UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

SEPT. , 1987

MEMORANDUM

SUBJECT: Implementation of North County Resource Recovery PSD Remand

FROM: Gerald A. Emission, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Director, Air Management Division, Regions I, III, V, and IX
Director, Air and Waste Management Division, Region II
Director, Air, Pesticides, and Toxics Division, Regions IV and I
Director, Air and Toxics Division, Regions VII, VIII, and X

On June 3, 1986, the Administrator remanded a prevention of significant deterioration (PSD) permit decision, involving the North County Resource Recovery project, to Region IX for their reconsideration. The permit was for a 33-megawatt, 1000 tons-per-day facility to be located in San Marcos, California. At issue was whether appropriate consideration had been given, within the best available control technology (BACT) determination, to the environmental effects of pollutants not subject to regulation under the Clean Air Act (Act). [SEE FOOTNOTE *] The remand strongly affirms that the permitting authority should take the toxic effects of unregulated pollutants into account in making BACT decisions for regulated pollutants. This obligation arises from section 169(3) of the Act, which defines BACT as the maximum degree of emissions decrease which the permitting authority determines is achievable, taking into account "environmental . . . impacts." Essential to this process is the notification to the public of how the effects of toxic air pollutants, including those that are unregulated, have been considered in the PSD review and the subsequent consideration of the comments in making the final BACT decision. The purpose of this memorandum is to advise you of the impact of the remand on PSD permitting and to provide implementation guidance. This document builds upon and makes final the draft guidance of August 1986.

Coverage

Although the Act has given us the authority to review directly the considerable range of regulated pollutants, the remand clearly indicates that the Environmental Protection Agency (EPA) should incorporate consideration of all pollutants within its PSD determinations for all sources subject to PSD. This result is consistent with the fact that the PSD permitting process is charged ". . . to protect public health and welfare from any

[FOOTNOTE *] A "regulated pollutant," or "pollutant subject to regulation under the Clean Air Act," is one which is addressed by a national ambient air quality standard, a new source performance standard, or is listed pursuant to the national emission standards for hazardous air pollutants program.

actual or potential adverse effect . . . from air pollution . . . " and that increases in air pollution should be permitted ". . . only after careful evaluation of all the consequences . . ."
[section 160(1) and (2)].

Revisions to State implementation plans (SIP's), to comport with the Administrator's decision, should not be necessary. State or local agencies with delegated PSD programs automatically track this change in policy. Agencies implementing their own SIP-approved programs are also unlikely to need any regulatory changes. This is because the remand is based on an interpretation of Act language, notably the definition of BACT, that is in most cases already contained in the plan. I ask that you confirm this with your States and applicable local agencies.

Transition

As with any change in the way EPA does business, we have developed a transition plan for its implementation. The situations can be addressed most logically by dividing all PSD sources into three groups based on phase of permitting activity: those sources for which permit applications had not been filed, those for which permits had already been granted, and those for which applications had been filed but permits not yet granted.

First, all PSD sources for which complete applications had not been filed as of the Administrator's June 3, 1986, decision are fully subject to the remand's requirements. Earlier applications present more complex policy considerations.

One could argue, since the Administrator's decision is an interpretation of existing Act provisions, rather than a new requirement, that all PSD permits issued under the terms of the 1977 Amendments to the Act should be subject to the remand. However, program stability and equity to sources, in this second group, that have relied upon properly issued PSD permits militate strongly against such an approach. For these reasons, I have decided to exempt from the requirements of the remand all sources holding finally issued permits as of June 3, 1986. (Subsequent major modifications to such existing sources are, of course, subject to PSD review, including the application of the requirements of this remand.)

The third group of sources consists of those for which PSD permits were in the pipeline (i.e., complete application filed but permits not yet issued) as of the date of the remand. It is appropriate that these sources also be subject to the terms of the remand. However, for permit applications which have successfully passed through the public comment period without environmental effects concerns being raised, the Regional Office may, at its discretion, issue these in final without further delay.

The above enunciated transition policy applies directly to all EPA permit issuance procedures and also to those used by State agencies issuing PSD permits under a delegation of authority agreement pursuant to 40 CFR 52.21(u). This transition policy does not automatically apply to PSD

permit decisions by States under SIP-approved PSD programs, except to the extent that environmental effects issues are raised by commenters. The policy does apply prospectively in a uniform fashion to all applications filed after June 3, 1986. States with SIP-approved PSD programs are, of course, responsible for enunciating reasonable transition schemes and I ask that you encourage them to adopt policies consistent with this one. These transition schemes, as with the substantive program itself, are unlikely to require rulemaking; however, the policies should be set forth in formal statements so as to further the goals of public awareness and consistent application. These policies and their implementation will be reviewed within the National Air Audit System to assess the need to require greater conformance.

Required Analyses

The BACT requirement outlined in section 169(3) of the Act contemplates a decision process in which the best available controls are defined for each regulated pollutant that a PSD source would emit in significant amounts. This case-by-case process is to take into account energy, environmental, and economic impacts and other costs. The toxic effects of unregulated pollutants are to be accounted for in deciding if the BACT otherwise being prescribed for regulated pollutants still represents the appropriate level

and type of control. If the reviewing authority judges the potential environmental effects of such unregulated pollutants to be of possible concern to the public, then the final BACT decision for regulated pollutants should in all cases address these effects and reflect, as appropriate, control beyond what might otherwise have been chosen.

A recent remand determination made by the Administrator in another case provides further elucidation of the BACT process. In that case, Honolulu Program of Waste Energy Recovery (H-Power), PSD Appeal No. 86-6, Remand Order (June 23, 1987), the Administrator ruled that a PSD permitting authority has the burden of demonstrating that adverse economic impacts are so significant as to justify the failure to require the most effective pollution controls technologically achievable as BACT.

The broad mandate with respect to toxics that is presented by the remand is not readily amenable to highly detailed national guidance that provides the appropriate permitting requirement in each case. There is no specific formula for making BACT decisions; this is a case-by-case process involving the judgment of the reviewing authority. While it may be possible to develop a framework of guidance based upon such factors as risk assessment and reference doses, this would entail a large effort that seems inappropriate at this time. It is more practical, however, for EPA to develop guidance for specific source categories that are of particular importance. The EPA has recently provided such BACT guidance with respect to municipal waste combustors. See memorandum entitled "Operational Guidance on Control Technology for New and Modified Municipal Waste Combustors," from Gerald A. Emission, Director, Office of Air Quality Planning and Standards, dated June 26, 1987. Guidance on other source categories may be issued from time to time as appropriate.

Today's policy charges the PSD review authority with analyzing at the outset the environmental impacts of proposed construction projects with respect to air toxics which might be of concern, even if such matters are not initially raised by the public. Other types of environmental effects should also be addressed in response to public concerns, within the limits of the ability to do so. For PSD reviews consistent with this policy, each applicable permitting authority should initiate an evaluation of toxic air pollutants (unregulated as well as regulated) which the proposed project would emit in amounts potentially of concern to the public. The review authority should evaluate unregulated pollutants for both carcinogenic and noncarcinogenic effects. The National Air Toxics Information Clearinghouse (NATICH) data base contains considerable information relevant to evaluating the effect, sources, and control techniques available for unregulated pollutants. I encourage you to urge permitting authorities to use NATICH as a source of information as they conduct the analyses. Further information may be obtained by calling the NATICH staff at 629-5519.

The response to the Administrator made by EPA Region IX in its analysis of the North County permitting decision is attached. Although this example illustrates only one of several acceptable approaches, it is a well thought out analysis that provides a useful example to consider for future permitting exercises.

Headquarters has several other mechanisms in effect to support analyses with respect to toxics. These include a recent report which helps to estimate toxic air emissions from various sources (Compiling Air Toxics Emission Inventories, EPA-450/4-86-010). The burden of proof regarding emissions estimates, of course, rests with the applicant, but the techniques discussed in the document should be useful in determining if the applicant's estimates are reasonable and address appropriate pollutants. In addition, the Office of Research and Development (ORD) has released a control technology manual which is valuable in evaluating how control devices for particulate matter and volatile organic compounds differ in their abilities to control various toxic species of these criteria pollutants (Control Technologies for Hazardous Air Pollutants, EPA-625/6-86/014).

Support will also be available on a case-by-case basis from the Office of Air Quality Planning and Standards (OAQPS) and ORD. In particular, we have formed a control technology center to provide assistance to the review authority in determining BACT. This center can offer a range of activities,

including evaluation of source emissions, identification of control techniques, development of control cost estimates, identification of operation and maintenance procedures, and, in a few situations, in-depth engineering assistance on individual problems. Other planned activities include the publication of technical guidance to assist in the evaluation of selected types of sources. Contact points for the control technology center are Lee Beck in OAQPS (629-0800) and Sharon Nolen in ORD (629-7607). We expect this support to limit the effort required of PSD reviewing authorities.

Public Participation

One of the most important features of this policy is the requirement that the affected public be fully informed of the potential toxic emissions from a proposed project and of what the reviewing authority has done to minimize this potential within the BACT decision. A specific discussion of toxics concerns in a technical support document might be helpful in accomplishing this information transfer. Additional concerns related to the environmental effects of unregulated pollutants raised by commenters must then be addressed in the final BACT determination. This process is of central importance to PSD permitting and comments received must be adequately addressed in the final decision. Strong public participation is consistent with the PSD goals contained in section 160 of the Act, which relate to informing the public of increased air pollution, including that due to unregulated pollutants.

It should be noted that although these analyses are used in the BACT decision, they will not be used as the basis for disapproving a project that has agreed to apply BACT. In other words, today's policy requires that toxics be considered in the control of the proposed project only to the extent that the level of control chosen as BACT is achievable.

Enforcement

In the case of delegated (as opposed to SIP-approved) PSD programs, EPA has various enforcement tools. Pursuant to 40 CFR 124.19, any party that participated in the public proceedings with respect to a proposed permit may, within 30 days of the final permit decision, petition the Administrator of EPA to review any condition of that permit decision. The Administrator may also seek to review any such permit condition on his own initiative. Should this appeals procedure be unavailable in a particular case, EPA has the authority, depending upon the facts of the case, to withdraw the delegation with respect to an individual permit that is being or has been issued inconsistently with the terms of that delegation. Thus, EPA may be able to directly intervene in the issuance of a PSD permit to ensure implementation of today's policy. This withdrawal of delegation is not the preferred course of action but it may be available if needed.

The consideration of air toxics in PSD permitting is a requirement of the Act and, through the definition of BACT, is incorporated in the SIP's. Therefore, violation of this policy would constitute a SIP violation and be enforceable by EPA. Section 113(a) of the Act provides for Federal issuance of a notice of violation in the case of a violation of a SIP. If the violation continues for more than 30 days, section 113(b) provides that the Administrator shall commence an action for injunction or civil penalty, or both. In addition, section 167 of the Act specifically provides that EPA take legal action to prevent the construction of a major emitting facility that does not conform to the requirements of PSD. Under section 167, EPA can issue an administrative order or commence a civil action. Since no

notice of violation would be necessary, in this case, EPA can use section 167 to order immediate cessation of construction or operation. Note also that this section has been construed as providing EPA with authority to take enforcement action against sources out of compliance with PSD even if they have already been constructed. These remedies are more likely to be used in the case of SIP-approved programs than with delegated programs, for which an appeal under 40 CFR Part 124 would generally be the preferred course of action.

Enforcement actions are pursued after reviewing a range of factors relevant to each particular case. For this reason, I am not setting forth detailed provisions as to required enforcement measures. There are, however, certain situations in which enforcement action is generally appropriate. These include procedural deficiencies, such as failure to solicit public comment on air toxics issues for applicable permits, and failure to address the air toxics concerns raised by public comment. Enforcement with respect to permits already in the pipeline should follow the transition scheme in today's policy for delegated programs and the State or local agreement established with EPA for SIP-approved programs.

The Act and the PSD regulations require that States submit a copy of the public notice for proposed permits to EPA. I urge the Regional Offices to ensure that such notices are submitted and are reviewed for conformance with the criteria contained in this document. Although enforcement mechanisms are available to address noncomplying sources, our efforts to implement today's policy will be much more effective if taken prospectively and in coordination with the State permitting process.

Conclusion

Today's guidance summarizes the broad ranging impact of the June 3, 1986, remand and provides some insight into the analyses and public disclosure that now should take place. We will continue to support and monitor subsequent decisions and to assess the need for more detailed or expansive guidance. Questions on today's guidance should be addressed to Michael Trutna (629-5345) or Kirt Cox of OAQPS (629-5399).

Attachment

cc: C. Potter
A. Eckert
D. Clay
Regional Administrator, Regions I-X
Air Branch Chiefs, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

MEMORANDUM

DATE: August 15, 1986

SUBJECT: North County Resource Recovery Associates
PSD Appeal No. 85-2

FROM: David P. Howekamp, Director
Air Management Division, Region 9

TO: Lee M. Thomas, Administrator
U.S. Environmental Protection Agency

This is in response to the June 3, 1986 remand of Region 9's April 2, 1985 determination to issue a prevention of Significant Deterioration (PSD) permit to the North County Resource Recovery Associates for the construction of a 1000 ton per day resource recovery facility. The remand charged Region 9 with reconsidering the effects of unregulated pollutants when making PSD determinations.

Region 9 has reviewed the relevant BACT decisions and has prepared a response to the Administrator's remand, as recommended in the July 21, 1986 guidance memo from Gerald A. Emission, Director, Office of Air Quality Planning and Standards. Our response with supporting materials is attached.

If you have any questions regarding the enclosed materials please contact me at 454-8201 (MS) or have your staff contact Wayne A. Blackard, Chief of our New Source Section at 454-8249 (FTS).

Enclosures

RESPONSE TO PSD REMAND
NORTH COUNTY RECYCLING AND ENERGY RECOVERY CENTER
(PSD Appeal NO. 85-2)

On April 2, 1985 the Director of the Air Management Division, EPA Region 9, made a determination to issue a Prevention of Significant deterioration (PSD) permit to the North County Resource Recovery Associates (NCRRA) for the construction and operation of a 33 megawatt, 1000 ton per day resource recovery facility. During the following appeal period EPA received three petitions filed pursuant to 40 CFR 124.19 requesting the Administrator to review Region 9's decision to issue the PSD permit. The Office of the Administrator reviewed the petitioners' comments and Region 9's responses to the comments and determined that Region 9 had satisfactorily addressed all of the petitioners' allegations with the exception of Region 9's assertion that EPA lacked the authority to "consider" pollutants not regulated by the Clean Air Act when making a PSD determination. The Administrator felt that Region 9's assertion was overly broad and that when making a PSD determination, in particular a best available control technology (BACT) decision, a permitting agency must consider not only the environmental impact of the controlled regulated pollutant but must also consider the environmental impacts of any unregulated pollutants that might be affected by the choice of control technology. For this reason the Administrator remanded the PSD determination to Region 9 for reconsideration and action consistent with the above interpretation of EPA authority.

In response to the above, Region 9 has reviewed the BACT decisions made for the NCRRA PSD permit. Under the PSD regulations NCRRA must apply PACT to control emissions of SO2, NOx, lead, mercury, and fluorides from their proposed resource recovery facility. BACT is defined in the Clean Air Act as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act...on a case-by-case basis, taking into account energy, environmental and economic impacts and other costs..." Under environmental impacts our review of the original BACT determination included the impacts from both regulated and affected unregulated pollutants. The control of particulates, CO, and VOC emissions are not directly subject to the federal PSD BACT review, but are subject to the nonattainment permitting regulations which are administered by the San Diego Air Pollution Control District.

NCRRA is proposing to use a dry scrubber with a baghouse to control emissions of So2 acid gases, and particulate matter from the proposed resource recovery project. The dry scrubber consists of a spray dryer and a baghouse. The spray dryer injects an atomized lime slurry sorbent into the flue gas stream. The baghouse removes the dried sorbent and flyash (particulate matter) from the flue gas. The dry scrubber will be designed for a flue gas flow of 225,000 acfm at an inlet temperature of

340 degrees F and a maximum outlet temperature of 265 degrees F. NCRRA expects the dry scrubber system to provide 83% removal of SO2 and 95% removal of acid gases as well as 99.5% removal of particulates.

Recent tests of emissions control devices for waste fired boilers (the latest being the Quebec City Test Program) have shown that properly designed and operated control devices can significantly reduce emissions from resource recovery facilities. In particular, an acid gas scrubbing system operating at optimal stoichiometric ratios, at low temperature, in tandem with a baghouse can achieve very high removal efficiencies of particulates, SO2, HCl, organics, and heavy metals. The tests indicate that the NCRRA's proposed emission control system (lime slurry spray dryer, baghouse, low temperature flue gas) is the most efficient for controlling the unregulated pollutants from a resource recovery facility. While certain technologies may have the potential for greater removal of regulated pollutants (e.g. a wet scrubber may yield greater SO2 removal), available data suggests that greater control of unregulated pollutants will not result. Region 9 believes that the NCRRA's proposed control technology will have very high collection efficiencies of dioxins, furans, and heavy metals, with collection efficiencies of 95% for HCl, and greater than 90% for mercury. We conclude that a lime slurry spray dryer with a baghouse provides the

greatest degree of control currently achievable for the relevant air toxics concerns and therefore, emission limitations based on the operation of a lime slurry spray dryer with a baghouse and continuous emission monitors constitute BACT for the control of SO2, lead, mercury, and fluorides from the NCRRA facility.

In addition to the proposed acid gas BACT, Region 9 also reviewed the BACT decisions made for controlling NOx emissions from the NCRRA facility. NCRRA has proposed to control NOx emissions with low excess air and staged combustion. After reviewing all of the available control technologies, Region 9 believes that the alternate NOx control technologies currently available for resource recovery do not offer any better control of the affected pollutants (organics such as dioxins and furans) than do the controls proposed for the NCRRA facility. Our review included staged combustion, selective non-catalytic reduction, selective catalytic reduction, wet flue gas denitrification, and the different categories of source separation. Our review also took into account the effects of the district permit requirements designed to reduce organic toxic pollutants (minimum 1800 F furnace temperature and minimum 2 second residence time in the combustion zone). We conclude that an emission limitation based on the use of low excess air and staged combustion and with continuous emission monitors is BACT (considering the effect of unregulated pollutants) at this time for the control of NOx emissions from the NCRRA facility.

As part of our BACT review of the NCRRA PSD permit, Region 9 prepared several charts listing the available SO2 and NOx control options for the NCRRA facility, ranked in order of control

effectiveness, with the estimated impacts of the controls on the projects' other air pollutants. The charts were prepared using data from existing Region 9 PSD permits, permit applications, district permits, emission control technology reports from the California Air Resources Board and the New York City Department of Sanitation, and from reports on the Quebec City Test Program. The impacts on other pollutants were estimated using our best engineering judgement based on the available data. We have included these charts with this report for your review.

After reviewing the above facts, Region 9 has concluded that no greater controls for the regulated pollutants can be applied that would be more effective in reducing the emissions of unregulated pollutants. Therefore, the BACT proposed by NCRRA and the BACT decisions made by Region 9 in the April 2, 1985 PSD determination are reaffirmed as BACT for controlling SO2, NOx, lead, mercury, and fluoride emissions from NCRRA's proposed North County Recycling and Energy Recovery Center.

REFERENCES

1. Air Pollution Control at Resource Recovers Facilities, California Air Resources Board, May 24, 1984.

2. Clarke, Marjorie J., Emission Control Technologies for Resource Recovery, New York City Department of Sanitation, March 15, 1986.

3. Hay, D.J., Finkelsteim, A., Klicuis, R., Masentette, L., "The National Incinerator Testing and Evaluation Program: An Assessment of A) Two-Stage Incineration B) Pilot Scale Emission Control", Presented at the 79th Annual Meeting of the Air Pollution Control Association, June 22-27, 1986, Minneapolis, Minnesota.

[READERS NOTE: Originally this table was landscape-oriented it had to be divided due to space limitations]

EPA Region 9 - New Source Section
BACT ANALYSIS
(Ranked in Decreasing Order of Control Effectiveness)

Project: North County RRF

Project Category: Resource Recovery
Project Type: 1113 TPD, RDF, 36 MW
Pollutant: SO2
Date: August 15, 1986
Project Engineer: Bob Baker

Control Options	% Control	Emission Rates (lbs/ton) (ppm) see *	Emissions (tons/yr)
Spray Dryer, Alkaline Slurry, Baghouse	80-95	0.26-1.04 (9-35)	53-212
Spray Dryer, Lime Slurry, Baghouse	75-90	0.52-1.30 (18-44)	106-265
Spray Dryer, Alkaline Slurry, ESP	75-90	0.52-1.30 (18-44)	106-265
Dry Injection, Sodium Sorbent, Baghouse	70-85	0.78-1.56 (26-53)	159-318
Spray Dryer, Lime Slurry, ESP	65-85	0.78-1.82 (26-62)	159-371
Dry Injection, Lime, Baghouse	65-80	1.04-1.82 (35-62)	212-371
Wet Scrubbing, Alkaline	50-90+	0.52-2.61 (18-88)	106-530
Dry Injection, Sodium Sorbent, ESP	50-75	1.30-2.61 (44-88)	265-530
Dry Injection, Lime, ESP	40-70	1.56-3.13 (53-106)	318-636
Dry Injection, Limestone ESP	25-40	3.13-3.91 (106-132)	636-795
Wet Scrubbing, Water	20-30	3.65-4.1 (124-141	742-848
Source Separation	5-10	4.69-4.95 (159-168)	954-1007

[*]: Corrected to 12% CO2, 24 hour average

Control Options	Control Effectiveness on Other Pollutants				
	Heavy Metals	Dioxin Furans	HCl	Hg	Lead
Spray Dryer, Alkaline Slurry, Baghouse	Exc	Exc	Exc	Good	Exc
Spray Dryer, Lime Slurry Baghouse	Exc	Exc	Exc	Good	Exc
Spray Dryer, Alkaline Slurry, ESP	Good	Good	Exc	Fair	Good
Dry Injection, Sodium Sorbent, Baghouse	Exc	Poor	Exc	Poor	Good

Spray Dryer, Lime Slurry, ESP	Good	Good	Exc	Fair	Good
Dry Injection, Lime, Baghouse	Good	Poor	Exc	Poor	Good
Wet Scrubbing, Alkaline	Poor	Poor	Exc	Fair	Fair
Dry Injection, Sodium Sorbent, ESP	Fair	Poor	Exc	Poor	Fair
Dry Injection, Lime, ESP	Fair	Poor	Good	Poor	Fair

[READERS NOTE: Originally this table was landscape-oriented it had to be divided due to space limitations]

EPA Region 9 - New Source Section
BACT ANALYSIS
(Ranked in Decreasing Order of Control Effectiveness)

Project: North County RRF
Project Category: Resource Recovery
Project Type: 1113 TPD, RDF, 36 MW
Pollutant: NOx
Date: August 15, 1986
Project Engineer: Bob Baker

Control Options	% Control	Emission Rates (lbs/ton) (ppm) see *	Emissions (tons/yr)
Selective Catalytic Reduction (SCR)[See Footnote 2]	90-95	0.31-0.61 (15-30)	65-129
Wet Flue Gas Denitrification (FGDn) (See Footnote 2)	80-90	0.61-1.21 (30-60)	125-258
Selective Non-Catalytic Reduction (SNCR)	30-60	2.43-4.25 (110-200)	473-860
Low Excess Air/Staged Combustion	30-35	3.94-4.25 (185-200)	795-860
Flue Gas Recirculation	10-15	5.16-5.46 (240-260)	1032-1118
Source Separation	Minimal	-	-

Footnote 1: Corrected to 12% CO2, 24 hour average.

Footnote 2: This control technology has not yet been applied to refuse combustion, and has not bee considered as a transferable technology due to as yet unresolved technological problems.

Control Options	Control Effectiveness on Other Pollutants				
	Dioxin Furans	VOC	CO	Heavy Metals	
Selective Catalytic Reduction (SCR)(See	Unk	Poor	Poor	None	

Footnote 2)					
Wet Flue Gas Denitrification (FGDn)(See Footnote 2	None	None	None	Poor	
Selective Non-Catalytic Reduction (SNCR)	None	None	None	None	
Low Excess Air/Staged Combustion	Unk	Unk	Unk	None	
Flue Gas Recirculation	Worsen	Worsen	Worsen	None	
Source Separation	Fair	Poor	Poor	Poor	