers the commenter to the fast track preamble for a detailed explanation of EPA's reasons for selecting certain incentives and rejecting others.

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WASTE MINIMIZATION DEFINITION AND MEASUREMENT

WMPP(commenter CS4A-00041)
CKRC's members' contributions to EPA's waste minimization goals cannot appropriately be linked solely to source reduction. The Agency's apparent blind faith that any waste volume reduction going to cement kilns is an environmental benefit is factually unsupportable. CKRC is aware of nothing in the record for this rulemaking, nor of any other EPA documentation which demonstrates that any alternative practices and materials that generators may use in the name of source reduction will yield environmental benefits superior to those provided by cement kilns. In the NODA, EPA says that, "Reducing the amount of hazardous waste entering the combustion feed streams provides greater long-term levels of protection for public health and the environment than other non-waste minimization/pollution prevention measures that could be used to comply with the MACT standard." (62 FR 24247, col. 3). This statement is wholly unsupported in the record for this rulemaking; and CKRC is aware of no other EPA data or information which supports the Agency assertion. For that reason, and because it is simply incorrect, the statement is preposterous! CKRC specifically objects to the part of the sentence which implies that combustion of waste is not waste minimization. As discussed above, EPA has, on several other occasions, recognized that recycling is part of waste minimization and that burning waste for energy recovery in cement kilns is a form of recycling. Hence, recovering energy from waste in cement kilns is a type of waste minimization. EPA should reaffirm those facts and distinctly acknowledge that its own data and numerous other tests and studies show that burning HWF in cement kilns does not pose unacceptable risk to human health and the environment. EPA should further make clear to the public that the unspecified "non-waste minimization/pollution prevention measures" have not been studied and, therefore, cannot be excluded as possible sources of unacceptable risk.

Response:
EPA refers the commenter to the finding of the Congress, in Section 6602 of the Pollution Prevention Act of 1990, that: “Source reduction is fundamentally different and more desirable than waste management and pollution control.” Congress’ intent here is clearly directed at multi-media environmental protection. RCRA contains a nearly identical policy concerning the reduction of hazardous wastes. A primary goal of the CAA (at Section 101(c)) is to “encourage or otherwise promote reasonable Federal, State and local government actions, consistent with the provisions of this Act, for pollution prevention.” This goal is certainly consistent with, although not identical to, the goals of the PPA and RCRA. The Agency also refers the commenter to the environmental literature which cites many examples where pollution prevention is more cost effective and environmentally more reliable than treatment or disposal, and to the comments of other commercial combustors of hazardous waste contained in the fast track docket which acknowledge the preferability of pollution prevention over treatment and disposal in many cases.

EPA has also maintained a consistent policy that, while burning for energy recovery and combustion of hazardous waste is entirely permissible under RCRA, this activity is not included in the definition of pollution prevention or waste minimization. This distinction should not be construed by the commenter to be connected to acceptable risk. These are separate issues.

The commenter’s recommendation that “unspecified pollution prevention measures” are untested and may be sources of unacceptable risk is not necessary. The requirements contained in the fast track rulemaking make it clear that facilities who request compliance extensions to install pollution prevention measures must specify what those measures are, and that the facility will achieve compliance with applicable standards as a result of the measures used.

WMPP(commenter CS4A-00045)

WASTE MINIMIZATION & POLLUTION PREVENTION. In the Overview section at 65 FR 24244, there is reference to source reduction as follows: "Pollution prevention, also referred to as source reduction, includes any practice that reduces the amount of pollutants entering at waste stream, prior to recycling, treatment or disposal." It is important to note that for a listed hazardous waste, the reduction of pollutants entering a waste stream does not result in a reduction in the quantity of hazardous waste generated and therefore does not qualify as waste minimization. For example, several large waste streams, such as those derived from the treatment of a hazardous waste, may not contain any detectable amount of the listed constituents or other constituents considered to be hazardous. However, the entire waste stream will be required to be evaluated as it hazardous waste. For wastewater streams, this results in a substantial hazardous waste stream which may contain only de minimus quantities of contaminants. In addition, everyone is aware that delisting, the only method to remove a stream from the hazardous waste scheme under such circumstances has been proven to be largely inadequate.

Another example includes the real situation where a manufacturing process results in an ignitable waste stream that is classified as DOOl/FOO3 because it contains spent solvent, (e.g., methyl isobutyl ketone). In-process recycling will reduce the amount of methyl isobutyl ketone in the resulting waste stream to the point where the waste stream is no longer ignitable. However, because the stream contained greater than 10% spent solvent methyl isobutyl ketone at the point of recycle, the resulting waste stream is still listed as F003. This is true even when the resulting waste stream does not exhibit a hazardous characteristic and contains concentrations of methyl isobutyl ketone less than 5%. In this case, in-process recycling and reduction of pollutants entering the final waste stream does little to reduce the amount of hazardous waste generated. Eastman brings this to the Agency's attention because there is a tendency for certain parties to confuse pollution prevention project results with respect to hazardous waste generation. Although Eastman understands and concurs with the Agency's emphasis on waste minimization, current methods of measuring hazardous waste generation do not provide a measure of the success in reducing hazardous constituents or concentration of hazardous constituents in waste streams.

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Response:
The commenter provides examples of how a generator may be able to reduce the toxicity of a hazardous waste, but not the volume, in part because of the way listed wastes are defined. The commenter also complains that this effect does not qualify as waste minimization.
EPA disagrees. EPA believes the examples cited by the commenter fall within the CAA's meaning of process changes that reduce emissions subject to MACT standards, and would be eligible for consideration for the one year compliance extension in cases where the installation of pollution prevention measures require longer than three years.
In addition, Section 3005(h) of RCRA requires generators that manage hazardous waste to certify annually that they have a waste minimization program in place, or more specifically, measures that "reduce the volume or quantity and toxicity" of hazardous wastes in the definition of waste minimization. EPA interprets this wording to include the examples described by the commenter as waste minimization measures.

WMPP(commenter CS4A-00068)
We agree with U.S. EPA's assertion that "Burning for energy recovery is not included in the meaning of process change as a basis for requesting a one year extension for waste minimization purposes."
The terms "waste minimization" (includes "environmentally sound recycling") and "pollution prevention" ("source reduction" only) are accurately defined in section V.A. We realize that this rule references RCRA, which uses the term "waste minimization" to reflect RCRA policy as differentiated from "pollution prevention." However, to be consistent with national policy, as stated in the PPA, efforts should be made to clearly distinguish between source reduction and offsite recycling. Furthermore, in the context of this rulemaking, offsite recycling as a solution to the issues at hand is inappropriate (for onsite facilities, the issue is moot; for offsite facilities, the incoming waste streams themselves are recycled offsite). Most importantly, for those offsite (commercial) facilities, the ultimate method for reducing the wastes entering the combustion feed streams is for the generators to implement source reduction, not for them (the generators) to recycle offsite. U.S. EPA should follow national policy by using the term "pollution prevention,"not "waste minimization,"as its strategy of choice. To some degree, the combustible wastes addressed in this rulemaking are themselves the result of "waste minimization " (i.e., offsite recycling).

Response:
EPA disagrees with the commenter. Neither the CAA, RCRA nor the PPA preclude offsite recycling as a method for complying with environmental standards. Section 112 (d) of the CAA is fairly broad in the types of "process changes, substitution of raw materials, or other modifications" that could be considered as measures that reduce or eliminate emissions in setting MACT standards. Modifying a process in such a way that some wastes could be recycled off-site, thereby reducing or eliminating emissions, is entirely consistent with the language of Section 112(d). Furthermore, while the CAA clearly encourages pollution prevention, no other section of the CAA requires consideration of pollution prevention

measures in setting or meeting MACT standards.

WM(commenter NPPR)
U.S. EPA should follow national policy by using the term "pollution prevention,"not "waste minimization,"as its strategy of choice. To some degree, the combustible wastes addressed in this rulemaking are themselves the result of "waste minimization " (i.e., offsite recycling).

Response:
EPA uses the terms pollution prevention and waste minimization in this rulemaking to be inclusive. The fast track rulemaking involves aspects of the CAA and RCRA. CAA refers to pollution prevention, and RCRA refers to waste minimization.
EPA agrees that some of the hazardous wastes combusted and regulated by the fast track rule are the result of off-site recycling activities.

WMPP(commenter CS4A-00054)
Lafarge practices waste minimization and pollution prevention in our manufacturing operations throughout the world. We are in support of EPA's attempts to promote through incentives and non regulatory methods this worthwhile program. Lafarge does not agree with the EPA proposal of a command and control program for this initiative and inclusion in the MACT Rule is not an appropriate venue. Lafarge objects to inclusion of waste fuel limits under the guise of a pollution prevention program and reminds EPA that combustion of a hazardous waste fuel for energy recovery while manufacturing a strategic building product is a pollution prevention program worthy of recognition as a significant environmental achievement. In addition Lafarge recycles large quantities of industrial byproducts in cement kilns as a substitute raw material and embraces the concept of waste minimization and pollution prevention on a daily basis. Lafarge is concerned with the attempt by EPA to alter the free trade and commerce of viable raw material substitutes cautions the EPA to conduct a Life Cycle Analysis prior to any promulgation of regulations in this section of the NODA (62 FR 24244 through 24253).

Response:

EPA acknowledges the commenter’s recommendation against a “command and control” pollution prevention program, and as reflected in the fast track rulemaking, is pursuing voluntary pollution prevention incentives.
EPA disagrees with the commenter’s statement that waste fuel limits are proposed under the guise of a pollution prevention program. As discussed in the comparable fuels portion of the fast track preamble, the purpose of this provision acknowledges the benefits to the regulated community of combusting hazardous wastes as fuel, and exempting those fuels from RCRA that are comparable to virgin fuel. The purpose of this provision was not proposed as a

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pollution prevention incentive. In fact, EPA solicited comment on what impacts this provision would have on pollution prevention.

EPA also disagrees that the purpose of the comparable fuels provision is to “alter the free trade and commerce of viable raw material substitutes.”

EPA also disagrees with the commenter’s caution to EPA to conduct a Life Cycle Analysis prior to any promulgation of regulations in this section of the NODA (62 FR 24244 through 24253). EPA refers the commenter to the goals of the CAA, and to Section 112(d)(2) which clearly encourage EPA to consider pollution prevention in setting and implementing MACT standards. The fast track regulation contains voluntary pollution prevention incentives that do not require life cycle analysis.

WMIN(commenter CS4A-00041)

Recycling, including energy recovery, is a form of pollution prevention and waste minimization. CKRC is perplexed by EPA's tendency throughout Part Four I to equate waste minimization with simple waste volume reduction going to cement kilns. Waste minimization clearly involves more than source reduction. For example, EPA consistently has held that waste minimization includes recycling. (62 FR 24244, col. 1). Energy recovery is a form of recycling (see, for example, 62 23852, May 1, 1997). (See also 40 C.F.R. §261.2(c)(2). EPA has long recognized that cement kilns burning hazardous waste promote "a fundamental goal of RCRA of encouraging recovery of energy from wastes (RCRA section 1002(d)." (54 48422, November 22, 1989). Furthermore, CKRC has proven that burning waste for energy recovery in cement kilns is environmentally beneficial. (CKRC noted in its August 19, 1996 comments on the HWC MACT proposed rule (p.p. 58-91) that significant environmental benefits are gained when hazardous wastes are burned in cement kilns vs. other combustion units. Combustion of fuel is necessary to produce Portland cement. Replacing fossil fuel with HWF in cement kilns saves over 20,000 trillion Btu per year. If that energy requirement were not met by HWF, it would have to be provided by some other type of energy source. If the HWF were instead burned in incinerators, the cement kilns would consume that energy equivalent in the form of coal. Therefore the total amount of materials combusted would increase, with commensurate increases in emissions. For that reason, it is environmentally preferable to recover energy from wastes in manufacturing devices such as cement kilns than to burn them for destruction in incinerators.) If this technology were properly regarded by EPA within the context of waste minimization, it would appropriately be identified as a necessary and integral part of the Agency's national waste minimization policy.

EPA should state clearly that waste minimization does not exclusively imply source reduction. EPA also should unambiguously state that it regards regulated energy recovery as a useful and environmentally sound form of recycling and, thereby, a necessary component of an effective waste minimization policy.

Response:

EPA agrees with the commenter’s statement that waste minimization includes recycling. (62 FR 24244, col. 1). While burning for energy recovery is characterized as a form of recycling

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in 40 C.F.R. §261.2(c)(2), and is in fact, further deregulated in the fast track comparable fuel provision, EPA does not include burning for energy recovery in its definition of waste minimization. This is to encourage companies to move up the waste management hierarchy as much as possible--which is a goal of RCRA, the Pollution Prevention Act of 1990, and the CAA.

EQUITY CONCERNS OF COMMERCIAL COMBUSTERS

WMPP8(commenter CS4A-00018)
The waste minimization compliance extension procedure continues to unfairly favor generators that rely on on-site combustion. Safety-Kleen fully supports EPA's overall efforts to encourage pollution prevention and waste minimization. We are concerned, however, that the proposed waste minimization incentives described in the NODA provide an unwarranted competitive advantage to those, primarily larger, waste generators who operate their own on-site waste combustion units. Safety-Kleen's customers are primarily small generators, who do not have the resources to construct and operate on-site incinerators as well as large generators who prefer to utilize off-site capacity rather than invest in on-site combustion technology. We are concerned that our customers will face higher waste disposal costs when sending their wastes to off-site commercial waste combustion facilities, while their larger competitors can defer the additional costs associated with compliance with the rule. Our concerns are heightened by our experience with our small generator customers which suggests that their ability to significantly reduce their waste generation is quite limited. (see Safety-Kleen Comments on Proposed Rule, p.13). Despite our concerns regarding the equity of EPA's waste minimization compliance extensions, we support the general idea behind this proposal. We believe EPA should address our equity concerns regarding on and off-site disposal by offering similar incentives for commercial facilities. EPA rightfully notes that a commercial off-site facility does not have the same control over its waste generation as a manufacturing facility that operates an on-site combustion device. There, may, however, be other voluntary actions besides waste minimization that off-site commercial facilities can take that would allow them to obtain the same compliance extensions as on-site combustion facilities. We do not wish to speak for all off-site commercial facilities on this issue by offering specific examples of voluntary actions that could be taken. We believe, however, that EPA should explore such alternatives in order to ensure that the rule is equitable in offering combustion facilities compliance extension opportunities.

Response:
The commenter states that the proposed waste minimization/pollution prevention incentives will provide an unwarranted competitive advantage to larger waste generators who operate their own on-site waste combustion units and will possibly be able to defer the additional costs associated with compliance with the rule; and that, in comparison, Safety-Kleen's customers, who are primarily small generators and large generators who prefer to utilize off-site capacity rather than invest in on-site combustion technology, will face higher waste

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disposal costs when sending their wastes to off-site commercial waste combustion facilities. EPA disagrees with the commenter. The CAA expressly allows any facility that demonstrates a need for additional time to install necessary compliance controls to request a compliance extension of up to one year without any penalty. The factors that EPA is required to consider in determining whether to grant such an extension do not include whether any one company could conceivably gain an economic advantage over another if a one year extension were granted. There is nothing in the fast track rule that precludes commercial waste management companies from requesting a one year extension to install pollution prevention measures (including pollution prevention measures at the site of waste generating customers, if that were the case) that significantly reduce the amount and/or toxicity of wastes entering combustion feedstreams.

EPA proposed another incentive that would allow certain facilities to enter into a compliance order/compliance agreement with EPA in cases where more than a one year compliance extension would be needed to install pollution prevention measures that would significantly reduce the amount and/or toxicity of waste entering combustion feedstreams. As explained in the fast track preamble, EPA has chosen not to pursue this option. However, EPA clearly explained in the NODA, that EPA would preserve a level economic playing field under this option, by recovering economic gains accrued by any company during the period of non-compliance that extends longer than four years.

Furthermore, EPA believes their is ample evidence in the technical pollution prevention literature that cost saving pollution prevention measures could be installed by many small and large generators to reduce the amount of waste sent to combustion.

WMPP(commenter CS4A-00068)

The Notice states: "Commercial facilities continue to assert that they have few direct opportunities to pursue waste minimization since they have little control over the wastes generated by their customers." First, we run head-on into a semantic problem. Offsite customers are implementing "waste minimization" when they send their wastes to the commercial facilities. Therefore, the use of "waste minimization" here is nonsensical. What we are looking for here is "pollution prevention," which is defined as solely "source reduction." Second, while it is true that commercial facilities do not have "direct" opportunities to implement source reduction, U.S. EPA should consider the expanded use of permit requirements that would require these facilities to support their clients' source reduction efforts. An example of this approach is California's Kettleman facility permit, which contained [3] a requirement for the treatment/disposal facility to work with its clients in a technical assistance mode in order to reduce their wastes. [Footnote 3: The permit application was ultimately withdrawn]. (The requirement was inserted as a result of public demand for reductions in the amount of waste going to the facility.)

Another approach would be phased in feed reductions, which would provide incentives for offsite facilities to work with generators. The incorporation of substantial feed limit reductions directly into MACT BTF standards would make it necessary for commercial combustion facilities to assist their clients in reducing or eliminating the constituents of concern in the feed streams.

Response:
EPA partially agrees with the commenter’s recommendation to consider the expanded use of permit requirements that would require these facilities to support their clients' source reduction efforts. There is nothing in the fast track rule that precludes commercial waste management companies from requesting a one year extension to install pollution prevention measures (including pollution prevention measures at the sites of waste generating customers, if that were the case) that significantly reduce the amount and/or toxicity of wastes entering combustion feedstreams. EPA agrees with allowing this approach to be used in MACT compliance.
Since the fast track rulemaking does not address MACT standard setting, that portion of the comment is deferred until the MACT standards are promulgated.

MISCELLANEOUS

WMPP(commenter CS4A-00075)
Waste Minimization: o EPA proposed options to promote waste minimization as a way to meet combustion limits. The Agency received comments for and against a mandatory waste minimization planning requirement and a one-year compliance extension in cases where installing waste minimization measures would require extra time. o Some states have installed mandatory waste minimization planning programs, while others believe that mandatory waste minimization planning does not provide better results. Environmental groups argue that waste minimization should be given higher priority than waste treatment. One group argues strongly that waste minimization planning should be made part of the MACT standards. Industry argues against mandatory planning on both practical legal grounds. o Instead of mandatory waste minimization planning, EPA is looking at a four-pronged approach that provides strong incentives to industry to use waste minimization measures to reduce combusted wastes. The four-pronged incentives-based approach includes: 1) Sources would be required to submit an early public notification describing the waste minimization and treatment alternatives they are considering to meet the MACT standards. This approach would harness the power of public opinion to urge facilities to consider waste minimization alternatives over end-of-pipe controls for meeting the MACT standards; 2) EPA will provide companies with an opportunity to request a one-year extension to the three year compliance period to install waste minimization measures that reduce the amount of hazardous waste entering combustion feedstreams. The one-year extension would receive a thorough review, but would not involve any enforcement action or compliance penalties; 3) In some cases, companies could request entering into consent agreements where significant reductions in combusted wastes could be achieved through waste minimization, but longer than a one-year extension is needed to complete the work and come into compliance. EPA reserves the right to recover any economic benefits accrued by the company during the period of non-compliance, in order to keep a level playing field in the regulated community; and 4) EPA will promulgate these

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incentives in a fast track rulemaking months ahead of promulgating the MACT standards. This is intended to give companies time to consider waste minimization alternatives and discuss with the appropriate permitting agency, at least on a preliminary basis, the prospects for pursuing a waste minimization extension.

Response:
EPA agrees with the commenter’s restatement of the waste minimization incentives proposed for public comment.

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NOTICE OF INTENT TO COMPLY (NIC) AND PROGRESS REPORT (PR)

NOTE: The preamble to the final rule provides detailed responses to the majority of the comments listed below. Additionally, the Agency has provided below responses or expansions on preamble language for any unique comments.

PRNIC(commenter CS4A-00045)

XII. PUBLIC AND REGULATORY NOTICE OF INTENT TO COMPLY (PRNIC): Eastman is a strong advocate for public involvement and communication. Eastman utilizes community advisory panels, newsletters, company tours, and a host of other mechanisms to keep the public apprised of and involved in Eastman activities. Accordingly, Eastman does not oppose the concept of a PRNIC. However, Eastman does encourage the Agency to keep the PRNIC process as simple and flexible as possible. EPA should recognize that these are existing units that have, in many cases, operated for many years with full public and Agency awareness and scrutiny. These units are operated and will continue to operate (until Title V permit modifications are completed), under a risk-based RCRA permit that was subject to extensive public review and comment. EPA must recognize that continued operation of these units during the transition period (effective date till certification of compliance the MACT standards) is no cause for alarm, on the part of the Agency or public. EPA should also recognize that modifications to HWCs carried out under EPA's proposed expedited permit modification procedures (class 1a) involve modifications intended to upgrade existing equipment to achieve improved performance. Therefore, the public nor Agency should be concerned that an elaborate time- consuming public participation process is not followed to effect these changes. Eastman understands that the PRNIC is an opportunity to share information and that formal approval of the plan is not required prior to proceeding with the activities described in the document. Such a review/approval requirement would certainly serve only to delay compliance. Although a substantial time and resource burden for the facilities, Eastman supports the goal of an informed public. Eastman supports the proposal to prepare and submit a draft notification of the compliance strategy, an informal public meeting to discuss the draft document, and placement of the final document in a public place (community public library) as well as submittal to the appropriate regulatory authority for their information is a worthwhile activity. However, Eastman objects to the requirement to have a second meeting on the final document prior to submittal. Because there is no approval mechanism and because many facilities have a substantial amount of work to do prior to the compliance date, a requirement for a second meeting prior to submittal of the final report is excessive. The final document will be available for review

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and individual facilities may choose to conduct a second meeting voluntarily based on the response of the local community to the final document. However, a second meeting should not be a requirement of these regulations. Eastman believes the time periods proposed in the May, 1997 publication (210 days for the draft PRNIC and 270 days for the final PRNIC) are adequate. However, a newspaper advertisement and marked sign at the facility are more than adequate as a notification mechanism. Because the PRNIC is neither intended to be nor will be as detailed as a RCRA permit modification, it is inappropriate to reference Class 2. or 3 permit modification requirements as a basis for determining if a change is significant. Significant changes should be limited to issues like a change in the pollution control equipment selected, or a request for an extension of the compliance date. Eastman agrees that notification of the facility mailing list and availability of the changes in an information repository are adequate.

Response:
The final rule is only requiring the facility to hold one meeting prior to submittal of the NIC, see preamble for detailed discussion of meeting requirements.

PRNIC(commenter CS4A-00022)
(3) Solite believes that the proposed PRNIC would add little of value to the present public participation process, and in most cases would result in wasteful expenditures of time and resources.

Response:
The Agency does not agree with the commenter and believes that the NIC process will enhance the public participation requirements under the CAA. We also believe that the NIC process will complement, with little additional effort, existing regulated facilities public outreach efforts.

PRNIC(commenter CS4A-00014)
8. EPA proposes to require sources subject to the HWC MACT rule to submit a plan identifying how the source would achieve compliance with the rule. The plan would be publicly disclosed and subject to an informal public hearing. APCA objects to the proposed requirement to submit such a plan. This plan is not required under the CAA and would impose a substantial administrative burden on HWC sources.

Response:
The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. The

NIC and progress report will be beneficial and necessary aspects of the hazardous waste combustor MACT requirements.

PRNIC(commenter CS4A-00037)

10. Part III, Section IV. A. Public and Regulatory Notification of Intent to Comply. The Department has actively invited public participation in all critical phases of activity at the CHESI incinerator and supports EPA's efforts to increase public participation. However, the Department believes adequate notification to the public can be accomplished through proper implementation of the Title V permitting process. The Title V application and draft permit are public noticed. Public informational sessions and public hearings can be scheduled up- front by the agencies or requested by the public. The application and draft permit should specify how the facility and agency intend to ensure compliance with all applicable regulations. If the Title V permit is already issued prior to promulgation of the MACT rule, notification to the public can be accomplished through permit modification procedures or reissuance of the permit. In instances where a facility is already meeting the MACT limits, public notification perhaps could be accomplished, if necessary, by mailing a statement of compliance to people on the RCRA mailing list.

Response:

The NIC and progress report are intended to be implemented prior to the Title V permitting process for most hazardous waste combustors to give the public and regulatory officials critical information about the compliance strategy of the facility. The Agency believes it is important to restore, to a limited extent, any lost public participation that would have occurred under RCRA, which occurs prior to the compliance of facility modifications, through the NIC process.

PRNIC(commenter CS4A-00041)

CKRC also provides the Agency with additional information and comment to address potentially troublesome provisions within the NODA that would open the regulatory system for hazardous waste combustors to the possibility of misuse and abuse. Specifically, CKRC identifies several problematic provisions within the newly mentioned Public and Regulatory Notification of Intent to Comply (PRNIC) provisions of the NODA. While the vaguely stated PRNIC goal of increased public participation is laudable (and a goal strongly supported by CKRC), CKRC is concerned that the PRNIC would be unnecessarily duplicative of existing RCRA and CAA public participation requirements. We also point out several instances in which applicability for PRNIC requirements could be refined in the event that EPA decides to proceed with

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the concept.

Response:
The NIC and progress report in today's final rule have been crafted as not to be duplicative of RCRA and CAA notification and public participation requirements. It is the Agency's belief that the public participation of the NIC process will not be an invitation for misuse and increased public involvement may lessen the potential litigation.

PRNIC(commenter CS4A-00043)
Finally, Essroc objects to the requirements of "precertifications" of compliance and submitting a Public and Regulatory Notification of Intent (PRNIC). No provisions contained in the Clean Air Act imposes such requirements, and for the USEPA to require such a notification serves no technical, legal, economic or compliance benefit More specifically, the time frames and required PRNIC content described within the NODA, coupled with the requirement to provide these plans for public comment without sufficient time for internal review, are stifling and likely to lead to inaccurate and incomplete compliance plans. Essroc supports the need for appropriate public participation and has formed several community advisory groups to address plant-specific issues. These community advisory groups offer a better way to expand public participation and deal with combustion issues, at a "local" level, and provide benefits far out-reaching any that could be gained by mandating a unprecedented, unwarranted, confusing and burdensome PRNIC.

Response:
The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. The NIC and progress report will be beneficial and necessary aspects of the hazardous waste combustor MACT requirements. We believe that one of the legal, technical and economic benefits of the NIC is to identify sources those that can achieve the standards earlier than 3 years and bringing about compliance via ceasing to burn hazardous waste two years after the compliance date. EPA notes further that it disagrees with the major premise of this comments, which is that sources have 3 years to comply with the standard. Sources have a maximum of three years (CAA section 112(1)(3)) to comply; earlier compliance is therefore encouraged. The NIC provides a mechanism to identify facilities that are choosing to comply, in effect, by no longer burning hazardous waste. It does not take three years to adopt this alternative, and a public process that identifies such facilities is therefore desirable and in accord with statutory goals.

PRNIC(commenter CS4A-00044)
I) Public and Regulatory Notification of Intent to Comply The Public Notice

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and Regulatory Notification of Intent To Comply (PRNIC) has been described alternatively as a means to require an early end to waste burning at sources that will not comply with the standards, and a regulatory driver for waste minimization.[37] [Footnote 37: See NPRM, at 24246-48, 24241] In fact, it is neither. 1) The PRNIC Requirements Will Not Cause Non-Compliant Sources To Stop Burning Waste Earlier The initial purpose of the PRNIC was to: identify the sources that will not comply with the final standards so that those sources could be forced to terminate waste burning activities as soon as possible following the effective date of the final HWC rule.[38] [Footnote 38: NODA, at 24241.] EPA, abandoned this goal however, because of its concern: that it is not feasible to use a submission that identifies only a facility's future "intentions" as the legal basis to force a facility to terminate waste burning activities before the statutorily based compliance period of three years.[39] [Footnote 39:Id.] EPA should explain its feasibility concerns in detail. It seems obvious that if a source does not intend to comply with the HWC rule, or does not know how it will do so, that source is very unlikely to achieve compliance. Under these circumstances, the source should stop burning hazardous waste as soon as possible. Legally, EPA has the authority to require sources to comply with the HWC rule at any time after the effective date of the rule. Indeed, the Clean Air Act directs EPA to require compliance "as expeditiously as possible" after the effective date.[40] [Footnote 40: Clean Air Act, 112(I)(3)] Therefore, it is reasonable for EPA to condition any extension of the compliance date past the effective date of the rule on a detailed submission by sources that explains exactly how they will comply. Since EPA intends to extend the compliance date all the way to the three year statutory maximum (and past it, as a practical matter), requiring sources to detail their compliance plans and submit those plans to public and regulatory approval is particularly appropriate. . EPA's substitute goal for PRNIC, is "to promote public awareness as well as discussion between a facility and its community".[41] [Footnote 41: NODA, at 24241] Even if EPA had designed requirements that would provide for a meaningful public dialogue, this goal could hardly provide the same benefits to the public as an early end to waste burning at non-compliant sources and the careful and timely scrutiny of all compliance plans by regulatory authorities. Given the toothless public involvement requirements that the NODA actually contains, however, the new PRNIC is virtually meaningless. First, the new PRNIC submissions would not have to undergo formal review by the regulatory agencies involved. As a result a source without adequate plans to comply with the HWC rule could continue to emit excess toxics for more than three years after the effective date, stopping if and only if it were eventually discovered to be out of compliance. Neither the RCRA permitting process nor the Title V permitting process would necessarily provide a backstop for this inadequacy because it is unclear that sources would have to

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apply for any type of permit before effective date of the rule or even before the final compliance date. Second, the NODA does not specify the quality of information that must be provided to the public. Who would decide what is "enough detail so that the public can engage in a meaningful review of the facility's compliance strategy"? [42] [Footnote 42: NODA, at 24242] It appears that the source itself would, since the PRNIC would not have to undergo regulatory review. This hardly provides a guarantee that the public will get adequate and timely information. Third, if the public were dissatisfied with a source's compliance strategy, it would have little or no ability to change it. If compliance strategies had to undergo regulatory review in conjunction with public review, the public could point out flaws to the regulatory agencies and have some expectation that changes would be made. Because there will be no regulatory review, the public can only make their objections to the source (assuming that the public would have enough information to formulate an opinion), without any power to compel the source to consider those objections seriously.

<u>Response:</u>
The Agency agrees with the commenter and has implemented a NIC and progress report provision that will require sources to document progress towards compliance or cease burning hazardous waste prior to the compliance date.

PRNIC(commenter CS4A-00054)
Notification and Reporting Requirement Considerations Lafarge does not support the PRNIC. As stated in earlier comments this process can be appropriately handled in and agreement fashion within the RCRA and CAA Program areas. Lafarge supports the existing RCRA and CAA programs to be utilized as a method to compel sources to identify their intentions to comply with the final rule, once developed and promulgated in accordance with the statutory requirements.

<u>Response:</u>
The NIC and progress report in today’s final rule have been crafted as not to be duplicative of RCRA and CAA notification and public participation requirements. The NIC and progress report requirements are intended to enhance the notification and public participation requirements of the CAA.

PRNIC(commenter CS4A-00062)
IV. Notification and Reporting Requirement Considerations A. Public and Regulatory Notification of Intent to Comply p. 24241 The EPA is proposing a notification requirement which would require facilities to submit a plan that

details the procedures each facility intends to follow to comply with the final emission standards. The EPA is now attempting to provide the public with an opportunity to participate in the implementation of the control technologies facilities select to meet the emission standards promulgated by the MACT rule. It may have been more appropriate for EPA to have solicited public input at the point of development of the MACT rule and the emission standards.

Response:
The Agency has solicited comment during the MACT rule development, which includes the development of the emissions standards.

PRNIC(commenter CS4A-00014)
VIII. THE PUBLIC AND REGULATORY NOTIFICATION OF INTENT TO COMPLY IS LEGALLY UNJUSTIFIABLE AND WOULD BE COSTLY AND ADMINISTRATIVELY BURDENSOME EPA is considering requiring sources subject to the HWC MACT rule to submit a Public and Regulatory Notification of Intent (PRNIC) that would identify whether and how sources would come into compliance with the HWC MACT standards. EPA's only justification for considering such a requirement is that several commenters advocated this concept. A PRNIC is not required under the CAA and APCA strongly objects to the imposition of such a requirement in the final HWC MACT rule. Title III requires EPA to set emission limits for the listed HAPs and requires affected sources to meet those limits. How the affected sources meet the emission limits is not an issue for public debate or EPA approval. Indeed, EPA has no authority to disapprove of any control option, so long as the source meets the limit. The same is true of third parties, and sources would not be required to consider comments by the public in preparing their final implementation strategies. Thus, the proposed PRNIC requirement serves no legal or administrative purpose. The only obvious result of the PRNIC would be to create more controversy, costs, and delay in meeting the standards with no appreciable benefits. Sources will be forced to (1) develop a PRNIC within 210 days after the rule becomes effective that can be made available for public review; (2) advertise the availability of the draft PRNIC and the date of an "informal" public meeting on the draft; (3) hold a public meeting on the draft PRNIC; (4) submit a final PRNIC to the regulatory authority within 270 days after the final HWC MACT rule becomes effective; and (5) notify the public via a mailing within 30 days following a determination that a significant change to the source's compliance plan has been made. All of these requirements will impose a substantial and costly administrative burden on HWC sources. APCA particularly objects to the requirement that the draft PRNIC would have to be made available on or before

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210 days following the effective date of the final HWC MACT rule. This means that sources would be required to have a draft plan available for public review within only nine months after the rule is published in the Federal Register (assuming that the rule becomes effective 60 days after the publication date). This is unlikely to leave sources sufficient time to evaluate their compliance options, investigate various control technologies and develop an adequate plan. Sources would be forced to offer incomplete plans for public review that may bear no relationship to the final compliance options chosen. EPA claims that this potential problem is outweighed by the benefits of early public involvement and access to information. 62 Fed. Reg. at 24242. However, as EPA lacks authority to require sources to change their compliance strategies on the basis of public comment during the "informal" public meeting, APCA fails to understand how the benefits of public involvement outweigh the significant problem that the PRNIC requirement would cause. The requirement would force sources to share preliminary and incomplete compliance plans with the public without being granted sufficient time to evaluate all of their options, thus, diminishing their compliance flexibility and creating a significant administrative burden. APCA also objects to EPA's proposal to require HWC sources to submit final PRNICs to the regulatory authorities 270 days after the final rule becomes effective. APCA believes that this is an insufficient amount of time in which to develop a complete compliance plan for the stringent HWC MACT standards. As proposed in the proposed HWC MACT rule and as authorized in 40 C.F.R. § 63.6(c), EPA should allow existing HWC sources the full 36 months after the effective date of the final rule for sources to come into compliance with the MACT standards and submit an initial notification of compliance. This would allow HWC sources adequate time to evaluate all compliance options, select the most appropriate compliance strategy, and achieve compliance. Submittal of a PRNIC before the compliance date should not be required.

Response:
In addition to responses contained within the preamble to the rule, the NIC and progress report do not approve or disapprove any control option, they only assess if progress is being made towards compliance. The progress report serves the legal purpose of ensuring that facilities are moving toward compliance in an expeditious manner and will ultimately come into compliance or cease burning hazardous waste. Finally, the Agency has extended the time for submittal if the NIC from the proposed 210 days to 365 day after the effective date of the MACT rule.

PRNIC(commenter CS4A-00023)

8. PRNIC CRWI supports the concept of a Public and Regulatory Notification of Intent to Comply (PRNIC). The PRNIC concept appears reasonable, not overly

burdensome (as currently presented), and represents a positive step to ensure public involvement in the MACT process. CRWI believes that all facilities should communicate their intentions to the public and the regulatory agencies. However, we are concerned that certain aspects of this requirement may not work as envisioned. In particular, CRWI is concerned with the amount of information that may be required by the PRNIC.

The NIC and PR have been developed to only include those requirements necessary with an intent to reduce information collection as much as possible.

Ideas floated by Agency personnel during the comment period could significantly broadened the proposed scope of the PRNIC. CRWI believes that the Agency should maintain this concept as a planning document and carefully keep it as simple as possible. As stated earlier, CRWI supports improved, informal communications between facilities and the public in which the facility and the public share ideas, educate each other, and continue to establish a framework for sound communication regarding the facility's compliance strategy.- However, CRWI is concerned that the public may misunderstand the intent of such an informal planning process and may get the impression that it will have veto power over facility decisions. Such a misunderstanding would undermine the intent of the PRNIC concept, which is to foster trust and understanding between the facility, the public and the regulating agency. To address this concern, CRWI suggests that EPA clarify the preamble and/or the regulatory language of the final rule that the intent of the PRNIC is to facilitate dialog regarding the facility's compliance strategy in order to foster mutual understanding and allow the facility to capture the major comments and ideas in a planning document, rather than an opportunity to substantially influence or change a facility's compliance strategy. In addition, CRW is concerned that the PRNIC may be used to force facilities to cease operations prior to the effective date of the rule. CRWI is not aware of any authority in the Clean Air Act to require facilities that have no intention of complying with the standards to cease operations as soon as that decision is made. CRWI suggests that the final rule contain regulatory and/or preamble language that clarifies that the PRNIC shall not be used to require facilities to cease operations prior to the effective date of the rule because: 1) the Clean Air Act does not provide for such authority; and 2) these facilities are already operating under RCRA permits that were deemed protective of human health and the environment at the time the permits were written. In addition, the 60-day window from issuance of the draft permit and the final report is a fairly short time frame to give a public notice (30 days lead-time), and to solicit and respond to public comments. Some CRWI members are uncomfortable with developing responses to public comments to a planning document. CRWI suggests that EPA should rethink the PRNIC concept to ensure that it will foster trust and understanding between the facility, the public, and the regulatory agency. This is another area where the ability to review specific regulatory

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language would facilitate developing comments.

Response:
In addition to the preamble discussion of the NIC and PR: The Agency agrees that the NIC and PR are for the purpose of informing the public and will not give the public the ability to “veto” facility decisions in coming into compliance. The PR contains a provision that will require sources who do not intend to comply or who fail to demonstrate adequate progress towards compliance to cease burning hazardous waste two years after the effective date of the MACT rule. See preamble discussion. The Agency believes that it will not be inappropriate to inform the public through out the planning process, with the understanding that planning documents can be updated through out the process to come into compliance. Additionally, even though facilities are permitted under RCRA, the NIC is beneficial in light of the streamlined permit modifications that will eliminate the existing RCRA public participation requirements.

PRNIC(commenter CS4A-00025)
10. Public and Regulatory Comply: The NODA describes a suggested concept that was made by the MIP members in their comments that the final MACT rule include a plan that could serve to inform the public and various officials of the facility's progress in evaluating approaches for complying with the emission standards and, if the facility were to elect to stop burning waste, to give the facility sufficient time to explore alternative pollution prevention or waste management options. The goals of the plan, as described in our letter of April 11, 1997 (a copy of which is attached), are threefold: to meet the spirit of EPA's RCRA public participation requirements by providing a means for the public to review and understand the steps that the facility owner/operator will need to undertake to come into compliance with the final emission standards; to expedite the process to achieve compliance by utilizing a self-implementing process particularly if EPA only provides three years and 270 days to certify compliance; and to document a facility's good faith efforts to meet the compliance deadline, in the event that unforeseen circumstances (i.e.. delays in processing permit modifications, procurement or equipment problems, etc.) require regulators to grant a case-by-case extension. The MIP members appreciate the Agency's consideration of our suggestion. However, as we stated in our April 11 letter, the MIP members are concerned that the plan could be misused or misconstrued. The NODA attempts to address this concern by including the following statement: "However, due to enforcement and implementation issues, the Agency is concerned that it is not feasible to use a submission that identifies only a facility's future "intentions" as the legal basis to force a facility to terminate waste burning activities before the statutorily based compliance period of three years. Moreover, any official review and approval of such

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submissions could conceivably slow down the rate at which facilities come into compliance with the final standards. This would thwart the objectives of a streamlined permit and compliance process." (See 62 FR 24241. May 2, 1997.) While the MIP members appreciate these intentions, the MIP members would request that the final rule contain explicit regulatory language to define that the plan shall not be an enforceable document used to penalize facilities for failure to meet certain milestones or to require facilities to stop burning hazardous waste before otherwise legally required. The MIP members believe that such language is necessary to avoid any unintended consequences and foreclose unwarranted allegations or abuses of the plan. In addition, the MIP members have two other points to make on the Public and Regulatory Notification of Intent to Comply: o Timing of Plan: The NODA indicates that the draft plan must be announced within 210 days following the effective date of the hazardous waste combustor rules, with the final plan submitted to the appropriate regulatory agencies within 270 days of promulgation of these rules. The MIP members are concerned that this time period will not afford the owner/operator of the combustor unit sufficient time to "provide enough detail so that the public can engage in a meaningful review" nor "afford the facility owner/operator the opportunity to gain an understanding of the public's expectations, which can then be addressed and included in the facility's final submission." As the Agency itself recognizes, one of the primary objectives of such a plan is for the facility and the public to share ideas, to educate each other, and establish a framework for sound communication. Indeed, many facilities engaged in hazardous waste combustion, including the MIP members, already have active public programs and the process has been shown to require more than this time to work. Therefore, the MIP members would recommend that the Agency adopt the timing that was previously suggested by the MIP members in their comments--that is, nine months (after the effective date of the final rule) for announcement of the draft plan.

Response:
The NIC document is a planning document, although the requirement to submit and fulfill the necessary parts of the NIC are enforceable. See preamble discussion of requirements of the NIC and PR. The Agency agrees with the commenters concerns that the proposed timeframes may not have given facilities as much time as could have been provided and therefore have provided sources with additional time to prepare the NIC document (i.e., one year after the effective date).

PRNIC(commenter CS4A-00027)
B. The Proposed PRNIC Process May Be Useful Where Public Involvement Is Not Addressed By Other Means. Originally, a principal obstacle to timely

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compliance with the HWI MACT was the time required for modification of RCRA permits to enable construction of necessary APCDs or other equipment changes. The Agency recognized this in the NPRM, and laid out several options for expedited permit modifications. The Agency has further acted to minimize this type of delay by planning to finalize, on a "fast track" basis, the needed permit modification rules, so that states could get started adopting them. CMA commends EPA for taking these steps. The NODA indicates that the Agency has some concern that a more expedited permitting process may not, however, provide as much opportunity for public participation as the Class 3 mod. rules. The proposed PRNIC is EPA's response to that concern. CMA understands EPA's concern, and strongly supports public participation. We also support an approach that continues to implement MACT permitting through CAA Title V permitting, without reintroducing RCRA permitting complexities. We do not believe that PRNIC is the only means to accomplish that end, however. 1.The PRNIC Process Should Not Be Mandated. The proposed PRNIC represents an unprecedented extension of public participation beyond existing permit processes. Sources would be required to develop, disseminate, and submit detailed and ambiguous compliance plans under threat of enforcement penalties. As currently formulated, the draft PRNIC would require information "to provide enough detail so that the public can engage in a meaningful review of the facility's compliance strategy." 24242. Examples of such information include the types of control techniques considered and waste minimization or pollution control options evaluated. Although EPA has identified certain types of information that might be included in the final PRNIC, facilities would be required to make determinations regarding what information and comments must be included, as well as "significant changes" that require updating the PRNIC. These requirements would effectively require facilities to make regulatory determinations that are normally performed by regulatory agencies through generic rulemaking. And such determinations would have to be made on a case-by-case basis, subject to second guessing in an enforcement action subject to daily penalties. Developing PRNICs will divert resources from the numerous tasks required to install control equipment, to make process changes, to institute other waste minimization and pollution control strategies, and to comply with other notification and recordkeeping requirements. As EPA has recognized, official review and approval of PRNIC submissions could also slow down the rate at which regulators process Title V applications, as the authorities will be compelled, at a minimum, to track all facilities subject to the HWI MACT, to ensure that these facilities take the proper steps at the proper times and that their filings contain the requisite elements, and to take enforcement action whenever any of these things does not occur Moreover, mandating development and dissemination of draft PRNICs and submission of final PRNICs is unnecessary. The General Provisions for MACT standards already provide for an initial notification in

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Section 63.9(b). Under Section 63.6(I)(4)&(6), existing facilities that request a compliance extension must submit the request at least 12 months before the compliance date and must detail the air emission controls that will be installed and the schedule for installation and operation. Additional public notice of compliance strategies will be provided through Title V operating permit processes (as well as state new source preconstruction review permit processes), which require a statement "that the source will meet such requirements on a timely basis." 40 C.F.R. § 70.5(c)(8); see also id. § 70.7(h) (public participation requirements). 2. PRNICs Should Be An Option For Sources Without Comparable Mechanisms For Public Involvement. CMA strongly supports the Agency's performance-based statement that it "supports any process that promotes public notification and interaction with respect to a hazardous waste combustor's future operations." 24241 (emphasis added). Accordingly, we urge the Agency to finalize a more performance-based approach. Below we suggest the outlines of such an approach: As mentioned earlier, PRNIC seems to be motivated by concerns that public participation will not be provided adequately where permitting authorities do not employ the RCRA Class 3 permit modification process (or the major permit mod. process in states that have not adopted the current federal three-class system). At a minimum, therefore, EPA should clarify that neither PRNIC nor any other sort of additional public participation mechanism is required where a state does not adopt the expedited RCRA permit modification system that EPA plans to finalize shortly. Many combustion facilities already have effective public involvement/community relations programs, due either to individual corporate decisions or to industry initiatives like Responsible Care. Under the latter, CMA's members routinely conduct informal public outreach via facility Community Advisory Panels and similar mechanisms. In cases where a facility is already meeting the intent of the PRNIC process, requiring compliance with PRNIC would be redundant. CMA therefore recommends that permitting authorities using the expedited permitting rules be given flexibility to determine what sorts of public involvement should be imposed in a given case. The proposed PRNIC elements (modified as discussed below) should be finalized as guidance for such authorities. Under this approach, an individual source subject to the HWI MACT would, as part of its initial notification under 40 C.F.R. § 63.9(b), provide the permitting authority with a statement explaining how it intends to provide public involvement comparable to that specified by PRNIC. (Such notifications are due 120 days after the effective date of the rule.) The permitting authority would then have 90 days to determine if the submitted approach was sufficient or should be modified, or if the source should comply with PRNIC or an alternative state program. If a PRNIC approach is required, draft plans should be required to be submitted 90 days after do permitting authority's determination. The final plan should be submitted 270 days after the draft

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plan was submitted. If EPA finalizes the proposed PRNIC approach, at a minimum, it must allow more time for compliance. The timing for announcing availability of a draft plan (210 days from the effective date) and for submitting the final plan to the permitting authority (270 days from the effective date) is simply too short to provide adequate time to engage the public in a meaningful dialogue and review. In particular, the time between the announcement of the availability of the draft plan and submittal of the final plan (60 days) is not sufficient to educate both the public and the facility, to share ideas, to gain a mutual understanding of the issues and strategies, and to prepare a final report. Nine months is a more reasonable time period both for (1) preparation of the draft plan and (2) communication between the facility and the public and preparation of the final report. Accordingly, EPA should provide that the draft plan would be due 270 days after the effective date, and the final plan would be due 270 days after that (540 days after the effective date). Whatever approach EPA chooses, it should also clarify that the approach should include a discussion between the facility and the permitting authority regarding exactly which RCRA permit provisions will disappear when MACT operating limits are defined by the CPT. See Part IV.C, below. If the Agency finalizes the proposed PRNIC, it should clarify that permitting authority review of the draft and final plans must be like the current RCRA generator certification that the generator has a waste min. plan in place: the duty to certify is clear, but the Agency and citizens essentially have to take the certification at face value unless it is clearly false. Any ability of regulators or citizens to look into details of what is certified will destroy any value of the PRNIC program, and will also tie up regulators' time, and will distract from important process of getting CPTs done and Title 17 permit issued or revised. This is especially, true of sources' explanations of whether they looked into waste minimization approaches.

The Agency should clarify that "as appropriate" (p. 24242/1) means "where sources choose waste minimization approaches to compliance, or otherwise decide to explore such approaches." EPA should not create an enforceable opportunity for anyone to compel sources to do so.

Response:

The NIC and PR do not expand the public participation requirements beyond what is currently required under RCRA for the permitting of facilities. The Agency doesn’t believe that the requirements of the NIC and PR will be overly burdensome, in almost all cases, the documentation will already be generated by the facility in their planning process.

The Agency has determined not to finalize a performance based (i.e., risk based) approach in part due to the inability to account for all risk related provisions from the burning of hazardous waste.

The Agency believes that the NIC and PR process should be satisfied by all sources that intend to come into compliance. The requirements of the NIC and PR may be satisfied as part of other permitting obligations (i.e., RCRA, CAA or state required provisions).

The Agency does not believe that the CAA general requirements are sufficient to fulfill the goals of early compliance and that the NIC meets these goals. The Agency also does not believe it is acceptable to exclude the NIC requirements for only those facilities with existing public participation programs because it could allow public participation without adequate discussion of the pertinent issues.

The Agency intends for the information contained in the draft notification to provide enough detail so that the public can engage in a meaningful review of the facility's compliance strategy. For example, if in the draft notification a facility identifies and describes the type(s) of control techniques being considered, the facility should include, as appropriate, waste minimization and/or pollution control options that may have been evaluated. In this context, "as appropriate" means companies who have considered or evaluated and/or selected waste minimization or pollution prevention measures instead of or in combination with combustion measures to comply with MACT standards should include a meaningful discussion of this information in their notification.

PRNIC(commenter CS4A-00031)

IV. Notification and Reporting Requirement Considerations A. Public and Regulatory Notification of Intent to Comply (pp. 24241-24242) DOE does not support the requirement for a Public and Regulatory Notification of Intent to Comply (PRNIC) for several reasons. First, it is not clear why HWCs are being singled out for this requirement. The Part 63 NESHAPS notification requirements in 40 CFR 63.9 do not include the requirement for a PRNIC. Elsewhere in the NODA (e.g., consequences for noncompliance at p.24237, col. 1) EPA expresses its intent to apply normal CAA enforcement procedures to HWCS. By analogy, it seems appropriate that the normal Part 63 NESHAPS notification rules should apply to HWCs. Second, as EPA points out at p. 24241 col. 3, the PRNIC will provide no basis for an enforcement action and will require the time of regulatory agency personnel to the possible detriment of the overall NESHAPS program. Third, it is difficult to see the benefit of the PRNIC because whether or not a HWC facility owner decides to meet the new MACT standards or terminate operations, the facility will still need to meet existing RCRA requirements in the interim. Fourth, public involvement in setting emission requirements for HWCs is already provided through early public involvement and comment opportunities under recently modified rules for public participation in the RCRA permit process. Therefore, an additional avenue for public involvement regarding compliance with the MACT standards does not appear to be needed. DOE suggests that if any additional specific issues of public involvement are needed in the MACT process, they be addressed by incorporating the requirement into the RCRA permit public involvement process and not separately. For Federal facilities,

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the National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies prepare environmental documentation (e.g., environmental impact statements or environmental assessments) for Federal actions that may "significantly affect the quality of the human environment." Under DOE's NEPA implementing regulations, the Department must begin its NEPA review as soon as possible after the time that DOE proposes an action [10 CFR 1021.200(b)]. Moreover, during the decision making process, DOE is directed to consider public and agency comments. The Department requests that EPA consider the relationship between NEPA-related notification and public involvement and the proposed PRNIC requirements to determine if NEPA procedures can serve in place of PRNIC in the case of Federal agencies. Finally, relative to the Department, DOE requests that EPA consider the appropriateness of notifying stakeholders through site-specific advisory boards (SSABs) announcements and, provided the SSAB announcements/meetings fall within the final PRNIC-related timelines, whether SSAB announcements/meetings can be used in lieu of PRNIC.

Response:
The normal Part 63 notification rules are being enhanced by the NIC and PR requirements promulgated in today’s final rule and are not meant to be duplicative. To the extent other Federal or State requirements complete requirements of the NIC and PR, sources will not have to restatisfy NIC and PR requirements on their own. NIC and PR requirements can be satisfied by other statutory requirements that fulfill the same goals.

PRNIC(commenter CS4A-00039)

8. PNRIC. Dow supports the concept of a Public and Regulatory Notification of Intent to Comply (PRNIC). The PRNIC concept appears reasonable, not overly burdensome, and represents a positive step to ensure public involvement in the MACT process. Dow believes that all facilities should communicate their intentions to the public and the regulatory agencies. However, we are concerned that certain aspects of this requirement may not work as envisioned. In particular, there is no statutory authority in the Clean Air Act to require facilities that have no intention of complying with the standards to cease operations as soon as that decision is made. Thus, Dow suggests that EPA make no efforts to try to force these facilities to cease operations. These units are currently operating under RCRA permits that were deemed protective of human health and the environment at the time the permit was issued. Dow suggests that the final rule contain regulatory language that indicates that the PNRIC shall not be used to require facilities to stop burning hazardous waste early. In addition, Dow is concerned with the amount of information that may be required by the PNRIC. Dow believes that this should be a planning document and should be kept as simple, as possible. Dow has concerns about the public involvement as envisioned in this requirement.

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Dow supports and encourages the development and maintenance of good working relations between facilities and the local public. Dow supports the concept of an "informal public meeting" as envisioned in this notice but is not sure it will accomplish EPA's objectives. The 60-day window from issuance of the draft permit and the final report is a fairly short time frame to give a public notice (30 days lead time), solicit and respond to public comments. Dow is uncomfortable with developing responses to public comments for a planning document. Dow suggests that EPA should rethink the PRNIC concept to ensure that it will foster trust and understanding between the facility, the public and the regulatory agency. This is another area where the ability to review specific regulatory language would facilitate developing comments.

Response:

The CAA allows for compliance in a manner expeditious as possible and for those sources that do not intend to comply, expeditious compliance has been determined to be two years after the effective date of the MACT emissions standards. The Agency does not believe that the time frames provided for the NIC and PR review are too short, the time allowed is adequate to allow for sufficient review and comment.

For sources that do not intend to come into compliance, requirement is to cease burning hazardous waste, not to cease operations. Section 112(1)(3) give the Agency the authority to identify an earlier compliance time frame.

PRNIC(commenter CS4A-00041)

VI .The Public And Regulatory Notification Of Intent To Comply Provisions Are Unnecessary And Illegal. In CKRC's view, the Public and Regulatory Notification of Intent to Comply (PRNIC) provisions are very troubling for several reasons. As we describe below, these unprecedented procedures would serve little or no useful purpose. Moreover, the proposed PRNIC rules exceed the scope of EPA's authority, and are arbitrary and capricious. CKRC believes that is important for HWCs to engage in meaningful dialogue with the public, and our members have held numerous public meetings within the last several years. In addition, a number of CKRC members already have community advisory groups and other institutional mechanisms to regularly communicate with the public. Cement companies realize that it is important to maintain the best possible relations with their neighbors, and therefore do their best to inform the public of important developments and listen to community views. Moreover, CKRC also supports the RCRA expanded public participation rules, and we continue to believe that public input in the decision-making process is important. The PRNIC procedures, however, are extremely intrusive and go well beyond what is necessary to ensure adequate and appropriate public participation. While we do not believe it necessary for EPA to mandate public process requirements that go beyond existing rules, within this section CKRC

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offers several ideas that would reduce the intrusiveness and problematic nature of the PRNIC procedures. A. It is difficult to ascertain the purpose of the PRNIC. The NODA does not clearly state what EPA intends to accomplish through the PRNIC process. The RCRA expanded public participation rules and Title V requirements currently assure that the public will be fully informed and have an opportunity to comment on all relevant aspects of how sources will comply with the MACT standards. For example, the RCRA rules require that a permit applicant announce and hold an informal public meeting before submitting the permit application. The rules also direct the permitting Agency to mail a notice to interested parties when the application is submitted, and give the Agency authority to require a facility to establish an information repository open to the public. (See 40 CFR Sections 124.31-124.33). Under the CAA, the Title V or predecessor new source review permit will be not be issued until the state has provided for an opportunity for public comment and a hearing on the draft permit. (See 40 CFR §70.7(h)). (Moreover, EPA's "General Provisions" rules for implementing §112 provide for notification to EPA or the state agency when a source is subject to MACT, but require nothing that even resembles a compliance plan shortly after promulgation of the standard. See 40 CFR §63.9. Instead, companies prepare compliance plans as part of the Title V permitting process. 40 CFR §70.5(c)(8). That provision provides that "[f]or applicable requirements that will become effective during the permit term," the company's permit application shall include "a statement that the source will meet such requirements on a timely basis." Id. at §70.5(c)(8)(ii)(B). We see no need for additional mandates for HWCs.) EPA has not identified a legitimate need to go beyond these processes. EPA's claim that its streamlining of RCRA permit modification procedures creates a need for the PRNIC is not convincing because participation for RCRA permit changes would be far more limited than what EPA proposes for the PRNIC. In addition, the scope of the proceeding would be much narrower in a RCRA permit hearing than in the PRNIC. And, to the extent that EPA relies upon this rationale for the PRNIC procedures, (See the NODA at 24241: "To the extent that some limitations on public participation would be the result of a streamlined permit modification process...promotion of early public notification and intervention in this part of the rule is appropriate and desirable given our general policies in that regard" (emphasis added)) we submit that expanded process is not justified for the many cement kilns that most likely will still be operating under interim status following promulgation of the MACT rule. The public will not be deprived of participating in a RCRA permit modification proceeding because there will be no RCRA permit to modify." (We note that the MACT Implementation Project (MIP), the party that apparently. suggested the original idea of some sort of early compliance plan, stated that plan requirements do not make sense for interim status facilities. See April 11,

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1997 letter from Don R. Clay (representing MIP) to Michael Shapiro, at p. 2.) It is difficult to tell from the NODA whether EPA subscribes to a goal for the PRNIC put forward by certain parties that commented on the April 19 proposal: "to identify the sources that will not comply with the final standards so that those sources could be forced to terminate waste burning activities as soon as possible following the effective date of the final HWC rule" (62 FR 24241). As we pointed out in our previous comments, this purpose is unprecedented and illegal. See August 19 comments at 459-62. B. The PRNIC Provisions Will Cause Confusion and Be Subject to Abuse. Another reason that we oppose EPA's compliance plan proposal is that PRNIC will add to, not reduce, confusion over standards implementation. Determining how a plant will comply with extremely complicated standards is not an overnight proposition. It requires much work by (and coordination among) company staff and management, consultants, outside counsel and others. Thus, any draft plan that a company could put forward 210 days after promulgation of the standards would be a tentative position at best. It makes little sense to circulate to the pubic a draft plan that may well be extensively modified. Doing so would put the company in the untenable position
of prematurely defending a plan which probably will u ndergo significant change. It also would subject companies to unfounded accusations that they are talking out of both sides of their mouth in planning to implement the standards. Past experience under the BIF rules makes it clear that opponents of hazardous waste combustion often make misleading arguments to support their claims that burning hazardous waste in kilns should not be allowed. It is only realistic to expect these same parties to contend, without foundation, that changes in compliance plans somehow signify irresponsible action by a facility. The NODA's several requirements for companies to explain how and why they have made certain decisions (62 FR 24242) are especially troubling. To our knowledge, there exists no similar mandate under the CAA, RCRA or other environmental laws that require companies to make public internal thinking and strategy leading to ultimate compliance decisions. The lack of precedent is not surprising because the Agency lacks authority to compel companies to disclose this type of strategic and confidential business information. EPA should be concerned only with whether a facility complies with the standards, not how or why the company adopted a particular compliance strategy. Requiring HWCs to disclose their evaluative process in deciding among control options almost certainly will lead to unfair and harmful distortions by combustion opponents. Such distortions, in turn, will lead to unfounded fears on the part of the public. Although the NODA states that the actual plans and information contained in the PRNIC will not be enforceable, the notification provisions still could provide yet another opportunity for opponents of combustion to initiate frivolous lawsuits. It is not difficult to imagine someone bringing a citizen suit

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alleging that a HWC has violated the MACT rule because the HWC has not, for example, provided enough details in the PRNIC - even though EPA may not intend the document to be overly detailed. Under RCRA §7002(a)(1)(A), a person would be able to at least commence a lawsuit by contending that a facility is "in violation of any ... standard, regulation, condition, requirement, or prohibition" by not providing enough detail. Such lawsuits are expensive to defend, even if they are ultimately dismissed. For all these reasons, there is extraordinary potential for misuse of information disclosed under the PRNIC. C. Complying with PRNIC will be burdensome. Yet another reason CKRC opposes the PRNIC procedures is that they will impose expensive and burdensome requirements for kilns at precisely the time that companies will be incurring significant expenses to come into compliance with the HWC MACT rule. The NODA suggests that the plan would need to be fairly detailed (24242). Moreover, the proposed requirement that companies essentially respond to comments" raised by citizens on the draft PRNIC is unprecedented, and unfairly places a private company in the role of a governmental Agency. Mandating that companies update their document will exacerbate already high paperwork costs. The PRNIC proposal therefore is contrary to the Administrations regulatory reinvention and paperwork reduction initiatives. Furthermore, as EPA and states inevitably get drawn into the process, they also will face costs and burdens regardless of whether they formally review PRNIC documents. Thus, resources for both companies and regulators will be taxed for no useful purpose. D. The PRNIC provisions are overly broad. As described above, CKRC opposes any type of PRNIC provisions as unnecessary, open to abuse, and burdensome. However, if EPA proceeds with some type of compliance plan requirements, we offer several suggestions below on how applicability for the requirements should be narrowed. First, as noted above, PRNIC procedures for interim status facilities cannot be justified. These sources will not have a RCRA permit, and thus do not benefit from streamlined RCRA permit modification procedures. If EPA did not promulgate its fast-track permit modification rules, these facilities still would not have to go through public participation on changes to any RCRA permit. In short, there will be no missing public participation on a RCRA permit modification - and therefore no need to try to make up for streamlined modification by mandating PRNIC procedures. Second, and for similar reasons, a company should not have to follow PRNIC procedures if it has a RCRA permit and contemplated changes to comply with MACT would not require a RCRA permit modification. Again, there would be no "lost" opportunity for public participation. Third, it makes no sense to have a PRNIC process in states that do not adopt the streamlined RCRA permit modification procedures. Iii these states, there will be public participation on the changes to the RCRA permit when a permit modification becomes necessary. Finally, if EPA does decide to finalize PRNIC requirements, CKRC urges the Agency to give due consideration to

"grandfathering" or otherwise allowing for facilities' existing public
outreach programs and the numerous public participation opportunities they
provide.

Response:

The Agency does not believe that the NIC and PR requirements are intrusive and provide the adequate balance for public involvement in coming into compliance with the MACT emission standards. Because the emissions standards and those decisions as to how to come into compliance are self-implementing under the CAA, EPA believes it is appropriate to utilize the NIC and PR requirements to accomplish the dual objectives of notification and public involvement.

Although several cement kilns will still be operating under interim status following promulgation of the MACT standards, EPA believes it is necessary to require the NIC and PR as facilities come into compliance with the MACT standards. The Agency believes that it has the authority to require compliance as soon as practical and for those sources that do not intend to come into compliance, this is facilitated by ceasing to burn hazardous waste by two years after the promulgation of the standards. The Agency does not believe that it is inappropriate to require public input for draft planning documents that may need to be updated as compliance strategies are finalized because sources will likely have been planning compliance strategies from the time of the proposal and will be able to give the public a fairly accurate idea of their compliance planning.

The Agency continues to believe that early and often meetings and dialogue with the public will help to facilitate a better understanding of the process facilities will undertake to come into compliance. The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. The NIC and progress report will be beneficial and necessary aspects of the hazardous waste combustor MACT requirements. EPA believes that by the compliance date, three or four years from promulgation, the vast majority of interim status facilities will have been granted RCRA permits and will benefit from the streamlined RCRA permit modification procedures.

Those facilities that do not need to make the type of changes to the facility contemplated by the demonstration have an opportunity to document such a claim and need not provide the type of demonstration required in the regulations. To the extent the requirements of the NIC and PR are satisfied by RCRA permit modification procedures required by a State these may be used and not require duplicative requirements be undertaken.

The Agency continues to believe that even though the NIC may contain information that could be substantially changed, it is beneficial to inform the public of the facilities intentions and plans to come into compliance with the emissions standards. Although it may be of plausible concern that changes in planning will subject a facility to challenges from some opponents of hazardous waste combustion, we continue to believe that the substantial benefits (i.e., compliance earlier than 3 years for some facilities and meeting the paramount object of public participation in both the CAA and RCRA) outweigh these concerns.

As for the commenters concern that the Agency lacks the authority to require the information

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contained in the NIC, the Agency has ample authority to require information collection through permits and the general provisions of the CAA and RCRA.

PRNIC(commenter CS4A-00047)
Notification and Reporting Requirement Considerations Presently, the Agency is proposing to require affected sources make available to the public a draft Public and Regulatory Notification of Intent to Comply (PRNIC) on or before 210 days following the effective date of the final HWC rule. An informal public meeting would be held 30 days after the draft PRNIC is made available. The final PRNIC must be submitted within 270 days following the effective date of the final HWC rule. We understand the need for public participation and agree that this approach could lead to meaningful dialogue between affected sources and the public. However, we are concerned with the timing of this approach. If this proposal is adopted in its current form, many affected sources may require more than 210 days to develop a compliance strategy as the strategy may involve more than the installation of control equipment. In our case, the strategy may even involve ceasing production of certain products at the affected facility. This decision will require an economic evaluation of the alternatives and the identification of an alternative facility for the production of these products. This decision may also impact our soil and groundwater remediation operations which have been coordinated with the states's approval. If EPA implements this proposed rule in spite of the problems outlined in the first section of these comments, the Agency should allow the PRNIC process to begin 1 year after the effective date of the final HWC rule. As long as the affected source can demonstrate that it can achieve compliance with the standards by the compliance date it should be allowed additional time to develop its strategy.

Response:
The Agency has provided additional time for facilities to submit their NIC, but does not believe that delaying the entire NIC and PR process one year is appropriate and believes a delay would not allow facilities adequate time to adequately inform the public of their strategies for compliance.

PRNIC(commenter CS4A-00058)
Public and Regulatory Notification of Intent to Comply (Part Three, Section IV. A) EPA is considering a notification requirement, called the Public and Regulatory Notification of Intent to Comply (PRNIC), that would involve the facility submission and public disclosure of a plan that relates to whether and how the facility intends to come into compliance with the final MACT standards. This would require sources to prepare a draft notification,

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announce the availability of the draft notification as well as a future informal public meeting to discuss the draft notification, hold an informal public meeting, submit the final notification to all appropriate regulatory agencies, and update the notification as necessary. The Agency intends that the information included in the draft notification "provide enough detail so that the public can engage in a meaningful review of the facility's compliance strategy." Air Products fully supports public participation and interaction in all of its manufacturing operations. CMA members, such as Air Products, actively promote public participation and interaction by routinely conducting informal public meetings via facility Community Advisory Panels and similar mechanisms. In our opinion, the proposed PRNIC represents a viable option for sources without comparable mechanisms for public involvement. However, for CMA member companies, the proposal creates an additional and redundant set of regulatory requirements. Developing PRNICs for a small on-site type facility like Air Products, which already has strong public participation activities, is redundant and will divert resources from the numerous tasks required to install control equipment, make process changes, institute other waste minimization and pollution control strategies, and comply with other notification and recordkeeping requirements of the proposed MACT rule.

Response:

The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. In addition, to the extent the requirements of the NIC and PR are satisfied by RCRA permit modification procedures required by a State, these may be used and today's rule is not intended to require dupliciative requirements be undertaken.

As for the suggestion to undertake the Subpart CC process for planning, the process does not fulfill the Agency's goal of implementing pre-compliance date public participation in the planning process.

PRNIC(commenter CS4A-00060)

IX. Public and Regulatory Notification of Intent to Comply (PRNIC) (62 Fed. Reg. at 24,241) CWM is in favor of keeping the Public notified of the facility's activities as it relates to permit renewals (e.g., RCRA Part B and CAA Title V), or major modifications. The Expanded Public Participation Rule addresses the Public Notice and meeting requirements in detail. See 60 Fed. Reg. at 63,417. CWM is concerned, however, with the burden and delays that could result from the implementation of the RCRA Expanded Public Participation Rule and the Public and Regulatory Notification of Intent to Comply (PRNIC) if the facility requires major modifications to comply with the MACT Standards. In this scenario, the facility would be required to file

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a Public Notice and conduct a Public Meeting under both requirements. To avoid duplicative requirements, CWM urges the Agency to adopt an approach similar to that required by the recently promulgated RCRA Subpart CC rule in place of adopting the PRNIC. The Subpart CC rule required a facility to prepare an implementation schedule to detail how the facility intended to come into compliance with the rule's requirements if it did not meet the requirements on the effective date of the rule. This same, straight-forward approach could be adopted for the HWC MACT rule. Within a certain time period after the rule is published, facilities would either have to be in compliance with the emission standards or have on file an implementation plan that details the steps the facility will follow to bring them into compliance within the allotted time frame. As in the case of the Subpart CC rule, the implementation schedule would be required to be part of the facility's operating record and be made available for inspection by either the public or regulatory agencies. An examination of the schedule compared to the progress-to-date will enable a competent inspector to determine if the facility is sincerely attempting to follow the schedule or if the schedule represents a sham attempt to keep on operating until the last minute. In sum, although on its face the PRNIC has the appeal of enhancing public participation, it would only add an unnecessary layer to regulations already in effect that will achieve the same goal of keeping the public informed and obtaining their input. Further, an implementation schedule represents a more direct, easier to monitor mechanism to determine if a facility is sincere in its intent to comply. The Agency should instead require those facilities that do not intend to upgrade their facilities to comply with the MACT standards to notify the Agency and identify a closure date. The facilities that meet the MACT standard at the time of the effective date of the Rule require no addition notifications, while those facilities that require modifications will follow the notification provisions specified in 40 CFR §270.42 and/or the Public Participation Rule. This would reduce the burden of complying with the additional PRNIC and avoid redundancy in Public Notices and Meetings. If the Agency requires a draft PRNIC and a final PRNIC, the preparation time should be increased to minimize the burden on facilities. 270 days is not enough time to finalize modification requirements. This timeline would probably require the facilities to update the PRNIC due to significant changes. Considerable emissions testing will be required once a design is finalized. The facility will want to optimize the design to not only reduce emissions but minimize operating costs. This may require the facility to modify the design or if costs are excessive, to redesign the pollution control technology. For example, adding carbon to the pollution control system can be accomplished in many forms and incorporated into the system at many different locations. The form and location may require many alterations before the optimal operating scenario is achieved. The final

PRNIC which would be required within 270 days of the effective date of the final rule, would have to specify the form and location of the carbon injection system, but this may not be possible due to on-going testing. Thus, CWM recommends the Agency allow at least one year after the final rule is published to submit the final PRNIC. Alternatively, the 210 days allowed by the Agency to develop the draft PRNIC seems reasonable.

<u>Response:</u>
The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. In addition, to the extent the requirements of the NIC and PR are satisfied by RCRA permit modification procedures required by a State, these may be used and today's rule is not intended to require duplicative requirements be undertaken.

An approach that would delay the NIC and PR would not be appropriate and would only reduce the time facilities have to prepare the NIC and PR documentation and allow those facilities that do not intend to come into compliance additional time to burn hazardous waste.

PRNIC(commenter CS4A-00061)

Public and Regulatory Notice of Intent to Comply (PRNIC) The PRNIC provision in the NODA is quite troubling. First, the requirement is unnecessary. The regulations provide for a compliance deadline and failure to meet this deadline will result in the imposition of CAA enforcement sanctions. Second, this is a departure from current MACT regulations and therefore arbitrary and capricious. Furthermore, this process will only provide those who are irrationally and adamantly opposed to the use of FQW in cement kilns another opportunity to try to stop what is an otherwise environmentally beneficial and legal recycling activity. Without any meaningful purpose for this notice and the increased burden that this process imposes, Systech does not believe that it adds anything to the regulation and is probably not sustainable, if challenged Systech understands the importance of public participation in the permitting process. In recognition of the public's role, Systech and its cement partners work continuously with the community to keep them abreast of our activities and to solicit their input about our operations. We have instituted community panels to discuss our facilities with them and we meet periodically with local and state officials to keep inform them about our facilities and activities. This process has been successful since Systech tends to enjoy a healthy relationship with our surrounding communities. The adoption of the PRNIC procedures will be, for the most part, duplicative of what we are already doing in the community. While this would seem to negate the unnecessary burden argument above, by making this a legal requirement, the opposition could use any minor defect in the process to arbitrarily impede the process without any environmental benefit.

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Response:
The Agency believes that the notification and planning aspects of the NIC and progress report are not overly burdensome nor would impose substantial administrative requirements. In addition, to the extent the requirements of the NIC and PR are satisfied by RCRA permit modification procedures required by a State, these may be used and today's rule is not intended to require duplicative requirements be undertaken.

The Agency continues to believe that even though the NIC may contain information that could be substantially changed, it is beneficial to inform the public of the facilities intentions and plans to come into compliance with the emissions standards. Although it may be of plausible concern that changes in planning will subject a facility to challenges from some opponents of hazardous waste combustion, we continue to believe that the substantial benefits (i.e., compliance earlier than 3 years for some facilities and meeting the paramount object of public participation in both the CAA and RCRA) outweigh these concerns.

PRNIC(commenter CS4A-00063)
3. The Agency should use the Title V public notification and Part 63 General Provisions for notifications and Public notice. We believe that the procedures in Title V provide full opportunity for the US EPA, the State Agencies and the Public to review compliance with Part 63 in place of the Public and Regulatory Notification of Intent to Comply (PRNIC). The General Provisions in 63.9 also include detailed procedures for notifications similar to the pre-certification of compliance. We believe that the Agency should include a table outlining the deviations from the General provisions to clarify for the regulated facilities which requirement needs to be followed where more than one seem to apply.

Response:
The NIC and PR requirements are not intended to be duplicative of those part 63 requirements that will be required for hazardous waste combustion sources. In the rule promulgating the emission standards, the Agency will specify which part 63 requirements will apply to these sources.

PRNIC(commenter CS4A-00066)
20. EPA should not rely on "intentions" to establish compliance. In addition, more public involvement and meaningful public involvement is needed (to be meaningful, the public must be given a point of entry to petition;). Also, EPA's view of the proposed informal meeting is naive to say the least. For example, concerning the facilities having "the opportunity to gain an understanding of the public's expectations, did any facility submit comments that take into account the public's expectations of their respective facilities or were the comments all relet ng to the cost of compliance? It

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seems doubtful that the public's expectations will include variances from the MACT standards.

Response:
Facilities will be required to demonstrate that they are indeed making adequate progress towards compliance at two years after promulgation of the emission standards. Those sources that cannot make such a demonstration will be required to cease burning hazardous waste, since compliance with the standards could be achieved by this means sooner than 3 years.

PRNIC(commenter CS4A-00064)
IV. Notification and Reporting Requirement Considerations WTI strongly supports the concept of a Public and Regulatory Notification of Intent to comply (PRNIC). Included as part of the PRNIC would be an informal public meeting concurrent with the issuance of the draft document not later than 210 days following the effective date of the MACT Rule, and the submittal of the final PRNIC 270 days following the final rule. The PRNIC concept is reasonable, not overly burdensome, and represents a positive step to ensure public involvement in the MACT process. However, as currently structured, the PRNIC does not ensure that facilities operate in the most protective manner. If a facility decides that compliance with the MACT standard is not cost-effective, and therefore chooses not to upgrade facility operations, the PRNIC can be used by such facilities to continue operations by up to four years. Such a facility is unlikely to be swayed by public input. The USEPA has expressed concern that "it is not feasible to use a submission that identifies only a facility's future intentions as the legal basis for a facility to terminate waste burning activities before the statutorily based compliance period of three years." While it is questionable whether or not the Clean Air Act provides such authority, the omnibus authority provided under RCRA clearly permits the agency to mandate compliance with the PRNIC. The USEPA needs to retain the PRNIC concept in the final rule, require it to establish clear milestones for compliance with the MACT rule, and incorporate an enforcement mechanism to require facilities to meet the elements incorporated into the PRNIC.

Response:
Facilities will be required to demonstrate that they are indeed making adequate progress towards compliance at two years after promulgation of the emission standards. Those sources that cannot make such a demonstration will be required to cease burning hazardous waste.

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PRNIC(commenter CS4A-00020)

4. Notification and Reporting Requirements 4.1 Public Regulatory Notification of Intent to Comply (PRNIC) Laidlaw generally supports the general concept behind the Public Regulatory Notification, however, we do not believe that the notification goes far enough. As reflected in our comments on the initial MACT proposal of August 1 6, 1996, Laidlaw believes that the Agency should take a strong position to insure that facilities not intending to comply with the MACT standards cease burning hazardous waste at the earliest time after promulgation of the final rule. As the rule was initially proposed, an operator could continue to burn wastes for up to three years without making any effort to reduce emissions. The operator could take advantage of three more years of revenues and then choose to cease hazardous waste burning at the late minute on the due date of notification of compliance. The "PRNIC" is a good first step towards compelling sources to identify their intentions to comply with the final rule. While the proposed mechanism uses the weight of public pressure and potential intervention (which can be considerable) to insure compliance, Laidlaw is concerned that it lacks the necessary enforcement "teeth" to ensure that facilities stop burning hazardous waste at the earliest time if they do not intend to comply with the MACT standards. Laidlaw recommends that EPA include in the requirement to develop and implement a "PRNIC" a mechanism similar to that promulgated under Subpart CC of RCRA in which a facility having existing units not currently in compliance with the rule are required to develop an initial enforceable notification of intent to comply with the standards, including a schedule of compliance with milestones for engineering design and construction. The specific items in this schedule would not be enforceable by EPA with respect to interim compliance dates, but could be used as the basis for a determination by EPA the facility will not comply with the MACT standards by the effective date, despite having filed a notice of intent to comply. Laidlaw also recommends that, following development and implementation of the "PRNIC", the facility operator should be required to make available to the EPA and the public periodic progress reports detailing the efforts taken during the last period to meet the scheduled milestones and to bring the combustion unit into compliance with the new MACT standards. These reports would state the results of tests, design work performed, equipment ordered, progress in construction,, start-up and process optimization, prior to the initial compliance tests. If the reports reflect little to no progress in moving towards compliance with the MACT standards, then EPA must immediately order that facility to cease hazardous waste burning activities. Without such progress reports a facility operator will not have incentive to move readily and continually towards compliance with the MACT Standards. Laidaw agrees with the concept of holding at least one informal meeting with the public before submitting the final notification to

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regulatory agencies. We also recommend that additional public meeting be conducted whenever changes are made to the facility's compliance strategy or schedule. While Laidlaw supports the development of good working relationships between our facilities and the local public, we are concerned over whether the "PRNIC" concept follows the guidelines outlined in the Enhanced Public Participation rule. If the public believes that the informal public meeting will have no real impact on how the facility will come into compliance with the MACT rule, then it will serve only to destroy any trust and dialog between the facility and the public. This is one area where detailed regulatory language and clear Agency enforceability is needed. Finally, Laidlaw recommends that the notification be made within 120 days following the effective date of the final rule. This would coincide with the notification of applicability required under the general MACT rules in 40 CFR Part 63.9. The final "PRNIC" would then be required to be submitted within 180 days following the effective date of the rule. As proposed above, a compliance schedule would be submitted to the regulatory agencies along with the final "PRNIC" document.

Response:

The Agency largely agrees with the suggestions of the commenter for the implementation of the NIC and PR. Additionally, facilities will be required to demonstrate that they are indeed making adequate progress towards compliance at two years after promulgation of the emission standards. Those sources that cannot make such a demonstration will be required to cease burning hazardous waste.

As for the suggestion to undertake the Subpart CC process for planning, this process does not fulfill the Agency's goal of implementing pre-compliance date public participation in the planning process.

PRNIC(commenter CS4A-00023)

8. Retain the PRNIC concept but make sure the process will increase public interaction and trust.

PRNIC(commenter CS4A-00021)

9. Notification & Reporting Requirements: We support USEPA's proposal to require facilities subject to the MACT rule to provide Public & Regulatory Notification of Intent to Comply (PRNIC) first to the public and then to the agencies after input from tho public. Because of the time needed to evaluate various designs, we think that this notice to the agencies should be within a year of the effective date of the HWC Rule instead of 270 days as proposed by EPA. Facilities should also be required to update the PRNIC following significant changes in the air pollution control equipment (APCE) design or their compliance schedule.

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Response:
The Agency agrees with the commenters and has extended the period for development of the NIC.

PRNIC(commenter CS4A-00035)
Secondly, the ETC strongly supports EPA's proposal regarding the submission of Public and Regulatory Notifications of Intent to Comply (PRNICs). However, EPA must adopt enforcement strategies based on the PRNIC to prevent non-complying facilities from continuing to burn large volumes of hazardous waste right up to compliance date. Specifically, EPA should make the third year of the compliance period contingent upon a facility reasonably implementing the PRNIC requirements. In addition, EPA should state its intention to utilize enforcement authorities under RCRA § 3005 (e.g., omnibus authority, interim status termination, and permit modification, revocation, or termination) is appropriate cases to require facilities to cease burning hazardous waste at the earliest time if they are not taking any necessary steps to come into timely compliance with the MACT standards.
IV. Notification and Reporting Considerations A. Public and Regulatory Notification of Intent to Comply (PRNIC) The ETC strongly supports the concept of a Public and Regulatory Notification of Intent to Comply (PRNIC) to inform communities and regulatory authorities of a source's plans to timely comply with the MACT standards. The PRNIC is reasonable, not overly burdensome, and a positive step to ensure public involvement in the MACT process. EPA must require some additional information in the PRNIC. As proposed, the PRNIC would include general information such as name, address, and source designation. The only significant information related to MACT compliance, however, would be a description of the pollution control techniques considered, their effectiveness, and the evaluation process, including key dates, used to select the control techniques. 62 FIT 24242, col. 2. In addition, the PRNIC must include at least the anticipated dates for RCRA permit modifications needed to comply with MACT, and a schedule for design, engineering, contracting, and installation of the pollution control equipment. Most importantly, the PRNIC alone will not adequately discourage facilities from continuing to burn large volumes of hazardous wastes without ever coming into compliance with the MACT standards right up to the last day of the 3-year compliance period. If a facility decides that compliance with MACT will not be cost-effective, and therefore chooses not to upgrade facility operations, the PRNIC can be used by such facilities to continue operations for up to three years. Such a facility is unlikely to be swayed by the public input from the required public meeting. EPA expressed concern in the NODA-3 that "it is not feasible to use a submission that identifies only a facility's future intentions as the legal basis to force a facility to

terminate waste burning activities before the statutorily based compliance period of three year." 62 FR 2424 1, col. 3. The ETC believes the agency's concern is mistaken. Both the CAA and RCRA provide EPA with authority to sanction a facility for failure to make reasonable progress toward MACT compliance by terminating waste burning activities. CAA § 112(I)(3)(A) states that the Administrator "shall provide for compliance as expeditiously as practicable, but in no event later than 3 years." Thus, EPA has statutory authority -- indeed, a statutory duty to require compliance with MACT "as expeditiously as practicable," and the 3 year compliance period is a maximum. In order to implement this statutory mandate, EPA has authority to impose reasonable conditions, requirements, and enforcement to obtain such "expeditious" compliance. We believe this express statutory authority, together with the CAA record-keeping, reporting, and enforcement authority, allows EPA to use the PRNIC as a basis for enforcement against facilities that do not meet reasonable milestones to comply with MACT as expeditiously as practicable, without waiting for expiration of the full 3-year compliance period. In addition, EPA has authority under RCRA § 3005 to terminate such a facility's interim status or to initiate permit withdrawal to burn hazardous wastes. Under § 3005(e)(1), interim status is conferred only "until such time as final administrative disposition of [the facility's RCRA permit] application is made, unless the Administrator or other plaintiff proves that final administrative disposition of such application has not been made because of the failure of the applicant to furnish information reasonably required or requested in order to process the application." Since the MACT standards are being issued under joint CAA and RCRA authority, this provision is available to the agency as well. For a facility that fails to make reasonable progress toward MACT based on the PRNIC, EPA would be authorized to make a final administrative disposition of denial, or to terminate interim status on the ground that a disposition cannot be made because the failure of the facility to furnish PRNIC information necessary to grant the permit, i.e., information demonstrating that the facility is making reasonable progress toward compliance with the MACT standards. Likewise, the agency has RCRA § 3005 omnibus authority to modify, revoke or terminate a facility's RCRA permit with respect to the burning of hazardous wastes if the facility fails to take any necessary steps to come into compliance with the MACT standards as necessary to protect human health and the environment. See also 40 C.F.R. § 270.4l (RCRA permits may be modified, or revoked and reissued, whenever the Director has received information that justifies a modification or revised regulations or guidance have been issued). We also have a concern that a facility might try to use its PRNIC as a shield to justify still a further one-year extension beyond the compliance period. A facility should not be able to state in its PRNIC that it intends to utilize the one-year extension, and then rely on this statement to later bootstrap is claim for an

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extension. CAA § 112(I) provides that EPA or a Title V state can issue a permit that grants a one-year extension only "to comply with MACT standards ... if such additional period is necessary for the installation of controls." In other words, the facility must have firm plans to install the MACT controls and to comply with the standards.

Response:

The Agency largely agrees with the suggestions of the commenter for the implementation of the NIC and PR, and has stated so in other comment responses and the preamble to the final rule. Additionally, facilities will be required to demonstrate that they are indeed making adequate progress towards compliance at two years after promulgation of the emission standards. Those sources that cannot make such a demonstration will be required to cease burning hazardous waste.

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REGULATORY IMPACT

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REGULATORY IMPACT

Regulatory Impacts (How much waste would be excluded; Cost Savings)

CFRI.1(commenter RCSP00102)

While EPA appears to be concerned in the preamble about the impact of combustion MACT on small quantity generators, EPA does not address the economic impact of the MACT rule on small businesses which are also commercial fuel blenders, recycling, and RCRA regulated treatment, storage, and disposal facilities. Many of the NACR member companies are also small businesses as defined by the Small Business Administration. NACR estimates that the increased costs of waste combustion projected by the proposed rule will have significant adverse economic impact on our member companies. This adverse impact must be addressed by the EPA prior to promulgation of the final regulation.

Response:

[Note: This comment does not relate to the fast track and the response does not directly address comment]

The Agency conducted an economic analysis in support of today's Combustion MACT Fast-Track Rulemaking: *Economic Analysis Report for the Combustion MACT Fast-Track Rulemaking*, September 18, 1997. In this analysis the Agency found that the comparable fuel exclusion is unlikely to adversely affect small businesses. This finding is based on two important factors: First, comparable fuels comprise a relatively small percentage (approximately five percent) of total combusted hazardous wastes. Therefore, the comparable fuel exclusion should not significantly affect average prices nor overall waste management behavior. Second, the comparable fuel exclusion is basically deregulatory for hazardous waste generators.

The comparable fuel exclusion is also unlikely to have significant impacts on combustion facilities and fuel blenders. A very small percentage (approximately four percent) of combustion facilities are identified as small businesses. Of those combustion facilities that are considered small businesses, some may benefit from the exclusion by exiting Subtitle C if they are only burning wastes that qualify as comparable fuels. Fuel Blenders that may be considered small businesses are unlikely to experience significant impacts because only a small percentage (about ten percent) of the waste these facilities handle will qualify for the comparable fuel exclusion.

CFI2.2(commenter RCSP00102)

C. Waste Management Options for Small Generators

Small generators may well reevaluate their waste management options if this rule were to go into effect. Under the current system, four options are generally available: 1) reclamation or direct reuse in a non-ground based application; 2) burning for energy recovery; 3) thermal destruction in a Subtitle C regulated commercial incinerator; or 4) dispose of the waste illegally or in an environmentally unsound manner, e.g., burning the waste in a combustion device not regulated under Subtitle C or even Subtitle D, disposing in a nonhazardous waste landfill or surface impoundment or reusing the material in a ground-based or sham recycling application.

Conditionally exempt small quantity generators, who at the present time manage their wastes within the Subtitle C systems (the most protective option available), may find legal non-hazardous waste options more attractive. Combustion in non-RCRA regulated boilers and space heaters will be encouraged. EPA has also stressed that it is interested in using non-regulatory means of encouraging the management of more CESQG waste in the hazardous waste management system. In fact, EPA's recent universal waste rule was in large part motivated by a desire to encourage CESQGs to manage certain wastes under a Subtitle C regime. For small generators, the proposed rule directly contradicts the dual environmental goals of promoting the waste management hierarchy and encouraging CESQGs to manage their hazardous wastes in a manner equally as protective as Subtitle C. The rule will result in an increase in the cost of recycling wastes. Inherent in our costs of collecting and recycling wastes from small generators is the cost of disposing of those residuals that cannot be recycled. If this residual cost increases, so does the cost of recycling for our customers. Therefore, small generators will be less able to afford the cost of recycling. The proposed rule will result in even a greater percentage increase in the cost of managing waste in an energy recovery device, (such as a regulated kiln) or a Subtitle C incinerator. The higher costs to kilns and incinerators of complying with the rule coupled with an expected decrease in capacity as both noncommercial and commercial devices shut down will force prices up. No doubt these costs will be passed directly on to the small generator customer.

<u>Response:</u>

[Note: This comment does not relate to the fast track and the response does not directly address comment]

The Agency conducted an economic analysis in support of today’s Combustion MACT Fast-Track Rulemaking: *Economic Analysis Report for the Combustion MACT Fast-Track Rulemaking*, September 18, 1997. In this analysis the Agency found that the comparable fuel exclusion is unlikely to adversely affect small businesses. This finding is based on two important factors: First, comparable fuels comprise a relatively small percentage (approximately five percent) of total combusted hazardous wastes. Therefore, the comparable fuel exclusion should not significantly affect prices nor waste management behavior. Second, the comparable fuel exclusion is basically deregulatory for hazardous waste generators. Therefore, small business generators will not incur any additional costs (except implementation) from this exclusion. In fact, generators may benefit from the comparable fuel exclusion for two reasons. First, these facilities will generally have lower waste management costs due to the increased value of their waste. Second, some generators have the potential to exit the Subtitle C system completely, thereby avoiding these costs. However, small quantity generators (sending waste streams of less than 50 tons) may not benefit from the comparable fuel exclusion because the implementation costs (e.g., sampling and analysis) may be greater than the potential savings.

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Blending to Meet the Exclusion

CFRI.3 [also WM4.080b] (Commenter RCSP00102)
It is NACR's opinion that a lot of material that is suited for recycling will be diverted from environmentally sound recycling operations, such as solvent reclamation and fuel blending, because it will be more cost effective to mix hazardous waste that meets a comparable fuel specification with a hazardous waste that does not, and burn the material in an unregulated combustion device. If generators will be allowed to blend their hazardous waste to produce a comparable fuel, source reduction may no longer be a feasible option for medium to small companies.

Response:
The practice of mixing hazardous waste with non-hazardous waste to qualify for the comparable fuel exclusion is not allowable under the proposed exclusion. The comparable fuel requirements state that a hazardous waste *as generated* must fulfill the comparable fuel specifications, and that mixing with non-hazardous wastes to meet the specifications is unallowable. Therefore, increased burning in unregulated combustion units is not expected under the argument described by the Commenter.

Exclusion Requires Modification

CFRI.8(commenter RCSP00108)
C. As drafted, the comparable fuel provision contains flaws.
For the reasons we have outlined above, we do not believe the comparable fuel provision has been analyzed sufficiently nor do we believe it should be part of this proposal..

CFRI.10(commenter RCSP00192)
UCC believes (as others have), that the time for a comparable fuel or "Clean fuel" exclusion has been too long in the waiting. We support ' EPA's move to finally utilize this valuable resource for its fuel potential. Further we support EPA's intent to lesssen or eliminate the hurdles of managing clean fuels as a “waste”. Our industry and others have for years tried to utilize this country's resources as efficiently as possible. Economic times require that our operations and others continue to be more and more efficient to complete in today's global market. The sluggish economy can be directly tied to the over regulated environment businesses have to work in. This proposal allows improved utilization of "waste" fuel materials that are comparable to other fuels. This will be economically beneficial and provide an incremental edge in global competition. The productive utilization of these materials is compatible with concepts about sustainability and therefore, environmentally advantageous.

CFRI.11(commenter RCSP00198)
Our assessment is that no facility in the country is likely to have material eligible for the exclusion based on rigorous application of the requirements. Significant modifications to the

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EPA proposal are necessary to achieve the desired objectives.

CFRI.3(commenter RCSP00102)
NACR believes is too important an issue for EPA not to conduct a thorough evaluation of the impacts of the exclusion before proposing it.

Response:
EPA has conducted an evaluation of the comparable fuels exclusion and documented its analysis in the report *Economic Analysis Report for the Combustion MACT Fast-Track Rulemaking*.
EPA has made significant modifications to the proposed comparable fuel exclusion. Some of these changes include: revising the composite fuel specification from the 50th to the 99th percentile aggregate value; removing the flashpoint specifications; and adjusting the total halogen limit that may be detected in a comparable fuel.

Quantity and Characteristics of Comparable Fuels

CFRI.5(commenter RCSP00108)
B. EPA has not conducted the necessary analysis of the impacts of its comparable fuel provision
Safety-Kleen is surprised that EPA would move forward with such an important proposal without the critical information necessary to support a comparable fuel exemption.
1. EPA has not estimated the quantities of hazardous wastes that will be excluded by the comparable fuel provision.
Nowhere in this proposal does EPA estimate the potential amount of waste that would meet the comparable fuel provision. Hence, EPA is proposing a potentially major exclusion from its hazardous waste program without evaluating the most essential and important implications. EPA cannot proceed with a comparable fuel provision until it collects fundamental data, including, but not limited to:

- the amount of hazardous waste that will be excluded;
- the types and sources of wastes that will be excluded;
- the amount, types, and sources of waste that would be excluded under alternative exit levels;
- the impact of different practical quantification levels (PQLS) on the amount of waste that qualifies to exit.

All of this information is critical in evaluating the merits of a comparable fuel program and none of it seems to have been collected and included in this proposal.

CFMISS.15(commenter 108)
For our part, Safety-Kleen has begun evaluating several of the waste streams we collect to determine which would potentially meet the requirements for the comparable uel exclusion and how that would affect our collection operations and the manner in which various wastes

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will be managed. This is a time-consuming and costly undertaking as many of the constituents which must be tested for are not routinely tested for and, hence, the data are not readily available. In addition, we have found that it is difficult to achieve low PQLs with complex waste matrices.

Our analysis--as any other interested parties' analysis--of the impacts of the rule would benefit tremendously from understanding the quantities and types of wastes that would potentially meet EPA's comparable fuel specifications. EPA cannot propose a significant exclusion without such information and without understanding fully the implications of the proposal.

CFRI.4(commenter RCSP00102)

V. As Proposed, NACR Opposes Specific Issues Raised by EPA’s Comparable Fuels Proposal

NACR’s position is that the comparable fuels proposal should be removed from the rulemaking and addressed in a separate rulemaking, if at all. Howvere, since the proposal calls for comments on specific issues associated with comparable fuels, NACR offers the following comments. None of the following comments should be construed as signaling NACR concurrence with the comparable fuels proposal.

A. Identification of hazardous wastes that will be excluded by the comparable fuels provision.

How much material might exit the Subtitle C system through a comparable fuels exemption is a matter of conjecture. Some NACR members have attempted to identify the potential universe through analysis of their waste stream receipts, but time and cost limitations associated with expanded testing for constituents that are not otherwise routinely screened has prevented development of any meaningful estimate. NACR member companies were not able to accurately identify what types of hazardous waste streams meet any of the comparable fuel proposals. Since we could not develop such information, a review of the background documents made avaialble by EPA was conducted. However, that information was also missing from the background documents as well as the preamble supporting this proposal. Without understanding what types and quantities of hazardous waste are eligible for exclusion as a comparable fuel, NACR and, most importantly, EPA, cannot determine environmental and economic impacts. Until such information is developed, analyzed and provided to the public for comment, NACR, does not believe that it is appropriate to follow through with such a proposal in any rulemaking.

As part of an overall effort to quantify the wastes affected by a definition of solid waste rulemaking, the NACR would be pleased to work with EPA in better identifying and measuring waste streams and constituents affected by the comparable fuels and other deregulatory initiatives.

Response:

EPA has conducted an evaluation of the comparable fuels exclusion and documented its analysis in the report *Economic Analysis Report for the Combustion MACT Fast-Track Rulemaking*. The analysis concludes that the quantity of currently combusted hazardous wastes that would qualify for the comparable fuel exclusion ranges from approximately

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150,000 tons to 195,000 tons per year. This estimate was derived from a series of waste screening factors designed to meet comparable fuel exclusion requirements. These factors include screens for incineration and energy recovery system codes, viscosity, heating value, and constituent concentration. Primary waste codes found in wastes eligible for exclusion include, but are not limited to the following: D004, D005, D006, D007, D008, D009, D018, D043, F001, F002, F003, F004, F005, K022, K048, K086, U002, U003, U019, U031, U037, U56, U057, U069, U70, U080, U112, U121, U140, U154, U169, U221, U223, and P063. A complete discussion of methodology, findings, and limitations associated with this analysis is presented in the *Economic Analysis* document identified above.

Implementation

CFRI.6(commenter RCSP00108)
4. EPA has failed to evaluate the range of implementation approaches for a comparable fuel program and thus has failed to fully consider these impacts on environmental benefits and on costs.
There are numerous difficult implementation questions surrounding any exemption, particularly a self-implementing exemption. These include testing, record keeping, and reporting issues. They also include questions on management standards for exempt materials. For all of these topics, the choices EPA makes must optimally balance the need for environmental protection with the need for a cost-effective implementation design. This proposal fails to identify the range of options and the costs and environmental benefits of each.

Response:
In the April 19, 1996 proposed MACT Standards, the Agency proposed a range of specifications for the comparable fuel exclusion and asked for comment on these specifications. Based on the comments received, EPA has adjusted the comparable fuel exclusion and believes that implementation of the exclusion will be cost effective while maintaining protection of the environment. The costs and benefits of the exclusion are discussed in the aforementioned report, *Economic Analysis Report for the Combustion MACT Fast-Track Rulemaking*.
The Agency has provided detailed guidance with regard to testing, recordkeeping, and reporting in today's rulemaking. EPA acknowledges, however, that there are difficult implementation issues for a self-implementing exclusion, and therefore is further investigating the cost effectiveness of a facility pursuing the comparable fuel exclusion.

Resource Conservation and Efficiency

CFRI.12(commenter RCSP00198)
1. ECA supports EPA's initiative to establish a Clean Fuels Exclusion

A clean fuels exclusion for waste-derived fuels offers an opportunity to promote beneficial energy recovery and resource conservation, reduce the burden on industry and EPA associated with managing materials which can be burned with no more risk than that associated with typical fossil fuels, and demonstrate a common-sense approach to regulation. ECA appreciates EPA's recognition of this opportunity and supports efforts to develop a flexible, practical, and effective exemption.

Response:
EPA agrees with the Commenter that the comparable fuel exclusion promotes resource conservation and efficient waste management. EPA also agrees that the exclusion reduces the burden on industries that manage relatively clean wastes.

Small Business Impacts

CFRI.8(commenter RCSP00108)
In fact, we are concerned that many of the provisions EPA is considering will create disproportionate impacts on small businesses and will work against positive waste management behavior.

CFRI.7(commenter RCSP00108)
5. EPA has failed to evaluate the economic impact of the comparable fuel provisions on small businesses
EPA has also failed to evaluate how the costs to businesses of complying with the comparable fuel provisions will affect small versus large businesses. As EPA notes in the preamble, the analytic and record keeping requirements of the comparable fuel provisions may be cost prohibitive for small businesses. Yet EPA has conducted no analysis of these cost impacts of on the ability of large vs. small businesses to realistically participate in the comparable fuel program. Moreover, EPA has not examined whether there are any mitigation measures (such as third party vendors) which could help level the playing field in a cost effective manner, while still providing appropriate environmental protection.
EPA does request comments on whether it should include an "inherently comparable fuels" exemption for small businesses. (61 FR 17464) EPA offers as an example, mineral spirits from automotive cleaning. As mineral spirits are amenable to recycling, such an exclusion will serve to decrease the amount of current hazardous waste being recycled. In essence, EPA would be supporting the burning of these materials over recycling and reuse. In addition, as we have noted earlier, blanket exemptions for small businesses are not the best way to encourage environmentally beneficial management.

Response:
EPA assessed the impacts of the comparable fuel exclusion on small businesses and determined that the exclusion is unlikely to adversely affect small businesses. This finding is based on two important factors. First, comparable fuels comprise a relatively small

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percentage (approximately five percent) of total combusted hazardous wastes. Therefore, the comparable fuel exclusion should not significantly affect average prices nor overall waste management behavior. Second, the comparable fuel exclusion is basically deregulatory for hazardous waste generators and will generally reduce waste management costs. However, small quantity generators may not benefit from the comparable fuel exclusion to the extent that large quantity generators will benefit because the implementation costs (e.g., sampling and analysis) may be greater than the potential savings. EPA is conducting further review to determine the ability of small versus large businesses to pursue the comparable fuel exclusion.

Safety-Kleen also states that the Inherently Comparable Fuels Exclusion proposed in the April 19, 1996 proposal will decrease the amount of mineral spirits being recycled. EPA, however, has chosen not to promulgate the proposed Inherently Comparable Fuels Exclusion because no commenters sent in the data specifically requested by EPA in the proposal, namely:

- Constituent concentration data demonstrating that certain wastes would routinely meet the comparable fuel specifications;
- Information about volumes of waste meeting the comparable fuel specifications generated by individual generators; and
- Information about the number of these generators and the total quantity of comparable fuels they generate.

<u>Regulatory Relief</u>

CFRI.9(commenter RCSP00181)

I. EPA’s Proposed Clean Fuels Exemption Provides No Relief for Eastman’s Waste Fuels
Eastman has long supported an exemption from the rigorous requirements of RCRA for “clean” hazardous wastes that can be beneficially used as a fuel. Many wastes are classified as hazardous only because they exhibit the characteristic of ignitability. These, and certain other hazardous wastes, contain very low levels of hazardous constituents and can be safely burned as furls for heat recovery in combustion units that are regulated under less rigorous non-hazardous regulations.

EPA has proposed a "benchmark" exemption whereby a fuel may be exempted from Subtitle C regulation if it is shown to contain hazardous constituents at levels no greater than "comparable" fossil fuels. Eastman believes that this approach is generally not workable and will provide little or no relief for clean fuels.

CFRI.11(commenter RCSP00198)

While ECA supports EPA's overall objectives of a clean fuels exclusion, our conclusion, based on utilizing the proposed EPA Comparable Fuel Exclusion requirements to guide a sampling/analysis program at one of ECA's facilities, is that the EPA proposal will provide no regulatory relief for ECA and is unworkable.

<u>Response:</u>

EPA has adjusted the provisions of the comparable fuels exclusion for today's rule and believes that the exclusion will provide relief for facilities that generate clean fuels. Some of the changes to the exclusion include: revising the composite fuel specification from the 50th to the 99th percentile aggregate value; removing the flashpoint specifications; and adjusting the total halogen limit that may be detected in a comparable fuel.

Non-Regulated Combustion Units

CFRI.9(commenter RCSP00181)
Eastman generates a number of hazardous waste streams that it confidently feels can be beneficially burned in non-hazardous industrial boilers in an environmentally sound manner. However, Eastman finds that EPA's proposed exemption would provide no regulatory relief for these wastes.

Response:
If Eastman Chemical Company's waste streams meet the comparable fuel exclusion, then they can in fact be burned in non-hazardous industrial boilers.

Costs of Management

CFRI.12(commenter RCSP00198)
ECA currently has two industrial boilers at a manufacturing facility that burn hazardous waste. The facility has submitted a RCRA Part A permit application. The hazardous waste feed consists primarily of hexane, isooctane, and vinyl acetate, which are hydrocarbon compounds. The waste fuel BTU content is approximately 20,000 BTU/lb, which makes the stream attractive for energy recovery. Also, ECA has additional "clean fuel" streams with high BTU value at a nearby chemical facility which could be beneficially used if a practical exclusion is developed.

In order to support comment preparation for the proposed rule, ECA initiated a sampling and analysis program at one manufacturing facility for the largest volume waste fuel that could potentially be classified as a clean fuel. The results are summarized in Attachment 1 and incorporated into the appropriate sections of this comments package.

As noted in CMA's letter, the combustor permitting process under RCRA is costly and resource intensive. CMA-member company experience suggests initial costs in the $500,000 to $1,000,000 range for the necessary application, trial burns and risk assessment. Annual costs are estimated to be $250,000 or higher. Initial and annual permitting costs at the ECA facility referenced above are estimated at $250,000 and $50,000, respectively. With an appropriately constructed exclusion, these costs are avoidable for facilities burning clean fuels.

CFRI.13(commenter RCSP00215)
Background

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The vast majority of AOCA members generate 0 - 20 gallons of used solvent on a monthly basis in the course of servicing customers' vehicles. Approximately half of the members utilizing solvent rely upon an auto parts washer service. Of those members who do rely on an auto parts washer service, most are provided with a drum-mounted parts cleaner which generally means that the auto parts washer service actively manages the parts cleaner unit rather than the fast-lube facility.

Response:
EPA appreciates the significant costs of hazardous waste management and believes that the comparable fuels exclusion in today's rule will lower costs for facilities that generate clean fuels.

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