Draft
Technical Support Document for HWC MACT Standards

Volume V: Main Report

Engineering Costs

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ABSTRACT

Engineering, testing and monitoring costs were estimated for compliance with the proposed EPA rule governing the emissions of hazardous air pollutants (HAPs) from hazardous waste combustors including incinerators, cement kilns and lightweight aggregate kilns. Regulated HAPs and HAP surrogates include dioxins/furans, mercury, semi-volatile metals, low-volatile metals, carbon monoxide, total hydrocarbons, particulate matter, and total chlorine ($HCl + Cl_2$). Emissions, design and operating data from trial burn and compliance test reports from 124 hazardous waste combustors were used to determine the facility-by-facility emissions reductions required to meet proposed MACT floor and beyond-the-floor emissions standards. Upgrades of air pollution control equipment required to achieve these emissions reductions were determined; and facilities were categorized into model plant groups of similar source type, size and upgrade requirements. Costs (broken down by hazardous air pollutant) were estimated for each model plant group. Monitoring costs were estimated based on the continuous monitoring of CO, HC, Hg and PM. Testing costs were estimated based on Comprehensive Performance Tests every three to five years (depending on the source type and size) and simpler Confirmatory Performance Assessments of the same frequency, but on an offset schedule. The reduction in national emissions of the regulated HAPs was estimated. The costs and emission reductions provided in this document serve as inputs to the cost/benefit analysis of the Regulatory Impact Analysis for the proposed rule.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

AB	Afterburner
ACS	Acid Scrubber
APCD	Air Pollution Control Device
APCS	Air Pollution Control System
AS	Absorber
AT	Ash Trap
BIF	Boiler and Industrial Furnace
C	Cyclone
CA	Carbon Absorber
CB	Carbon Bed
CEM	Continuous Emissions Monitor
CEMs	Continuous Emissions Monitor System
CI	Carbon Injection
CK	Cement Kiln
Cl2	Chlorine
CCS	Counter Current Scrubber
CO	Carbon Monoxide
CS	Caustic Scrubber
CT	Chimney Tray
DA	Dilution Air
DI	Dry Injection
DM	Demister
D/O/M	Design, Operation and Maintenance
DS	Dry Scrubber
dscf	Dry Standard Cubic Foot
dscm	Dry Standard Cubic Meter
EER	Energy and Environmental Research Corp.
EPA	Environmental Protection Agency
ES	Entrainment Separator
ESP	Electrostatic Precipitator
FF	Fabric Filter
FN	Fog Nozzel
GC	Gas Cooler
H	Humidifier
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
HCA	Hydrogen Chloride Absorber
HCl	Hydrogen Chloride
HCS	Hydrogen Chloride Scrubber
HE	Heat Exchanger
HEPA	High Efficiency Particulate Air Filter
HES	High Energy Scrubber
Hg	Mercury
HS	Hydrosonic Edctor Scrubber
HTHE	High Temperature Heat Exchanger
HWC	Hazardous Waste Combustor
HWI	Hazrdous Waste Incinerator
ID	Identification
INC	Incinerator
INCIN	Incinerator
IWS	Ionizing Wet Scrubber
KOV	Knock Out Vessel
L	Large

LTHE	Low Temperature Heat Exchanger
LVM	Low Volatile Metals
LWAK	Light Weight Aggregate Kiln
MACT	Maximum Achievable Control Technology
MC	Multiple Cyclones
MHRA	Maximum Hourly Rolling Average
na	Not Applicable
nr	Not reported
OS	Orifice Scrubber
PBC	Packed Bed Condenser
PBS	Packed Bed Scrubber
PM	Particulate Matter
ppmv	Part Per Million - Volume
PT	Packed Tower
Q	Quench
QC	Quench Column
QS	Quench Separator
QT	Quench Tower
RH	Reheat
RJS	Reverse Jet Scrubber
S	Small
S	Scrubber
SD	Spray Dryer
SS	Spray Saturator
ST	Spray Tower
SVM	Semi Volatile Metals
TEQ	Toxic Equivalence Quotient
ug	Microgram
VQ	Venturi Quench
VS	Venturi Scrubber
WHB	Waste Heat Boiler
WS	Wet Scrubber

SECTION 1

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) regulates the burning of hazardous waste in incinerators under 40 CFR Part 264/265, Subpart O and in boilers and industrial furnaces under 40 CFR Par 266, Subpart H. The Agency is proposing revised regulations applicable to these hazardous waste combustion (HWC) devices. This document provides technical background for the engineering and compliance costs used for the regulatory impact analysis for the proposed rule.

The engineering costs are the costs incurred for air pollution control device (APCD) modifications or installations to control HAPs emissions to the limits established by the MACT regulation. The compliance costs include:

- Periodic performance tests to certify compliance with the regulations for all regulated HAPs.
- Continuous emission monitoring systems (CEMS) to certify compliance of certain critical or surrogate HAPs in periods between performance tests.

This document is the fifth in a series of seven volumes of technical background documents for the rule. These include:

Technical Support Document for HWC MACT Standards, Volume I: Description of Source Categories, which provides process descriptions of major design and operating features including different process types and air pollution control devices currently in use and potentially applicable to various combustion source categories; description of air pollution control devices including design principles, performance and operating efficiency, process monitoring options, and upgrade/retrofit options; and major source determination for all sources including a discussion on the methodology used to estimate annual emissions, assumptions used, and an emissions summary for each source listing each HAP.

Technical Support Document for HWC MACT Standards, Volume II: HWC Emissions Data Base, which contains a summary of the emissions information on toxic metals, particulate matter (PM), HCl and Cl_2, hydrocarbons, carbon monoxide, semi-volatile and volatile organic compounds, and dioxins/furans from HWCs. Other detailed information encompassed in the data summary include company name and location, emitting process information, combustor design and operation information, APCD design and operation information, stack conditions during testing, feed stream feed rates, and emissions rates of HAPs by test condition.

Technical Support Document for HWC MACT Standards, Volume III: Selection of Proposed MACT Standards and Technologies, which identifies the MACT floor for each HAP and source category for existing sources and new sources and discusses the approach used to define the floor and beyond-the-floor alternatives considered for the proposed rule.

Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed HWC Standards, which contains detailed discussions of continuous emissions monitors and operating limits for the proposed rule.

Technical Support Document for HWC MACT Standards, Volume V: Engineering Costs, which contains the cost estimates for APCD requirements for existing and new facilities to meet the proposed emissions standards.

Technical Support Document for HWC MACT Standards, Volume VI: Development of Comparable Fuels Specifications, which summarizes the composition including hazardous species in benchmark fossil fuels such as gasoline, #2 fuel oil, #4 fuel oil, and #6 fuel oil. This information is being used to develop specifications which EPA is considering to allow comparable fuels to be excluded from the definition of hazardous waste.

Technical Support Document for HWC MACT Standards, Volume VII: Miscellaneous Technical Issues, which provides additional information on several topics such as the treatment of measurements below analytical detection limits, the procedures for handling missing data, and the rationale for grouping metals of similar volatility. The impact of these methodologies on the proposed MACT limits, the cost estimates, and the national emissions estimates are also discussed.

In addition to these technical background documents, a companion Regulatory Impact Assessment report has been prepared in support of the rule. The costs presented in the following report serve as inputs to the Regulatory Impact Assessment.

Emission standards are being proposed for three types of hazardous waste incineration facilities:

- Cement Kilns
- Lightweight Aggregate Kilns
- Incinerators (On-site and Commercial)

The hazardous air pollutants for which emission standards are proposed are:

- Mercury (Hg)
- Low Volatility Metals (LVM)
- Semi-Volatile Metals (SVM)
- Particulate Matter (PM)
- Hydrogen Chloride and Chlorine as Total Chlorine (HCl/Cl_2)
- Carbon Monoxide (CO)
- Hydrocarbons (HC)
- Dioxins/Furans (PCDD/PCDF)

These emission standards are being developed through the "maximum achievable control technology" (MACT) approach defined in Title 3 of the 1990 Clean Air Act Amendments (CAAA). In this approach the MACT floor standard for existing facilities is established at the level of the average performance of the best 12% of existing sources. Depending on the additional benefits and costs, EPA may elect to set more stringent, but technically achievable, beyond-the-floor (BTF) standards for specific HAPs. In the proposed rule, BTF standards have been set for PCDD/PCDF and for Hg for all HWC source categories, for PM for incinerators and LWAKs, and for HCl/Cl_2 for LWAKs only.

The proposed floor and BTF standards have been selected based on a database (described in Volume II) of trial burn and compliance test emissions measurements from 77 incinerators, 35 cement kilns, and 12 lightweight aggregate kilns using a process described in detail in Volume III. The MACT floor has been set based on the determination that the CAAA requirement of meeting the average performance of the best 12% (or top 5 if there are fewer than 30 sources) can be interpreted to mean the day-to-day performance achievable by the worst sources having the technologies represented by the top 6% (or top 3) sources. This is called the "6% Floor" and is the one ultimately selected for the proposed rule. Costs for this floor and the proposed BTF option are presented in the main body of this report. These costs serve as inputs for the addendum to the Regulatory Impact Assessment report.

An alternative approach discussed in the preamble to the proposed rule is the "12% floor". It is based on the interpretation that the CAAA requirement of meeting the average performance of the best 12% means the day-to-day performance achievable by the average source having the technologies represented by the top 12% of sources. It was not selected because not all sources having the MACT technology can meet this floor. That is, although the MACT floor control would be the set of controls used by the best performing 12% of sources, many of those sources are not achieving the average emissions level of the sources. Costs for the 12% floor alternative are presented in Appendix B.

Alternative BTF approaches are also presented in Appendix B including two intermediate options between the 6% Floor and the proposed BTF option, a variation on the proposed BTF option with a more stringent Hg BTF standard, and an option beyond the 12% Floor.

Earlier floor and beyond-the-floor options which have been examined, costed out, and ultimately discarded are presented in Appendix C. The rationale for discarding these options is presented in Volume III. Although these options were not selected for the proposed rule, comparison of the costs of the BTF options provides a sensitivity study of the relative costs of various BTF levels, and this information proved useful in the selection of the proposed BTF option. In addition, these BTF options are the ones which have been used in the main body of the Regulatory Impact Assessment report.

In addition to existing sources, MACT standards are also proposed for new sources that begin burning hazardous waste after the proposed regulation is in place. Analysis of the engineering costs incurred for these "new sources" is included in this document. Costs for earlier discarded new source MACT options are presented in Appendix H.

The remainder of this chapter includes an overview of the approach used to estimate engineering costs for existing facilities and a summary of the organization and contents of this report.

1.1 ENGINEERING COST ANALYSIS APPROACH

The engineering cost analysis is based on a model plant approach. This model plant approach was utilized to estimate the engineering costs incurred by existing sources to comply with the proposed MACT emission standards. An outline of the procedure for the definition of model plants and assignment of costs to model plant groups is as follows:

- Identification of the emission levels of each HAP for each facility for which data was collected. The emissions data have been extracted and input into a database as described in Volume II of this series.

- Determination of the amount of emissions reduction required by each facility to meet the specified MACT standard for each HAP.

- Selection of a control strategy to achieve the required emissions reduction to meet the specified MACT standard for each HAP simultaneously. The control strategy involves a combination of modification of existing APCDs and installation of new APCDs.

- Categorization of facilities into Model Plant Groups based on like selected control strategies and HWC type. The model plant groups are further delineated by the HWC size.

- Determination of the APCD retrofit and/or upgrade cost to each Model Plant Group using cost models for installation or modification of control equipment (i.e., fabric filter, wet scrubber, etc.). Existing APCD models were utilized when available. These were obtained primarily from the EPA Office of Air Quality Planning and Standards (OAQPS) and described in the EPA documents: *OAQPS Control Cost Manual* (EPA 450/3-90-006) and *Control Technologies for Hazardous Air Pollutants* (EPA 625/6-91/014). Models were developed for the analysis if there were no existing models available.

1.2 REPORT ORGANIZATION

The 6 Percent Floor emission standards for a few HAPs have changed since the engineering cost analysis that is included in the main report. These changes are discussed in Section 2 of the main report but the updated engineering costs for the final standards are not included in the main report. The engineering costs and national emissions estimates for the Final Recommended 6 Percent Floor and 6 Percent BTF Proposal are contained in Appendix I. The engineering costs and national emission estimate in this addendum (Appendix I) supersede those included in Sections 2 and 3 of the main report. Appendix I contains a discussion of a few changes to the Engineering cost analysis but does not provide a detailed discussion of the engineering cost analysis methodology. Sections 2 and 3 should still be read to gain an understanding of the engineering cost analysis methodology.

The main report consists of 6 additional sections. Appendices A through I are included in a

companion document. A brief description of each section and appendix is provided below.

Section 2: Presents the details of the model plant approach for determining the engineering costs of the proposed MACT rule for the hazardous waste combustion industry.

Section 3: Explains the procedure for estimation of national emissions and calculation of the engineering cost breakdown per HAP for each of the HWC source types. These emissions and costs per HAP can then be used in the cost/ benefit analysis.

Section 4: Discusses the compliance costs incurred by facilities due to the compliance performance tests and continuous emission monitoring systems required under the MACT regulation.

Section 5: Presents the results of the analysis of the amount of time that facilities will be shut down to make required modifications to their air pollution control system. Shutdown requirements for each control device type are discussed.

Section 6: Discusses the methodology for estimating the engineering costs incurred due to the MACT emission standards for "new sources" that wish to begin burning hazardous waste.

Section 7: Documents a sensitivity analysis conducted to determine which assumptions made in the development of the cost models have the greatest impact on total costs.

Appendix A: Includes tables that show the standards for the various floor and BTF options evaluated during development of the proposed rule.

Appendix B: Presents engineering costs, national emissions estimate and cost breakdown per HAP for the alternative floor and beyond-the-floor options discussed in the preamble to the rule.

Appendix C: Presents engineering costs, national emissions estimate and cost breakdown per HAP for additional floor and beyond-the-floor options which are no longer under consideration.

Appendix D: Contains tables that provide a summary and a detailed breakdown of the costs for each of the model plant groups established during the engineering cost analysis.

Appendix E: Provides complete documentation of the cost models used in the engineering cost analysis.

Appendix G: Contains tables documenting compliance cost estimates for compliance options that are no longer under consideration.

Appendix H: Includes documentation of the engineering cost analysis for three proposed new source options that are no longer under consideration.

Appendix I: Is an addendum to the main report. This addendum details changes to the 6 Percent

Floor emissions standards and updated engineering costs and national emission estimates for the Final Recommended 6 Percent Floor and Final 6 Percent BTF Proposal.

SECTION 2

ENGINEERING COST ANALYSIS FOR EXISTING SOURCES

Engineering costs incurred by HWCs due to the proposed MACT regulation were estimated through a model plant methodology. Only sources for which trial burn HAP emission measurements are available are included in this analysis. In this methodology, individual hazardous waste combustion facilities are grouped into model plants based on their present air pollution control systems (APCS) and the measured HAP emission concentrations. Each facility is analyzed to determine what modification to its existing APCS would be required to reduce its HAP emission concentrations to simultaneously meet the specified standard for each HAP of concern.

Since BTF standards are by definition more stringent than Floor emission limits, there is a different cost incurred by a facility to meet the BTF standards for each HAP simultaneously. Additionally, a facility may be required to meet BTF levels for only certain HAPs, while for others the facility may only be required to meet the originally specified floor levels. To this end, different scenarios of Floor and BTF levels for each HAP were grouped into various BTF Options. To meet either the proposed MACT Floor standards for all HAPs simultaneously or to meet a specified BTF option, certain facilities may be required to upgrade or retrofit their existing air pollution control system (APCS). Various floor and BTF options were evaluated. The tables generated in the model plant definition and cost assignment process for the 6 percent floor and the proposed beyond-the-floor option are included in this chapter. Tables for all other floor and BTF options are presented in Appendices B and C.

2.1 IDENTIFICATION OF HAP EMISSION LEVELS

A database of available HWC trial burn and compliance test emissions, design and operating data was developed for the proposed MACT regulation. The database contains emission measurements from 35 cement kilns, 12 light weight aggregate kilns and 77 incinerators. A detailed description of the database and the data contained in it is given in Volume II.

Table 2-1 lists the emissions of each HAP from each source in the HWC database For many facilities a complete set of stack gas emission rate data is not available (e.g., a facility may have PCDD/PCDF, HCl, PM, and CO and THC stack gas emission data, but not Hg, SVM, LVM, or Cl_2 data). Where data is not available, "nr" notation is included in Table 2-1.

2.2 DETERMINATION OF THE REQUIRED EMISSIONS REDUCTION TO MEET THE SPECIFIED LEVELS

For each hazardous waste burning facility and for each HAP, the amount of emissions reduction required to reach either MACT floor or BTF design levels was determined. The amount of reduction required for each HAP was determined as:

$$\%RR_i = [(ASER_i - \text{"design" level}_i) / ASER_i] * 100\%$$

where:

$\%RR_i$ is the % reduction required for individual HAP_i to meet the MACT level

$ASER_i$ is the adjusted stack gas emissions rate for HAP_i

"design" $level_i$ is the MACT floor or BTF level for HAP_i

"Design" levels are utilized for this engineering cost analysis and for the national emissions estimate. The "design" level is an estimated emissions level that a facility would have to design its APCS to achieve to be able to comply with the emissions standard on a day to day basis. The 6 Percent Floor emissions standards and "design" levels for Hg, PCDD/PCDF and PM in the proposed rule have changed slightly from the standards and "design" levels utilized for this engineering cost analysis. Table 2-2 contains the standards and design levels for initial 6 Percent Floor (utilized in this cost analysis), the current proposed 6 Percent Floor and the 6 Percent BTF proposal. The "design" levels that have changed are highlighted for the current floor. No changes have been made to the 6 Percent BTF Proposal. All of the work described in this document refers to the inital 6 Percent Floor. A qualitative discussion of the impact on the estimated engineering costs of these changes to the inital 6 Percent Floor is provided in Section 2-8. Background on the setting of the standards and "design" levels is provided in Volume III.

Required reductions (%RRs) to meet the design levels for the 6 Percent Floor and the 6 Percent BTF Proposal are shown in Tables 2-3 and 2-4, respectively. In the first column, the %RR based on the feed adjusted ASER is given; in the second column, negative ASERs are set at 0, and substituted %RRs are inserted in the place of "nr" (those ASERs where data is unavailable). In such cases where substitution is need, a %RR is randomly assigned (either as 0, 25, 50 or 75%) based on the %RR distribution of facilities in the same source category for which data for the specific HAP that is missing has been collected. This substitution process is necessary because, as shown in Table 2-1, there are some facilities which have emissions data for some, but not all, HAPs. This weighted random substitution process replaces the missing data with data having the same distribution as the measured data. This substitution process provides a fairly representative approximation of emissions and percent reductions required for all facilities combined, but it does not accurately provide the emissions and percent reductions required for any specific facility. Thus, the subsequent costs provided in this document should not be considered as facility-specific.

2.3 SELECTION OF THE CONTROL STRATEGY TO ACHIEVE THE REQUIRED EMISSIONS REDUCTION

The %RRs are used to determine, on a facility-by-facility basis, which HAPs require additional control. Control strategies are assigned to each facility based on the existing APCS and the HAP types and %RR levels that are required as:

- None: If the %RR is 0, no additional retrofit or upgrade control is required for that specific HAP. If the %RR for all HAPs is 0, then no additional facility upgrading is required to meet the specified design levels for all HAPs simultaneously.

- Retrofit/Upgrade: If the %RR is greater than 0, additional control, either through retrofit/upgrade of the existing APCS or add-on of a new air pollution control

system/device, is required for that specific HAP. Determination of the appropriate control action is based on both the type of existing equipment and the %RR level. Control actions are categorized into either Design, Operation, and/or Maintenance (D/O/M) of existing equipment, or installation of new equipment by:

- Design/Operation/Maintenance (D/O/M) modifications of existing equipment: If an existing device/system is capable of providing active control of the HAP of interest, then D/O/M practices may be able to meet the specified level. D/O/Ms are generalized into two categories ("small" or "moderate"), depending upon the %RR:

  . ".Small" D/O/M: If %RR < 25%, a "small" DOM on existing equipment is required.

  . "Moderate" D/O/M: If 25 < %RR < 75%, a "moderate" DOM on existing equipment is required, typically consisting of a major redesign or modification.

- Installation of New Equipment: A new device for control of the specific HAP is required if either:

  . No existing device is capable of controlling the HAP of interest and %RR > 0.

  . %RR is > 75%. If %RR is > 75%, a new piece of control equipment is assumed to be required, even if the existing one is theoretically capable of controlling the HAP (for example, if a facility with an existing FF needs more than 75% reduction in its PM level, it is assumed for cost estimation that the facility would install a new FF rather than fix the existing one).

The assumption of discreet D/O/M ranges is a simplifying assumption required to develop a manageable model plant methodology. It is not representative to assume that all devices that are not providing the required control to meet the design level for a specific controlled HAP will have to be replaced. An assessment of applicability of a D/O/M at a specific site is also not feasible. D/O/M ranges are conservatively based on the range of improvements in performance that can be achieved from a D/O/M of an average under performing control device that is otherwise capable of providing the required level of performance.

Using the procedures discussed below, the most cost effective retrofit solution to simultaneously meet all HAP standard levels for the floor or BTF Option in question is determined for each hazardous waste burning facility. Selected control strategies for the 6 Percent Floor and the 6 Percent BTF Proposal are shown in Table 2-5 and 2-6, respectively. As stated earlier, if the %RR for all HAPs is 0, then no additional facility upgrading is required to meet the specified design levels for all HAPs simultaneously. For most facilities one or a combination of DOMs and new devices is required to meet the all HAP standards simultaneously.

2.4 NEW DEVICE SELECTION

The following guidelines are used to determine specific control strategies for each of the

different HAPs when a new device is required.

2.4.1 PM, LVM, and SVM Control

A fabric filter is added in all cases where a new device is required for PM, LVM, and SVM control because it has been found to be less expensive than a comparably performing ESP. ionizing wet scrubbers, ESPs, and high energy wet scrubbers (WS_{HE}) are also capable of control of these HAPs. It is assumed that a fabric filter can be placed in series directly behind any existing PM control device within a "dry" system. It is assumed that a fabric filter can be retrofitted directly into an existing "wet" system, upstream of the wet scrubbing system. Depending on site-specific factors (such as flue gas temperature leaving the combustor and the existing flue gas cooling system, equipment, and physical layout), additional flue gas cooling equipment (e.g., water quench or air dilution) may be required in order to integrate the new fabric filter upstream of the existing wet scrubber system. It is recognized that, for existing wet systems that require additional LVM, SVM, and PM control, a wet ESP or IWS may be easier to incorporate since they can be added directly onto the back end of the existing wet scrubbing system. In such a case, the FF assumption overestimates the cost by the differential between a fabric filter plus the appropriate cooling device and a wet ESP or IWS. For the analysis, it was assumed that this cost differential is negligible.

2.4.2 Acid Gas Control

Acid gas control pertains to the control of both HCl and Cl_2. The degree of control by a device of these two HAPs can vary. The following guidelines were used in the selection of a new acid gas device:

- HCl: Either wet (low energy such as PT or IWS) or dry scrubbing is possible when a new device is required for HCl control. Wet scrubbing is usually selected due to economics.

- Cl_2: Wet scrubbing with alkaline pH reagent required.

In addition, for LWAKs a spray tower (ST) was usually selected over the use of a packed tower (PT) since LWAKs typically have a much higher concentration of acid gas to be controlled compared with cement kilns and hazardous waste incinerators. Due to economic reasons the ST is advantageous for LWAKs. Specifically, with the use of a spray tower, lime may be used as the alkaline agent in place of the more expensive NaOH. Normally, lime is not used in packed towers since it may cause problems with the packing (i.e., plugging).

2.4.3 Mercury Control

Carbon injection or carbon bed is added whenever Hg control is required. Although many wet scrubbers have demonstrated high (greater than 90%) mercury control, many others have not shown any control. Additionally, the capture of Hg in a wet scrubber may not be desirable, since it would complicate the treatment and disposal of scrubber blowdown (transferring Hg flue gas emissions to soluble blowdown). For effective carbon injection applications, the flue gas temperature must be below 400_F. If it is above 400_F, addition of a water quench system is

required. Additionally:

- Incinerators and Boilers: A dry PM control device (FF or ESP) is required to collect the injected carbon.

- CKs: Based on industry comments, a new dry PM control device (assumed to be a fabric filter), dedicated to capturing carbon, is required downstream of the existing PM control device. At many cement kilns the some of dust from the existing PM control device is mixed with raw materials and recycled to the kiln.. If captured carbon were recycled along with the cement kiln dust (CKD), it would release virtually all of its mercury, rendering it useless.

  The installation of a new FF on all CKs requiring carbon injection is a conservative assumption since some CKs do not currently recycle CKD and other cement kilns may determine it is cheaper to treat and partially recycle CKD from an existing PM control device rather than install a dedicated FF for carbon capture.

- LWAKs: Like CKs, a new dry PM control device is required (assumed to be a fabric filter), dedicated to capturing carbon. LWAK aggregate product is thus not affected.

Carbon injection is usually chosen compared with carbon beds due to economics. Carbon beds are only economical on small sources. It is assumed that carbon injection can reduce Hg emission by up to 96%. If Hg reduction of 96% or above is required, a carbon bed is installed. Additionally, it is assumed that carbon injection can not be performed immediately upstream of a wet PM control system (i.e., the carbon must be captured in a dry PM control device), and that the application of carbon injection or carbon beds downstream of a wet system requires flue gas reheat to a temperature above the dew point.

2.4.4 PCDD/PCDF

For PCDD/PCDF control, two techniques can be used, separately or in combination, if required:

- Temperature control of existing "dry" PM control device: Field demonstrations on cement kilns and technology transfer from municipal and medical waste combustors have demonstrated that a reduction in operating temperature of a dry PM control device can reduce the PCDD/PCDF emissions level. Figure 2-1 shows the percentage of PCDD/PCDF control as a function of the temperature reduction. This is based on the assumption of a factor of 10 reduction in PCDD/PCDF for every 150_F reduction in temperature, and is assumed to be valid in the temperature range of 350-750_F.

- Carbon injection or carbon beds: To get additional PCDD/PCDF control, the use of either carbon injection or a carbon bed is required. The same carbon injection and carbon bed limitations that were discussed above for Hg control are applicable to PCDD/PCDF control.

2.4.5 THC/CO Control

A natural-gas-fired afterburner (assumed to require 50% of the heat input of the primary combustion chamber) is selected for THC/CO control technology for incinerators when greater than 75% reduction is required. For incinerators where less than 75% reduction is required, design, operation, and maintenance (DOM) of the existing burner is assumed (referred to as "DOM combustor"). For CKs, it is assumed that all facilities are currently meeting the floor, since the floor is at the existing standard. To achieve beyond-the-floor levels (only required for earlier, discarded BTF options portrayed in Appendix C), an afterburner is assumed to be required. When an afterburner is selected, a water quench system must also be added to cool the afterburner gases prior to entry into additional air pollution control equipment or release to the atmosphere.

2.4.6 Multiple HAP Control

Some DOM and/or new devices are capable of controlling two or more HAPs simultaneously. Many facilities may require the control of two or more different HAPs such as PM and Cl_2 when attempting to meet standards for each HAP simultaneously. In these cases, engineering judgement is used to select the most cost effective option (i.e., the use of one device as opposed to the use of two devices to control two different HAPs) when the control of multiple HAPs is required. For example:

- When both PM and HCl control is required, an IWS, which can control both of these HAPs simultaneously, is selected.
- Carbon injection or carbon beds can control both Hg and PCDD/PCDF.
- A fabric filter which may be required as part of a carbon injection system will also aid in the capture performance of PM, SVM, and LVM.
- A wet scrubber may control both HCl and Cl_2.

2.5 DEFINITION OF MODEL PLANTS

"Model Plant Groups" are based on common retrofit/upgrade requirements. The model plant groups and the facilities associated with each group for the 6 Percent Floor and the 6% BTF Proposal are shown in Tables 2-7 and 2-8, respectively. The definitions of Model Plants Groups are not common across source categories, but they are common for the same source category across various regulatory options. However, the specific facilities within a model plant group vary from option to option. For example, model plant group number 3 for cement kilns includes all facilities which need to add a fabric filter with no other retrofit/upgrades. This is true for the 6% Floor, the 6% BTF Proposal, and for all other options. However, the number and identities of facilities which need to add a fabric filter with no other retrofits/upgrades (i.e., fit into CK Group 3) is different for each option. A listing of all the model plant groups created in the analysis of the various Floor and BTF options is given in Appendix D.

2.6 SOURCE CATEGORY SIZE CLASSIFICATION

In order to streamline the technical and economic analysis as well as the interpretation in the present analysis, each source within a source category has been assigned into a size classification. Cement kilns are divided into two size classifications and incinerators are divided into three size classifications, while light weight aggregate kilns all remain in one size classification.

Sources are assigned into a size classification based on their flue gas flow rate measured at the stack in actual ft^3/min. The sources in the OSW database for which stack flow rate, stack temperature, and stack moisture are available are used to develop the size classification and corresponding average flue gas flow rates. Then the sources for which one or more of the stack measurements are missing are assigned to a size classification based on best engineering judgement.

The distribution of flue gas flow rates for thirty two cement kilns in the HWC database for which all three stack measurements are available is shown in Figure 2-2. The first nineteen sources are assigned into the "Small" classification (CK-S) and the remaining thirteen sources are assigned the "Large" classification (CK-L). The average flue gas flow rate for the CK-S sources is 147,000 acfm and the average flow rate for the CK-L sources is 370,000 acfm.

The distribution of flue gas flow rates for eleven light weight aggregate kilns from the HWC database used in this analysis is shown in Figure 2-3. Since the flow rates only range from approximately 30,000 acfm to 50,000 acfm, all LWAKs are assigned a single size classification (LWAK-M or simply LWAK). The average flue gas flow rate for the LWAKs is 40,500 acfm.

The distribution of flue gas flow rates for sixty-eight incinerators from the HWC database used in this analysis is shown in Figure 2-4. The first twenty sources are assigned a "Small" classification (INC-S) with an average flue gas flow rate of 3,900 acfm. The next twenty-nine sources are assigned a "Medium" classification (INC-M) with an average flue gas flow rate of 22,100 acfm. The remaining nineteen sources are assigned a "Large" classification with an average flue gas flow rate of 60,800 acfm.

2.7 DETERMINATION OF MODEL PLANT COSTS

The retrofit cost of each Model Plant Group is estimated based on the specific design/operation/maintenance (D/O/M) modifications of existing equipment or installation of new equipment that is required to achieve the desired emission levels. Cost models are used to estimate the cost of new equipment installation and D/O/M equations are used to estimate the cost of the D/O/M modifications. The outputs of each cost model or D/O/M equation are total capital investment, annualized capital cost, annual operating costs, and total annual costs. The costs for each Model Plant Group are calculated as the sum of cost model or D/O/M equation outputs corresponding to the retrofits and/or upgrades required for that particular Model Plant Group. The cost estimates for the model plant groups associated with the 6 Percent Floor and the 6% BTF Proposal are shown in Tables 2-9 and 2-10, respectively.

2.7.1 Cost Models

A summary of the cost models utilized in this analysis is presented in Table 2-11. A

reference for each cost model is also shown in the table. The cost models utilized in this analysis are basically those specified in the *OAQPS Control Cost Manual* and EPA Handbook: *Control Technologies for Hazardous Air Pollutants*. The models which were available in these references were modified as appropriate to meet the specific needs of the present analysis. In cases where no cost model was available for a specific APCD installation, a new model was created. The inputs to the cost models used to calculate the total capital investment and annual operating costs of each specific pollutant control technology include the size and physical properties of the source, the characteristics of the air pollutant to be controlled, and control technology parameters. Appendix E contains a detailed discussion of the cost models.

2.7.2 D/O/M Equations

A summary of the D/O/M equation utilized in this analysis is presented in Table 2-12. A reference for each D/O/M equation is also shown in the table. The D/O/M equations utilized were created specifically for this analysis. Separate D/O/M equations are used to calculate the capital cost and the annual operating cost of the D/O/M modification. In cases where multiple D/O/M modifications could be used to achieve a prescribed emission reduction, the costs of the D/O/Ms were averaged to yield a single D/O/M equation. The D/O/M equations have been normalized to calculate costs based solely on the flue gas flow rate, in acfm. Appendix E contains a detailed discussion of the D/O/M equations.

2.8 IMPACT OF CHANGES TO THE 6 PERCENT FLOOR

As discussed in Section 2.2, the 6 percent Floor standards have changed since the performance of this engineering cost analysis. The initial 6 Percent Floor standards and the final proposed 6 Percent Floor standards are presented in Table 2.2. No changes were made to the 6 Percent BTF Proposal. A discussion of the impact of these changes on the engineering costs required to meet the floor standards is presented below for each HWC type.

2.8.1 Cement Kilns

The mercury and PCDD/PCDF standards for cement kilns have changed since this engineering cost analysis was performed. The design level for mercury has been reduced from 110 _g/dscm to 81 _g/dscm and the TEQ design level has changed from 4.7 ng/dscm to .2 ng/dscm or a PM control device temperature of 418˚F. The installation of water quench would be required by thirteen additional CKs nationally to comply with the new PCDD/PCDF standard and two CKs would have to install carbon injection to meet the lower mercury design level. Total national engineering cost for cement kilns would increase about 10 percent to comply with the final proposed 6 percent Floor.

2.8.2 LWAKs

The proposed mercury, PCDD/PCDF and PM standards for LWAKs have been changed from the levels utilized in this cost analysis. The TEQ design level for LWAKs has changed from 4.7 ng/dscm to .2 ng/dscm or a PM control device temperature of 400˚F. The mercury design level for LWAKs has been reduced from 910 _g/dscm to 36 _g/dscm and the PM design level has increased from 0.015 gr/dscf to 0.024 gr/dscf. Installation of carbon injection and a FF for

mercury control on one of thirteen LWAKs nationally would be the only change in required control equipment resulting from these modifications of the 6 Percent Floor for LWAKs. This additional control equipment would increase total national engineering costs for LWAKs by about 11 percent.

2.8.3 Incinerators

The proposed standards for mercury, PCDD/PCDF and PM have been changed for incinerators. The design level for TEQ has changed from 20 ng/dscm to 0.2 ng/dscm or a PM control device temperature of 400˚F. The mercury design level for incinerators has increased from 53 _g/dscm to 57 _g/dscm and the PM design level has increased from 0.015 gr/dscf to 0.040 gr/dscf. Two of the seventy-eight incinerators in the OSW database would require the installation of water quench as a result of the change in the TEQ standard. One carbon injection system and eight PM control devices would be removed due to the change in the Hg and PM design levels respectively. Total national engineering costs for incinerators would be reduced by about 6 percent with the new standards in the proposed 6 Percent Floor.

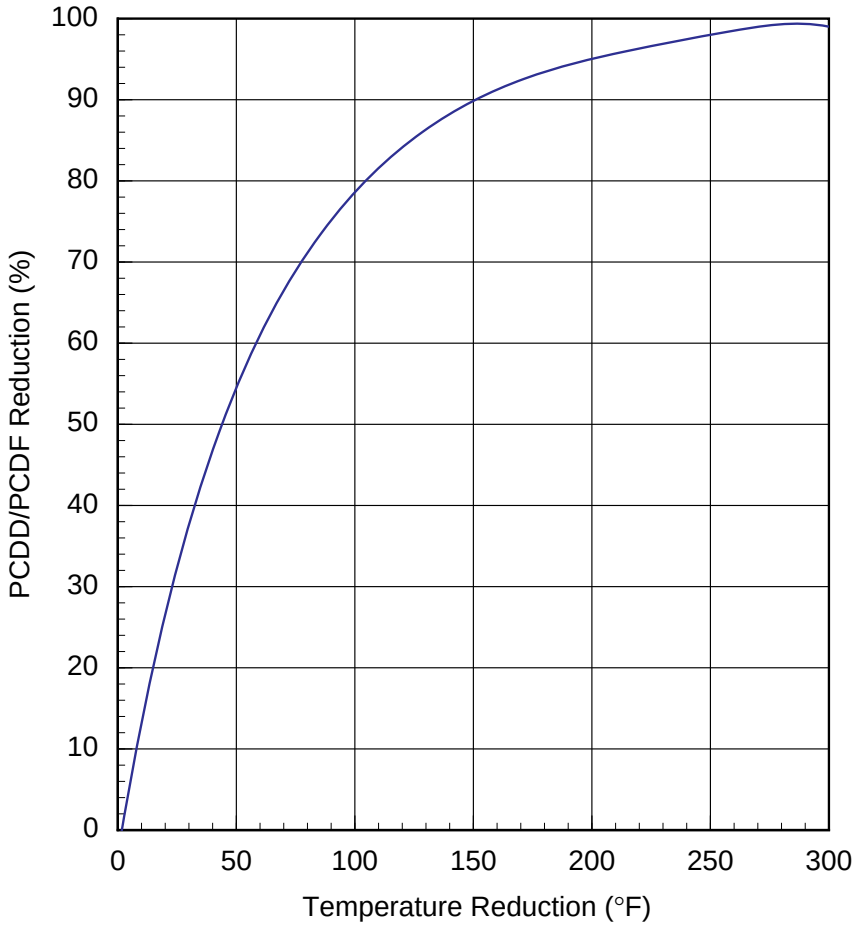


Figure 2-1. Acheivable PCDD/PCDF control as a function of PM air pollution control device temperature reduction (valid in a temperature range of 350-750°F).

Figure 2-2. Cement Kiln ACFM Size Distribution

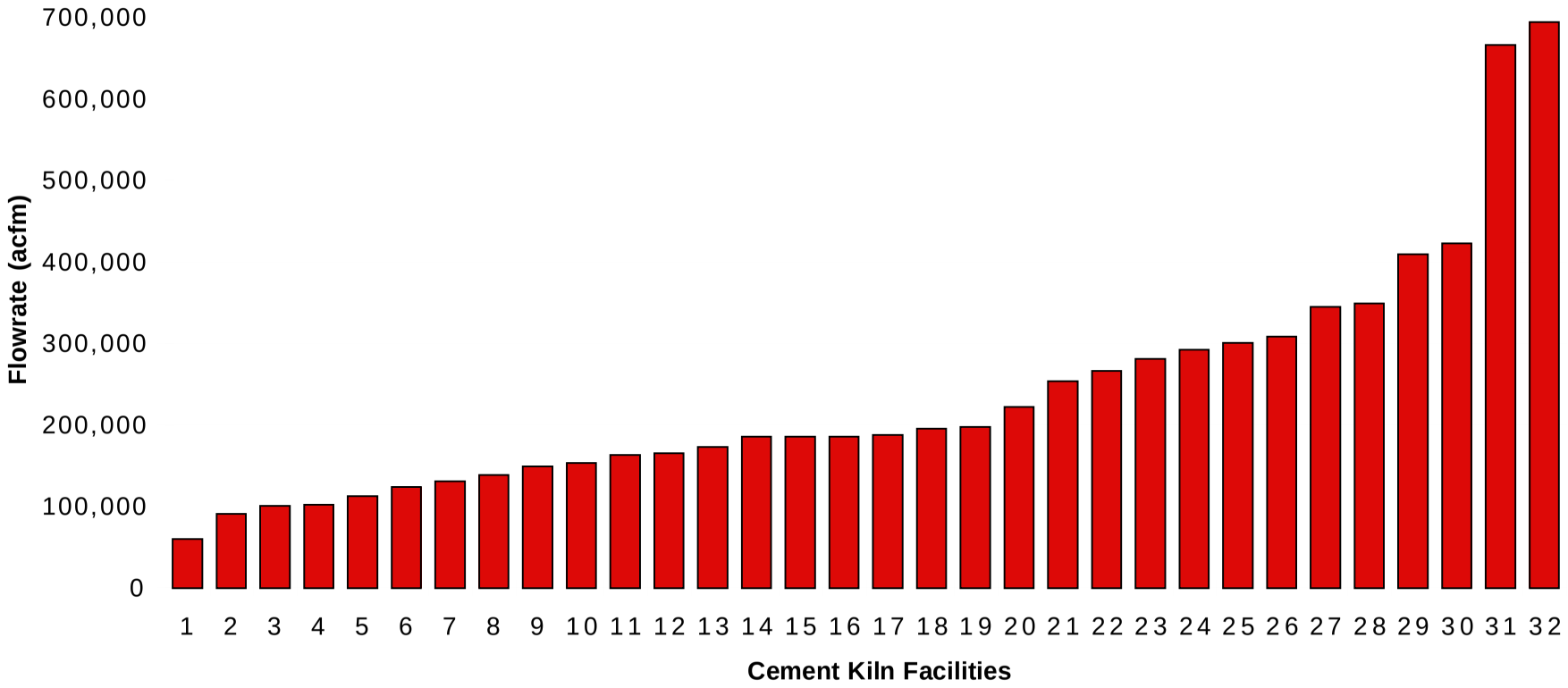


Figure 2-3. LWAK ACFM Size Distribution

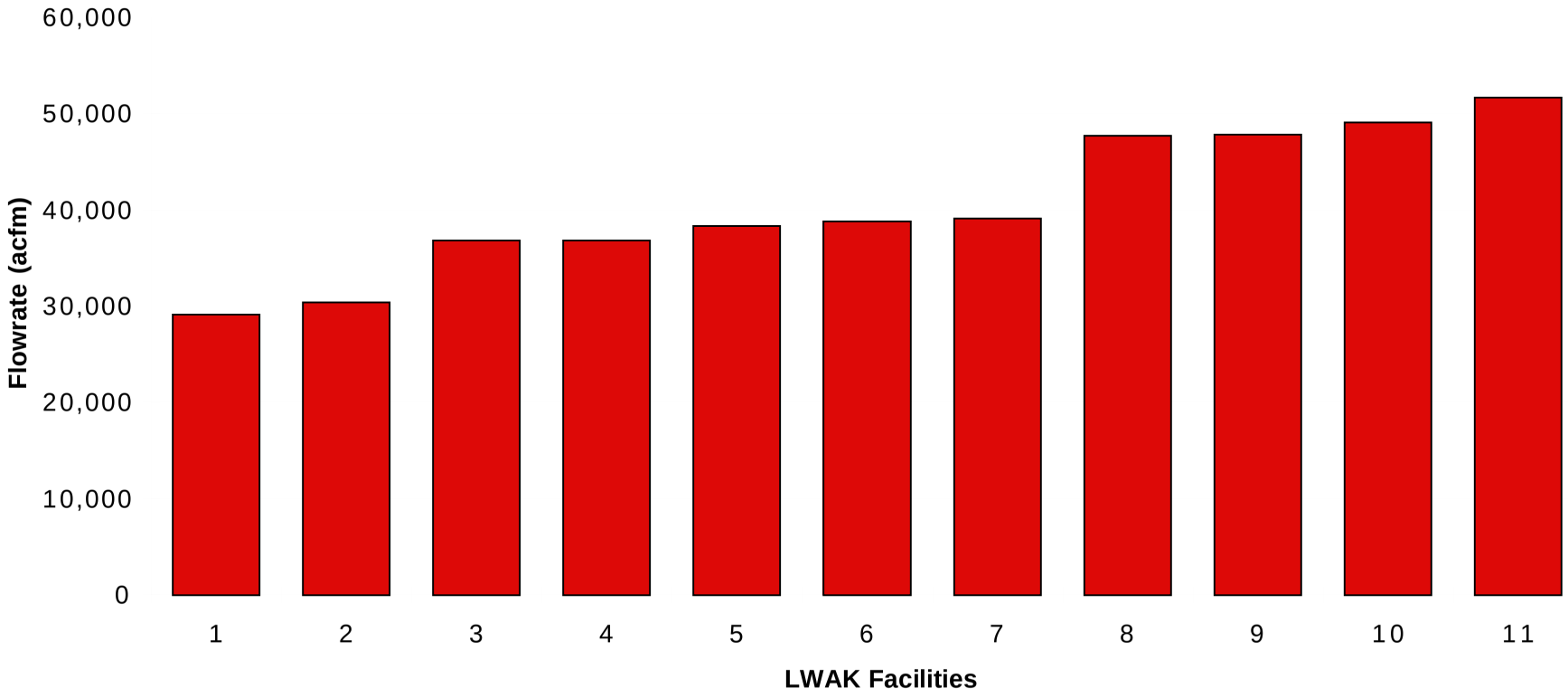
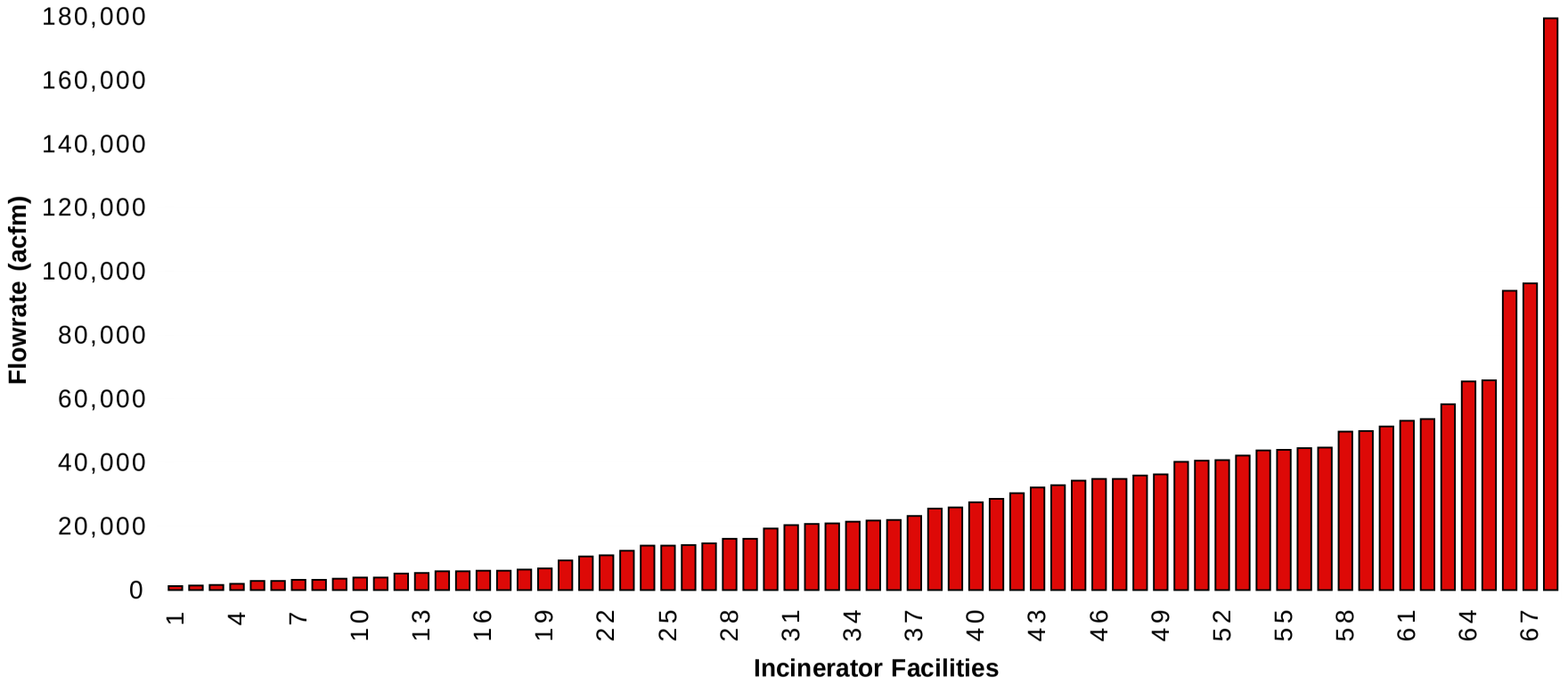


Figure 2-4. Incinerator ACFM Size Distribution



Emission Levels (avg. of cond. avg.) for Cement Kilns with 0% Feed Reduction

Site #	Hg Reported ug/dscm	PM Reported gr/dscf	SVM Reported ug/dscm	LVM Reported ug/dscm	HCl Reported ppmv	HCl Assigned ppmv	Cl2 Reported ppmv	Cl2 Assigned ppmv	HCl/Cl2 Selected ppmv	HC Run Ave ppmv	HC MHRA ppmv	HC Selected ppmv	CO Run Ave ppmv	CO MHRA ppmv	CO Selected ppmv	HC-Byp Run Ave ppmv	HC-Byp MHRA ppmv	HC-Byp Selected ppmv	CO-Byp Run Ave ppmv	CO-Byp MHRA ppmv	CO-Byp Selected ppmv	TEQ Reported ng/dscm
200	11.08	0.01	62.02	366.98	16.67	16.67	0.01	0.01	18.20	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
201	5.44	0.04	924.50	520.16	19.49	19.49	0.01	0.01	20.12	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
202	20.20	nr	109.09	29.35	16.37	16.37	0.27	0.27	16.40	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
203	6.04	0.01	528.27	31.38	112.18	112.18	0.76	0.76	117.22	18.50	19.10	19.10	278.00	300.00	312.00	nr	nr	nr	nr	nr	nr	5.06
204	18.87	0.03	505.44	6.21	0.06	0.06	0.01	0.01	0.09	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	0.78
205	29.75	0.05	1169.39	18.51	15.61	15.61	0.20	0.20	16.57	22.46	nr	22.46	159.63	nr	159.63	nr	nr	nr	nr	nr	nr	0.11
206	17.39	0.02	272.89	8.69	80.34	80.34	0.04	0.04	81.24	12.08	nr	12.08	146.30	nr	146.30	nr	nr	nr	nr	nr	nr	1.15
207	16.98	0.02	382.42	56.42	4.34	4.34	0.29	0.29	4.90	nr	nr	nr	25.50	32.54	32.25	nr	nr	nr	nr	nr	nr	0.02
208	19.55	0.01	92.46	11.78	3.96	3.96	0.23	0.23	4.52	nr	nr	nr	48.46	51.79	51.25	nr	nr	nr	nr	nr	nr	0.00
228	nr	nr	nr	nr	nr	28.64	nr	0.81	nr	14.15	19.08	19.08	381.57	576.33	572.00	nr	nr	nr	nr	nr	nr	0.24
300	nr.	0.07	2345.32	102.44	33.29	33.29	0.29	0.29	33.79	16.43	19.16	19.16	238.25	396.25	372.00	nr	nr	nr	nr	nr	nr	10.97
301	116.64	0.03	11.68	16.79	0.22	0.22	0.18	0.18	0.60	25.20	nr	25.20	631.83	nr	682.42	20.96	nr	20.96	115.74	nr	115.74	nr
302	nr.	0.03	1529.01	27.49	9.70	9.70	0.47	0.47	10.23	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
303	47.48	0.02	22.68	17.93	3.78	3.78	0.10	0.10	19.03	60.89	nr	60.89	1990.72	nr	1852.33	0.00	0.00	0.00	52.50	57.00	57.00	nr
304	41.95	0.06	599.32	56.71	0.34	0.34	0.00	0.00	0.39	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	1.88
305	10.67	0.07	1109.51	29.38	104.18	104.18	0.24	0.24	92.80	22.50	nr	22.50	3959.82	nr	4138.20	nr	nr	nr	nr	nr	nr	49.46
306	2987.85	0.02	16.59	13.29	2.08	2.08	0.17	0.17	2.86	nr	nr	nr	13.60	40.57	47.10	nr	nr	nr	nr	nr	nr	0.05
308	nr.	0.02	93.21	7.11	4.51	4.51	0.77	0.77	5.60	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
309	42.62	0.02	543.13	9.31	47.27	47.27	0.11	0.11	46.36	12.88	15.13	15.13	118.17	138.67	136.50	nr	nr	nr	nr	nr	nr	49.86
315	nr.	0.00	19.70	9.82	2.01	2.01	0.02	0.02	2.05	nr	nr	nr	nr	nr	nr	1.93	2.35	2.35	26.00	23.50	23.50	0.03
316	nr.	0.01	5.87	7.92	26.19	26.19	0.90	0.90	28.65	nr	nr	nr	nr	nr	277.00	5.05	6.00	6.00	124.00	277.00	277.00	0.31
317	nr.	0.00	28.68	23.24	4.43	4.43	0.05	0.05	4.54	54.26	nr	54.26	334.84	nr	339.37	nr	nr	nr	nr	nr	nr	1.22
318	nr.	0.01	140.11	18.57	47.62	47.62	0.08	0.08	50.98	nr	6.53	6.53	nr	271.73	295.80	nr	nr	nr	nr	nr	nr	nr
319	55.88	0.04	677.79	60.20	59.57	59.57	10.22	10.22	76.80	65.73	nr	65.73	271.64	nr	266.09	nr	nr	nr	nr	nr	nr	5.78
320	nr.	0.00	3.61	4.27	2.82	2.82	2.08	2.08	5.85	69.33	100.00	100.00	1510.67	2070.17	2085.00	nr	nr	nr	nr	nr	nr	0.09
321	nr.	0.21	11.38	11.47	4.45	4.45	2.56	2.56	9.49	nr	nr	nr	nr	nr	nr	nr	nr	nr	22.75	34.70	34.70	nr
322	nr.	0.02	150.83	24.09	21.55	21.55	0.20	0.20	22.58	6.53	7.40	7.40	364.17	593.50	624.00	nr	nr	nr	nr	nr	nr	3.72
323	nr.	0.02	972.67	123.27	82.73	82.73	0.08	0.08	71.88	8.13	10.52	10.52	327.00	692.12	621.00	nr	nr	nr	nr	nr	nr	5.18
335	59.74	0.02	752.45	10.79	110.81	110.81	0.40	0.40	121.86	14.51	nr	14.51	159.45	nr	153.09	nr	nr	nr	nr	nr	nr	32.42
401	92.19	0.05	1173.84	99.83	21.49	21.49	0.57	0.57	23.29	28.11	68.15	68.15	635.62	1417.52	952.85	nr	nr	nr	nr	nr	nr	0.47
402	35.47	0.06	3430.94	105.78	14.09	14.09	3.49	3.49	21.77	21.59	40.53	40.53	804.08	1745.42	1154.78	5.51	nr	5.51	522.25	nr	522.25	0.40
403	1014.15	0.03	29.71	33.58	0.59	0.59	0.02	0.02	0.79	12.10	17.37	17.37	336.38	614.13	609.50	nr	nr	nr	nr	nr	nr	3.82
404	4.38	0.01	57.45	130.44	70.00	70.00	1.51	1.51	66.71	12.07	16.21	16.21	429.75	681.83	716.25	nr	nr	nr	nr	nr	nr	1.02
405	20.85	0.04	1169.92	304.32	2.34	2.34	0.37	0.37	3.19	14.89	21.26	21.26	853.56	1133.05	1150.53	nr	nr	nr	nr	nr	nr	0.17

Site #	Hg Reported ug/dscm	PM Reported gr/dscf	SVM Reported ug/dscm	LVM Reported ug/dscm	HCl Reported ppmv	HCl Assigned ppmv	Cl2 Reported ppmv	Cl2 Assigned ppmv	HCl/Cl2 Selected ppmv	HC Run Ave ppmv	HC MHRA ppmv	HC Selected ppmv	CO Run Ave ppmv	CO MHRA ppmv	CO Selected ppmv	HC-Byp Run Ave ppmv	HC-Byp MHRA ppmv	HC-Byp Selected ppmv	CO-Byp Run Ave ppmv	CO-Byp MHRA ppmv	CO-Byp Selected ppmv	TEQ Reported ng/dscm
223	31.69	0.00	5.18	34.11	2161.69	2161.69	0.63	0.63	2079.50	nr	nr	nr	nr	9.20	9.20	na	na	na	na	na	na	nr
224	15.77	0.00	3.99	21.65	0.96	0.96	0.43	0.43	28.80	nr	nr	nr	nr	7.60	7.60	na	na	na	na	na	na	nr
225	4.57	0.00	1.05	10.27	602.94	602.94	0.14	0.14	641.11	nr	nr	nr	nr	7.80	7.80	na	na	na	na	na	na	nr
226	nr	0.00	nr	nr	nr	527.91	nr	0.44	nr	nr	nr	nr	nr	20.50	20.50	na	na	na	na	na	na	nr
227	17.02	0.00	30.95	24.98	1518.59	1518.59	0.43	0.43	1347.13	9.60	12.50	12.50	825.00	1335.00	1335.00	na	na	na	na	na	na	nr
307	487.07	0.01	6.45	135.09	21.97	21.97	0.59	0.59	27.98	nr	nr	nr	45.33	nr	45.33	na	na	na	na	na	na	nr
310	15.21	0.02	495.38	59.61	1193.62	1193.62	2.20	2.20	1199.09	nr	3.50	3.50	nr	86.60	86.60	na	na	na	na	na	na	nr
311	15.22	0.01	515.89	41.38	1223.11	1223.11	7.37	7.37	1258.40	nr	4.90	4.90	nr	66.80	66.80	na	na	na	na	na	na	nr
312	8.78	0.01	403.19	37.21	1290.52	1290.52	8.11	8.11	1241.22	nr	3.50	3.50	nr	86.60	86.60	na	na	na	na	na	na	nr
313	0.38	0.01	663.23	289.49	1530.20	1530.20	0.62	0.62	1508.98	nr	4.30	4.30	nr	19.00	19.00	na	na	na	na	na	na	nr
314	22.17	0.02	1667.15	227.33	820.07	820.07	1.94	1.94	853.21	nr	4.50	4.50	nr	3.60	3.60	na	na	na	na	na	na	nr
336	nr.	0.01	nr	nr	nr	1544.82	nr	4.05	nr	nr	4.90	4.90	nr	66.80	66.80	na	na	na	na	na	na	0.04

Site #	Hg Reported ug/dscm	PM Reported gr/dscf	SVM Reported ug/dscm	LVM Reported ug/dscm	HCl Reported ppmv	HCl Assigned ppmv	Cl2 Reported ppmv	Cl2 Assigned ppmv	HCl/Cl2 Selected ppmv	HC Run Ave ppmv	HC MHRA ppmv	HC Selected ppmv	CO Run Ave ppmv	CO MHRA ppmv	CO Selected ppmv	HC-Byp Run Ave ppmv	HC-Byp MHRA ppmv	HC-Byp Selected ppmv	CO-Byp Run Ave ppmv	CO-Byp MHRA ppmv	CO-Byp Selected ppmv	TEQ Reported ng/dscm
209	2.84	0.00	8.83	22.64	10.62	10.62	21.42	21.42	22.56	nr	nr	nr	289.50	nr	271.48	na	na	na	na	na	na	nr
210	nr	0.01	nr	nr	33.58	33.58	0.32	0.32	34.91	3.93	nr	3.93	0.44	nr	0.36	na	na	na	na	na	na	nr
211	nr	0.01	nr	nr	23.18	23.18	8.14	8.14	37.68	2.84	nr	2.84	4.39	nr	4.76	na	na	na	na	na	na	nr
212	nr	0.02	nr	nr	86.99	86.99	0.17	0.17	133.90	4.16	nr	4.16	4.17	nr	4.91	na	na	na	na	na	na	nr
214	187.38	0.02	629.92	143.93	1.43	1.43	nr	0.30	1.75	1.28	nr	1.28	17.10	nr	15.11	na	na	na	na	na	na	0.10
216	76.73	0.03	748.55	121.73	9.42	9.42	nr	1.17	10.03	nr	nr	nr	18.69	nr	10.31	na	na	na	na	na	na	nr
221	10.18	0.01	41.79	75.89	12.21	12.21	6.11	6.11	23.31	3.50	nr	3.50	15.72	nr	15.33	na	na	na	na	na	na	0.42
222	nr.	0.00	3.18	nr	1.41	1.41	0.37	0.37	2.02	0.37	nr	0.37	36.18	nr	37.38	na	na	na	na	na	na	1.06
229	nr	0.02	42.29	62.43	87.20	87.20	nr	0.01	106.10	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	6.27
324	nr	0.02	3169.25	129.62	103.08	103.08	nr	16.08	192.94	nr	nr	nr	33.27	nr	31.27	na	na	na	na	na	na	nr
325	62.31	0.00	104.19	35.84	5.35	5.35	nr	0.36	10.48	0.71	nr	0.71	108.91	315.38	10.33	na	na	na	na	na	na	2.22
327	958.89	0.00	28.45	27.05	3.25	3.25	0.18	0.18	3.99	5.20	nr	5.20	7.55	nr	8.36	na	na	na	na	na	na	9.84
329	nr.	0.03	nr	nr	7.02	7.02	0.36	0.36	8.32	2.54	nr	2.54	10.40	nr	9.66	na	na	na	na	na	na	nr
330	5.19	0.04	331.00	51.50	50.73	50.73	nr	19.15	55.79	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	36.00
331	38.77	0.01	3465.49	50.00	nr	0.14	nr	6.11	nr	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	0.06
332	nr.	0.11	nr	nr	38.37	38.37	19.15	19.15	64.79	nr	nr	nr	549.72	nr	500.02	na	na	na	na	na	na	nr
333	nr.	0.00	nr	nr	57.88	57.88	0.57	0.57	53.77	nr	nr	nr	6.23	nr	4.47	na	na	na	na	na	na	nr
334	6.93	0.06	4834.80	635.55	15.92	15.92	nr	0.53	17.38	2.01	nr	2.01	88.07	nr	74.09	na	na	na	na	na	na	2.08
337	188.15	0.00	93.84	261.29	0.35	0.35	5.01	5.01	49.87	3.26	nr	3.26	1.48	nr	0.76	na	na	na	na	na	na	nr
338	58.63	0.00	29.44	84.53	0.15	0.15	0.05	0.05	0.25	1.77	nr	1.77	2.04	nr	2.01	na	na	na	na	na	na	nr
339	nr	0.00	nr	nr	17.39	17.39	0.01	0.01	11.55	1.31	nr	1.31	nr	nr	nr	na	na	na	na	na	na	nr
340	9.95	0.01	9.49	79.30	16.68	16.68	nr	1.17	18.21	1.81	nr	1.81	31.15	nr	29.58	na	na	na	na	na	na	nr
341	1.14	0.00	13.85	9.36	1.47	1.47	nr	0.05	4.33	nr	nr	nr	3.36	55.43	57.65	na	na	na	na	na	na	nr
342	6.25	0.00	20.69	3.76	0.21	0.21	nr	0.37	0.26	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
344	nr	0.00	24.07	90.53	0.91	0.91	nr	0.12	1.17	1.86	nr	1.86	17.35	nr	16.14	na	na	na	na	na	na	nr
346	0.36	0.00	89.34	14.90	0.75	0.75	nr	0.01	0.89	nr	nr	nr	27.79	nr	28.12	na	na	na	na	na	na	0.13
347	6.02	0.01	10.59	15.68	1.49	1.49	nr	5.01	1.80	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	0.02
348	nr	0.00	22.09	3.64	0.06	0.06	0.50	0.50	0.89	nr	nr	nr	7.80	nr	8.30	na	na	na	na	na	na	nr
349	nr	0.00	39.77	nr	nr	0.38	nr	0.17	nr	nr	nr	nr	7.34	nr	8.67	na	na	na	na	na	na	nr
350	nr	0.00	nr	nr	nr	0.61	nr	0.18	nr	nr	nr	nr	17.00	nr	3.37	na	na	na	na	na	na	nr
351	nr	0.01	nr	10.33	nr	0.83	nr	9.05	nr	nr	nr	nr	30.40	69.97	73.95	na	na	na	na	na	na	nr
353	4.49	0.02	110.67	190.98	nr	1.34	nr	0.17	nr	nr	nr	nr	15.51	nr	15.90	na	na	na	na	na	na	0.17
354	1.42	0.01	2.51	10.08	0.59	0.59	1.17	1.17	2.94	nr	nr	nr	3.49	nr	2.96	na	na	na	na	na	na	0.01
356	nr	0.03	nr	nr	nr	1.67	nr	5.01	nr	nr	nr	nr	2.86	nr	3.70	na	na	na	na	na	na	nr
357	nr	0.02	nr	nr	6.79	6.79	nr	0.32	7.54	nr	nr	nr	11.01	nr	11.01	na	na	na	na	na	na	nr
358	nr	0.03	nr	nr	3.02	3.02	nr	5.07	3.56	nr	nr	nr	1.63	nr	1.50	na	na	na	na	na	na	nr
359	nr	0.02	517.22	48237.85	8.03	8.03	nr	148.47	8.38	nr	nr	nr	101.50	nr	99.42	na	na	na	na	na	na	nr
400	19.40	0.01	656.30	102.12	nr	2.57	nr	0.50	nr	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
500	2.88	0.00	3.57	3.52	13.85	13.85	9.05	9.05	42.95	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	0.04
502	nr	0.04	1508.87	66.05	20.94	20.94	nr	6.11	19.67	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	0.02
503	22.01	0.03	815.65	440.14	nr	4.12	nr	0.37	nr	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
504	1322.71	0.02	43.97	156.81	4.57	4.57	nr	21.42	5.10	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr

Site #	Hg Reported ug/dscm	PM Reported gr/dscf	SVM Reported ug/dscm	LVM Reported ug/dscm	HCl Reported ppmv	HCl Assigned ppmv	Cl2 Reported ppmv	Cl2 Assigned ppmv	HCl/Cl2 Selected ppmv	HC Run Ave ppmv	HC MHRA ppmv	HC Selected ppmv	CO Run Ave ppmv	CO MHRA ppmv	CO Selected ppmv	HC-Byp Run Ave ppmv	HC-Byp MHRA ppmv	HC-Byp Selected ppmv	CO-Byp Run Ave ppmv	CO-Byp MHRA ppmv	CO-Byp Selected ppmv	TEQ Reported ng/dscm
600	nr	0.01	nr	nr	1.17	1.17	nr	5.07	1.19	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
700	nr.	0.04	29350.34	720.63	13.18	13.18	0.12	0.12	16.88	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
701	nr	0.04	nr	nr	10.76	10.76	nr	148.47	11.46	0.98	nr	0.98	nr	nr	nr	na	na	na	na	na	na	nr
702	nr	0.08	nr	nr	nr	5.27	nr	0.11	nr	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
703	nr	0.00	nr	nr	323.74	323.74	nr	0.32	351.79	0.38	nr	0.38	1.18	nr	1.15	na	na	na	na	na	na	nr
704	nr.	0.02	nr	nr	154.12	154.12	nr	0.05	188.99	nr	nr	nr	4.63	nr	4.38	na	na	na	na	na	na	nr
705	11.02	0.04	208.73	164.68	9.84	9.84	nr	0.50	10.73	nr	nr	nr	2.91	nr	2.89	na	na	na	na	na	na	nr
706	nr	0.04	nr	nr	0.53	0.53	nr	21.42	0.53	5.10	nr	5.10	39.53	nr	39.76	na	na	na	na	na	na	0.02
707	nr	0.24	nr	nr	5.06	5.06	nr	8.14	6.37	nr	nr	nr	6958.62	nr	6970.22	na	na	na	na	na	na	nr
708	nr.	0.03	nr	nr	0.73	0.73	nr	0.36	1.28	nr	nr	nr	7.07	nr	8.72	na	na	na	na	na	na	nr
709	nr	0.05	nr	nr	nr	7.28	nr	16.08	nr	1.50	nr	1.50	5.52	7.51	7.76	na	na	na	na	na	na	nr
710	nr.	0.03	nr	nr	90.21	90.21	148.47	148.47	380.63	6.54	16.66	16.66	15.80	111.21	29.33	na	na	na	na	na	na	nr
711	nr	0.03	nr	nr	0.84	0.84	nr	0.57	0.95	nr	nr	nr	13.88	nr	14.47	na	na	na	na	na	na	nr
712	nr.	0.03	2.40	33.50	nr	9.96	nr	0.18	nr	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
713	nr	0.06	nr	nr	26.13	26.13	nr	2.68	26.90	nr	nr	nr	9.67	nr	2.00	na	na	na	na	na	na	nr
714	nr	0.02	nr	nr	50.00	50.00	nr	58.29	62.92	nr	nr	nr	18.48	nr	16.93	na	na	na	na	na	na	nr
725	1.65	0.02	37.44	50.67	5.42	5.42	58.29	58.29	119.95	1.68	nr	1.68	4.00	nr	4.13	na	na	na	na	na	na	0.17
726	nr	0.00	nr	nr	nr	12.05	nr	0.30	nr	11.79	nr	11.79	19.95	nr	20.23	na	na	na	na	na	na	nr
727	nr	0.08	nr	nr	nr	15.48	nr	74.29	nr	161.78	nr	161.78	2006.91	nr	2217.19	na	na	na	na	na	na	nr
728	nr	0.04	nr	nr	0.39	0.39	nr	58.29	0.44	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
784	nr	0.04	nr	nr	902.32	902.32	nr	9.05	1040.10	nr	nr	nr	3.59	nr	3.64	na	na	na	na	na	na	nr
805	nr	0.05	nr	nr	nr	20.50	5.07	5.07	106.50	7.67	nr	7.67	397.36	nr	342.21	na	na	na	na	na	na	nr
806	145.20	0.04	525.69	7.86	44.25	44.25	nr	37.18	48.74	23.18	nr	23.18	194.16	nr	196.72	na	na	na	na	na	na	nr
807	11.30	0.03	209.88	143.93	2.04	2.04	0.30	0.30	2.74	3.14	7.16	7.16	6.17	78.78	5.37	na	na	na	na	na	na	0.40
808	nr.	0.02	nr	nr	0.42	0.42	nr	19.15	0.54	nr	nr	nr	107.30	nr	50.82	na	na	na	na	na	na	0.15
809	nr	nr	10317.01	3810.61	nr	32.69	nr	10.79	nr	4.33	nr	4.33	1258.06	nr	1230.25	na	na	na	na	na	na	nr
810	nr	nr	1329.22	579.29	nr	48.33	nr	19.15	nr	nr	nr	nr	20.47	nr	15.53	na	na	na	na	na	na	nr
824	0.76	0.01	41.54	123.00	2.35	2.35	nr	0.57	2.43	nr	nr	nr	7.44	nr	8.52	na	na	na	na	na	na	nr
825	nr	0.07	nr	nr	2.34	2.34	nr	37.18	3.99	nr	nr	nr	nr	nr	nr	na	na	na	na	na	na	nr
902	47.70	0.02	23.87	9.53	4.54	4.54	nr	0.12	4.58	5.39	nr	5.39	41.22	nr	39.40	na	na	na	na	na	na	0.01
904	nr.	0.01	nr	nr	nr	77.36	nr	8.14	nr	7.38	nr	7.38	0.43	nr	0.50	na	na	na	na	na	na	nr
905	nr	nr	29762.46	178.85	nr	96.64	nr	76.77	nr	nr	nr	nr	34.84	nr	36.64	na	na	na	na	na	na	nr
906	nr.	0.07	nr	nr	136.86	136.86	nr	76.77	155.74	2.00	nr	2.00	7.09	nr	6.02	na	na	na	na	na	na	nr
914	nr	0.00	nr	nr	nr	145.49	16.08	16.08	227.13	nr	nr	nr	3.63	nr	3.60	na	na	na	na	na	na	4.39
915	nr	0.06	1283.63	653.34	nr	613.03	nr	0.87	nr	0.62	18.17	18.17	54.83	779.63	644.65	na	na	na	na	na	na	0.46

TABLE 2-2. EMISSION LIMITS FOR THE 6 PERCENT FLOOR AND 6 PERCENT BTF PROPOSAL

System Type	Substance	6% Floor		6% BTF Proposal		Limit Units
		Standard	"Design" Level	Standard	"Design" Level	
Cement Kiln	Particulate	0.03	0.015	0.03	0.015	gr/dscf @ 7%O2
Cement Kiln	LVM	130	67	130	67	ug/dscm @ 7%O2
Cement Kiln	SVM	57	34	57	34	ug/dscm @ 7%O2
Cement Kiln	Mercury	140	110		30	ug/dscm @ 7%O2
Cement Kiln	TEQ	8	4.7		0.2	ng/dscm @ 7%O2
Cement Kiln	Total Cl	630	270	630	270	ppmv @ 7%O2
Cement Kiln	CO	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	CO(MHRA)	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	THC	20	10	20	10	ppmv @ 7%O2
Cement Kiln	THC(MHRA)	20	10	20	10	ppmv @ 7%O2
Incinerator	Particulate	0.03	0.015	0.03	0.015	gr/dscf @ 7%O2
Incinerator	LVM	210	110	210	110	ug/dscm @ 7%O2
Incinerator	SVM	270	120	270	120	ug/dscm @ 7%O2
Incinerator	Mercury	100	53		30	ug/dscm @ 7%O2
Incinerator	TEQ	40	20		0.2	ng/dscm @ 7%O2
Incinerator	Total Cl	280	96	280	96	ppmv @ 7%O2
Incinerator	CO	100	50	100	50	ppmv @ 7%O2
Incinerator	CO(MHRA)	100	50	100	50	ppmv @ 7%O2
Incinerator	THC	12	6.1	12	6.1	ppmv @ 7%O2
Incinerator	THC(MHRA)	12	6.1	12	6.1	ppmv @ 7%O2
LWA Kiln	Particulate	0.03	0.015	0.03	0.015	gr/dscf @ 7%O2
LWA Kiln	LVM	340	230	340	230	ug/dscm @ 7%O2
LWA Kiln	SVM	12	7.4	12	7.4	ug/dscm @ 7%O2
LWA Kiln	Mercury	1800	910		30	ug/dscm @ 7%O2
LWA Kiln	TEQ	8	4.7		0.2	ng/dscm @ 7%O2
LWA Kiln	Total Cl	2100	1400		210	ppmv @ 7%O2
LWA Kiln	CO	100	50	100	50	ppmv @ 7%O2
LWA Kiln	CO(MHRA)	100	50	100	50	ppmv @ 7%O2
LWA Kiln	THC	14	6.4	14	6.4	ppmv @ 7%O2
LWA Kiln	THC(MHRA)	14	6.4	14	6.4	ppmv @ 7%O2

TABLE 2-3. REQUIRED REDUCTION TO MEET THE 6 PERCENT FLOOR

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		110		0.015		34		67		270		10		na		5.1		50		4.7		
200	CK	-892	0	-11	0	45	45	82	82	-1384	0	0	0	na	na	na	na	na	na	nr	550	0
201	CK	-1922	0	58	58	96	96	87	87	-1242	0	0	0	na	na	na	na	na	na	nr	550	75
202	CK	-445	0	nr	0	69	69	-128	0	-1546	0	0	0	na	na	na	na	na	na	nr	440	0
203	CK	-1722	0	-8	0	94	94	-113	0	-130	0	0	0	na	na	na	na	na	na	7	500	7
204	CK	-483	0	47	47	93	93	-979	0	-312181	0	0	0	na	na	na	na	na	na	-500	600	0
205	CK	-270	0	70	70	97	97	-262	0	-1529	0	0	0	na	na	na	na	na	na	-4150	500	0
206	CK	-533	0	34	34	88	88	-671	0	-232	0	0	0	na	na	na	na	na	na	-309	500	0
207	CK	-548	0	35	35	91	91	-19	0	-5411	0	0	0	na	na	na	na	na	na	-29176	400	0
208	CK	-463	0	-2	0	63	63	-469	0	-5872	0	0	0	na	na	na	na	na	na	-107557	420	0
228	CK	nr	0	nr	50	nr	75	nr	0	nr	0	0	0	na	na	na	na	na	na	-1820	500	0
300	CK	nr	0	79	79	99	99	35	35	-699	0	0	0	na	na	na	na	na	na	57	600	57
301	CK	6	6	57	57	-191	0	-299	0	-45257	0	0	0	na	na	76	76	57	57	nr	400	0
302	CK	nr	0	55	55	98	98	-144	0	-2539	0	0	0	na	na	na	na	na	na	nr	420	0
303	CK	-132	0	36	36	-50	0	-274	0	-1319	0	0	0	na	na	0	0	12	12	nr	250	0
304	CK	-162	0	74	74	94	94	-18	0	-68338	0	0	0	na	na	na	na	na	na	-150	460	0
305	CK	-931	0	79	79	97	97	-128	0	-191	0	0	0	na	na	na	na	na	na	90	730	90
306	CK	96	96	8	8	-105	0	-404	0	-9347	0	0	0	na	na	na	na	na	na	-8712	550	0
308	CK	nr	0	27	27	64	64	-842	0	-4721	0	0	0	na	na	na	na	na	na	nr	440	75
309	CK	-158	0	39	39	94	94	-619	0	-482	0	0	0	na	na	na	na	na	na	91	640	91
315	CK	nr	0	-1497	0	-73	0	-582	0	-13048	0	0	0	na	na	-117	0	-113	0	-15166	450	0
316	CK	nr	0	-29	0	-479	0	-746	0	-842	0	0	0	na	na	15	15	82	82	-1403	500	25
317	CK	nr	0	-472	0	-19	0	-188	0	-5848	0	0	0	na	na	na	na	na	na	-284	500	0
318	CK	nr	0	-56	0	76	76	-261	0	-430	0	0	0	na	na	na	na	na	na	nr	420	0
319	CK	-97	0	60	60	95	95	-11	0	-252	0	0	0	na	na	na	na	na	na	19	540	19
320	CK	nr	0	-350	0	-842	0	-1471	0	-4515	0	0	0	na	na	na	na	na	na	-5196	480	0
321	CK	nr	0	93	93	-199	0	-484	0	-2746	0	0	0	na	na	nr	nr	-44	0	nr	240	0
322	CK	nr	0	21	21	77	77	-178	0	-1096	0	0	0	na	na	na	na	na	na	-26	550	0
323	CK	nr	75	32	32	97	97	46	46	-276	0	0	0	na	na	na	na	na	na	9	500	9
335	CK	-84	0	36	36	95	95	-521	0	-122	0	0	0	na	na	na	na	na	na	86	718	86
401	CK	-19	0	72	72	97	97	33	33	-1059	0	0	0	na	na	na	na	na	na	-895	400	0
402	CK	-210	0	74	74	99	99	37	37	-1140	0	0	0	na	na	7	7	90	90	-1086	450	0
403	CK	89	89	55	55	-14	0	-100	0	-34288	0	0	0	na	na	na	na	na	na	-23	500	0
404	CK	-2413	0	-153	0	41	41	49	49	-305	0	0	0	na	na	na	na	na	na	-362	500	0
405	CK	-428	0	58	58	97	97	78	78	-8372	0	0	0	na	na	na	na	na	na	-2716	250	0
406	CK	-1327	0	21	21	95	95	64	64	-530	0	0	0	na	na	na	na	na	na	-834		0
Floor Levels		910		0.015		7.4		230		1400		6.4		50		na		na		4.7		
223	LWAK	-2772	0	-252	0	-43	0	-574	0	33	33	nr	0	-443	0	na	na	na	na	nr		0
224	LWAK	-5672	0	-218	0	-85	0	-962	0	-4762	0	nr	0	-558	0	na	na	na	na	nr		0
225	LWAK	-19804	0	-3054	0	-602	0	-2140	0	-118	0	nr	50	-541	0	na	na	na	na	nr		0
226	LWAK	nr	0	nr	0	nr	0	nr	0	nr	0	nr	0	-144	0	na	na	na	na	nr		0
227	LWAK	-5247	0	-932	0	76	76	-821	0	-4	0	49	49	96	96	na	na	na	na	nr		0
307	LWAK	-87	0	-26	0	-15	0	-70	0	-4903	0	nr	0	-10	0	na	na	na	na	nr		0
310	LWAK	-5882	0	18	18	99	99	-286	0	-17	0	-83	0	42	42	na	na	na	na	nr		0
311	LWAK	-5879	0	-165	0	99	99	-456	0	-11	0	-31	0	25	25	na	na	na	na	nr		0
312	LWAK	-10267	0	-50	0	98	98	-518	0	-13	0	-83	0	42	42	na	na	na	na	nr		0
313	LWAK	-241531	0	-125	0	99	99	21	21	7	7	-49	0	-163	0	na	na	na	na	nr		0

TABLE 2-3. REQUIRED REDUCTION TO MEET THE 6 PERCENT FLOOR

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
314	LWAK	-4005	0	33	33	100	100	-1	0	-64	0	-42	0	-1289	0	na	na	na	na	nr		0
336	LWAK	nr	0	nr	0	nr	75	nr	0	nr	0	-31	0	25	25	na	na	na	na	-12076		0
Floor Levels		53		0.015		120		110		96		6.1		50						20.0		20
209	INC	-1767	0	-233	0	-1258	0	-386	0	-325	0	nr	25	82	82	na	na	na	na	nr		0
210	INC	nr	75	-97	0	nr	50	nr	75	-175	0	-55	0	-13643	0	na	na	na	na	nr		0
211	INC	nr	0	-76	0	nr	75	nr	75	-155	0	-115	0	-951	0	na	na	na	na	nr		0
212	INC	nr	0	33	33	nr	0	nr	0	28	28	-47	0	-917	0	na	na	na	na	nr		0
214	INC	72	72	30	30	81	81	24	24	-5379	0	-377	0	-231	0	na	na	na	na	-20341		0
216	INC	31	31	51	51	84	84	10	10	-857	0	nr	0	-385	0	na	na	na	na	nr		0
221	INC	-421	0	-8	0	-187	0	-45	0	-312	0	-74	0	-226	0	na	na	na	na	-4667		0
222	INC	nr	50	-563	0	-3668	0	nr	0	-4642	0	-1537	0	-34	0	na	na	na	na	-1783	383	0
229	INC	nr	0	21	21	-184	0	-76	0	10	10	nr	0	nr	75	na	na	na	na	-219		0
324	INC	nr	0	28	28	96	96	15	15	50	50	nr	0	-60	0	na	na	na	na	nr		0
325	INC	15	15	-339	0	-15	0	-207	0	-816	0	-756	0	-384	0	na	na	na	na	-802		0
327	INC	94	94	-961	0	-322	0	-307	0	-2304	0	-17	0	-498	0	na	na	na	na	-103		0
329	INC	nr	75	52	52	nr	75	nr	75	-1053	0	-140	0	-418	0	na	na	na	na	nr		0
330	INC	-921	0	63	63	64	64	-114	0	-72	0	nr	0	nr	0	na	na	na	na	44		44
331	INC	-37	0	-80	0	97	97	-120	0	nr	0	nr	50	nr	0	na	na	na	na	-31247		0
332	INC	nr	0	87	87	nr	0	nr	0	-48	0	nr	0	90	90	na	na	na	na	nr		0
333	INC	nr	0	-796	0	nr	0	nr	50	-79	0	nr	0	-1018	0	na	na	na	na	nr		0
334	INC	-665	0	75	75	98	98	83	83	-452	0	-203	0	33	33	na	na	na	na	-860		0
337	INC	72	72	-5052	0	-28	0	58	58	-92	0	-87	0	-6481	0	na	na	na	na	nr	413	0
338	INC	10	10	-1100	0	-308	0	-30	0	-37813	0	-245	0	-2389	0	na	na	na	na	nr	415	0
339	INC	nr	75	-445	0	nr	0	nr	0	-731	0	-365	0	nr	0	na	na	na	na	nr		0
340	INC	-433	0	-139	0	-1165	0	-39	0	-427	0	-237	0	-69	0	na	na	na	na	nr	444	0
341	INC	-4540	0	-675	0	-767	0	-1075	0	-2118	0	nr	25	13	13	na	na	na	na	nr		0
342	INC	-749	0	-297	0	-480	0	-2829	0	-37349	0	nr	0	nr	0	na	na	na	na	nr		0
344	INC	nr	50	-852	0	-398	0	-22	0	-8120	0	-228	0	-210	0	na	na	na	na	nr		0
346	INC	-14622	0	-1089	0	-34	0	-638	0	-10700	0	nr	0	-78	0	na	na	na	na	-15897		0
347	INC	-780	0	-133	0	-1033	0	-602	0	-5235	0	nr	0	nr	0	na	na	na	na	-103238		0
348	INC	nr	75	-782	0	-443	0	-2921	0	-10670	0	nr	0	-502	0	na	na	na	na	nr		0
349	INC	nr	0	-630	0	-202	0	nr	75	nr	0	nr	0	-477	0	na	na	na	na	nr	350	0
350	INC	nr	0	-596	0	nr	75	nr	75	nr	0	nr	50	-1385	0	na	na	na	na	nr		0
351	INC	nr	25	-68	0	nr	0	-965	0	nr	0	nr	25	32	32	na	na	na	na	nr	290	0
353	INC	-1079	0	32	32	-8	0	42	42	nr	50	nr	0	-215	0	na	na	na	na	-11535		0
354	INC	-3641	0	-112	0	-4675	0	-991	0	-3160	0	nr	0	-1591	0	na	na	na	na	-217456		0
356	INC	nr	0	54	54	nr	0	nr	0	nr	0	nr	50	-1251	0	na	na	na	na	nr		0
357	INC	nr	0	40	40	nr	50	nr	0	-1174	0	nr	0	-354	0	na	na	na	na	nr		0
358	INC	nr	0	53	53	nr	0	nr	0	-2595	0	nr	0	-3232	0	na	na	na	na	nr		0
359	INC	nr	50	39	39	77	77	100	100	-1046	0	nr	0	50	50	na	na	na	na	nr	375	0
400	INC	-173	0	-141	0	82	82	-8	0	nr	0	nr	0	nr	0	na	na	na	na	nr	400	0
500	INC	-1740	0	-763	0	-3257	0	-3021	0	-124	0	nr	25	nr	0	na	na	na	na	-54115		0
502	INC	nr	0	58	58	92	92	-67	0	-388	0	nr	0	nr	0	na	na	na	na	-104965		0
503	INC	-141	0	47	47	85	85	75	75	nr	0	nr	50	nr	75	na	na	na	na	nr	285	0
504	INC	96	96	28	28	-173	0	30	30	-1782	0	nr	0	nr	0	na	na	na	na	nr		0
600	INC	nr	0	-100	0	nr	0	nr	75	-7942	0	nr	0	nr	50	na	na	na	na	nr		0

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
700	INC	nr	0	66	66	100	100	85	85	-469	0	nr	0	nr	0	na	na	na	na	nr		0
701	INC	nr	0	65	65	nr	0	nr	75	-737	0	-523	0	nr	0	na	na	na	na	nr		0
702	INC	nr	0	82	82	nr	75	nr	0	nr	0	nr	0	nr	0	na	na	na	na	nr		0
703	INC	nr	25	-429	0	nr	0	nr	0	73	73	-1516	0	-4240	0	na	na	na	na	nr		0
704	INC	nr	0	20	20	nr	0	nr	0	49	49	nr	0	-1042	0	na	na	na	na	nr		0
705	INC	-381	0	63	63	43	43	33	33	-795	0	nr	25	-1632	0	na	na	na	na	nr		0
706	INC	nr	0	65	65	nr	0	nr	0	-18062	0	-20	0	-26	0	na	na	na	na	-99222		0
707	INC	nr	0	94	94	nr	75	nr	75	-1407	0	nr	0	99	99	na	na	na	na	nr		0
708	INC	nr	0	43	43	nr	0	nr	50	-7418	0	nr	0	-474	0	na	na	na	na	nr		0
709	INC	nr	50	70	70	nr	0	nr	0	nr	25	-307	0	-544	0	na	na	na	na	nr		0
710	INC	nr	0	44	44	nr	75	nr	0	75	75	63	63	-70	0	na	na	na	na	nr		0
711	INC	nr	0	53	53	nr	0	nr	0	-10006	0	nr	0	-246	0	na	na	na	na	nr		0
712	INC	nr	0	50	50	-4909	0	-228	0	nr	0	nr	0	nr	0	na	na	na	na	nr		0
713	INC	nr	0	77	77	nr	0	nr	0	-257	0	nr	50	-2399	0	na	na	na	na	nr		0
714	INC	nr	0	18	18	nr	75	nr	0	-53	0	nr	0	-195	0	na	na	na	na	nr		0
725	INC	-3105	0	30	30	-221	0	-117	0	20	20	-263	0	-1110	0	na	na	na	na	-11588		0
726	INC	nr	50	-500	0	nr	75	nr	75	nr	0	48	48	-147	0	na	na	na	na	nr		0
727	INC	nr	0	82	82	nr	75	nr	50	nr	0	96	96	98	98	na	na	na	na	nr		0
728	INC	nr	0	66	66	nr	0	nr	0	-21876	0	nr	0	nr	0	na	na	na	na	nr		0
784	INC	nr	0	63	63	nr	75	nr	50	91	91	nr	0	-1273	0	na	na	na	na	nr		0
805	INC	nr	0	72	72	nr	0	nr	0	10	10	20	20	85	85	na	na	na	na	nr		0
806	INC	63	63	65	65	77	77	-1300	0	-97	0	74	74	75	75	na	na	na	na	nr		0
807	INC	-369	0	47	47	43	43	24	24	-3402	0	15	15	-831	0	na	na	na	na	-4872		0
808	INC	nr	0	22	22	nr	75	nr	75	-17835	0	nr	0	2	2	na	na	na	na	-12858		0
809	INC	nr	0	nr	0	99	99	97	97	nr	0	-41	0	96	96	na	na	na	na	nr		0
810	INC	nr	0	nr	75	91	91	81	81	nr	0	nr	0	-222	0	na	na	na	na	nr		0
824	INC	-6851	0	-139	0	-189	0	11	11	-3855	0	nr	0	-487	0	na	na	na	na	nr		0
825	INC	nr	25	77	77	nr	0	nr	0	-2307	0	nr	75	nr	75	na	na	na	na	nr		0
902	INC	-11	0	30	30	-403	0	-1054	0	-1995	0	-13	0	-27	0	na	na	na	na	-297602		0
904	INC	nr	0	-37	0	nr	75	nr	0	nr	75	17	17	-9832	0	na	na	na	na	nr		0
905	INC	nr	0	nr	50	100	100	38	38	nr	0	nr	0	-36	0	na	na	na	na	nr		0
906	INC	nr	0	79	79	nr	50	nr	75	38	38	-206	0	-730	0	na	na	na	na	nr		0
914	INC	nr	0	-269	0	nr	0	nr	75	58	58	nr	75	-1289	0	na	na	na	na	-356		0
915	INC	nr	50	74	74	91	91	83	83	nr	0	66	66	92	92	na	na	na	na	-4260		0

TABLE 2-4. REQUIRED REDUCTION TO MEET THE 6 PERCENT BTF PROPOSAL

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		30		0.015		34		67		270		10		na		5.1		50		0.2		
200	CK	-171	0	-11	0	45	45	82	82	-1384	0	0	0	na	na	na	na	na	na	nr	550	50
201	CK	-452	0	58	58	96	96	87	87	-1242	0	0	0	na	na	na	na	na	na	nr	550	75
202	CK	-49	0	nr	0	69	69	-128	0	-1546	0	0	0	na	na	na	na	na	na	nr	440	75
203	CK	-397	0	-8	0	94	94	-113	0	-130	0	0	0	na	na	na	na	na	na	96	500	96
204	CK	-59	0	47	47	93	93	-979	0	-312181	0	0	0	na	na	na	na	na	na	74	600	74
205	CK	-1	0	70	70	97	97	-262	0	-1529	0	0	0	na	na	na	na	na	na	-81	500	0
206	CK	-73	0	34	34	88	88	-671	0	-232	0	0	0	na	na	na	na	na	na	83	500	83
207	CK	-77	0	35	35	91	91	-19	0	-5411	0	0	0	na	na	na	na	na	na	-1146	400	0
208	CK	-53	0	-2	0	63	63	-469	0	-5872	0	0	0	na	na	na	na	na	na	-4481	420	0
228	CK	nr	50	nr	50	nr	75	nr	0	nr	0	0	0	na	na	na	na	na	na	18	500	18
300	CK	nr	0	79	79	99	99	35	35	-699	0	0	0	na	na	na	na	na	na	98	600	98
301	CK	74	74	57	57	-191	0	-299	0	-45257	0	0	0	na	na	76	76	57	57	nr	400	50
302	CK	nr	50	55	55	98	98	-144	0	-2539	0	0	0	na	na	na	na	na	na	nr	420	75
303	CK	37	37	36	36	-50	0	-274	0	-1319	0	0	0	na	na	0	0	12	12	nr	250	0
304	CK	28	28	74	74	94	94	-18	0	-68338	0	0	0	na	na	na	na	na	na	89	460	89
305	CK	-181	0	79	79	97	97	-128	0	-191	0	0	0	na	na	na	na	na	na	100	730	100
306	CK	99	99	8	8	-105	0	-404	0	-9347	0	0	0	na	na	na	na	na	na	-275	550	0
308	CK	nr	0	27	27	64	64	-842	0	-4721	0	0	0	na	na	na	na	na	na	nr	440	75
309	CK	30	30	39	39	94	94	-619	0	-482	0	0	0	na	na	na	na	na	na	100	640	100
315	CK	nr	0	-1497	0	-73	0	-582	0	-13048	0	0	0	na	na	-117	0	-113	0	-550	450	0
316	CK	nr	50	-29	0	-479	0	-746	0	-842	0	0	0	na	na	15	15	82	82	36	500	25
317	CK	nr	0	-472	0	-19	0	-188	0	-5848	0	0	0	na	na	na	na	na	na	84	500	84
318	CK	nr	0	-56	0	76	76	-261	0	-430	0	0	0	na	na	na	na	na	na	nr	420	0
319	CK	46	46	60	60	95	95	-11	0	-252	0	0	0	na	na	na	na	na	na	97	540	97
320	CK	nr	0	-350	0	-842	0	-1471	0	-4515	0	0	0	na	na	na	na	na	na	-125	480	0
321	CK	nr	50	93	93	-199	0	-484	0	-2746	0	0	0	na	na	nr	nr	-44	0	nr	240	0
322	CK	nr	0	21	21	77	77	-178	0	-1096	0	0	0	na	na	na	na	na	na	95	550	95
323	CK	nr	75	32	32	97	97	46	46	-276	0	0	0	na	na	na	na	na	na	96	500	96
335	CK	50	50	36	36	95	95	-521	0	-122	0	0	0	na	na	na	na	na	na	99	718	99
401	CK	67	67	72	72	97	97	33	33	-1059	0	0	0	na	na	na	na	na	na	58	400	58
402	CK	15	15	74	74	99	99	37	37	-1140	0	0	0	na	na	7	7	90	90	50	450	50
403	CK	97	97	55	55	-14	0	-100	0	-34288	0	0	0	na	na	na	na	na	na	95	500	95
404	CK	-585	0	-153	0	41	41	49	49	-305	0	0	0	na	na	na	na	na	na	80	500	80
405	CK	-44	0	58	58	97	97	78	78	-8372	0	0	0	na	na	na	na	na	na	-20	250	0
406	CK	-289	0	21	21	95	95	64	64	-530	0	0	0	na	na	na	na	na	na	60		60
Floor Levels		30		0.015		7.4		230		210		6.4		50		na		na		0.2		
223	LWAK	5	5	-252	0	-43	0	-574	0	90	90	nr	0	-443	0	na	na	na	na	nr		0
224	LWAK	-90	0	-218	0	-85	0	-962	0	-629	0	nr	0	-558	0	na	na	na	na	nr		0
225	LWAK	-556	0	-3054	0	-602	0	-2140	0	67	67	nr	50	-541	0	na	na	na	na	nr		0
226	LWAK	nr	0	nr	0	nr	0	nr	0	nr	75	nr	0	-144	0	na	na	na	na	nr		0
227	LWAK	-76	0	-932	0	76	76	-821	0	84	84	49	49	96	96	na	na	na	na	nr		0
307	LWAK	94	94	-26	0	-15	0	-70	0	-651	0	nr	0	-10	0	na	na	na	na	nr		0
310	LWAK	-97	0	18	18	99	99	-286	0	82	82	-83	0	42	42	na	na	na	na	nr		0
311	LWAK	-97	0	-165	0	99	99	-456	0	83	83	-31	0	25	25	na	na	na	na	nr		0
312	LWAK	-242	0	-50	0	98	98	-518	0	83	83	-83	0	42	42	na	na	na	na	nr		0
313	LWAK	-7866	0	-125	0	99	99	21	21	86	86	-49	0	-163	0	na	na	na	na	nr		0

TABLE 2-4. REQUIRED REDUCTION TO MEET THE 6 PERCENT BTF PROPOSAL

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
314	LWAK	-35	0	33	33	100	100	-1	0	75	75	-42	0	-1289	0	na	na	na	na	nr		0
336	LWAK	nr	0	nr	0	nr	75	nr	0	nr	75	-31	0	25	25	na	na	na	na	-418		0
Floor Levels		30		0.015		120		110		96		6.1		50						0.2		0
209	INC	-957	0	-233	0	-1258	0	-386	0	-325	0	nr	25	82	82	na	na	na	na	nr		75
210	INC	nr	75	-97	0	nr	50	nr	75	-175	0	-55	0	-13643	0	na	na	na	na	nr		50
211	INC	nr	0	-76	0	nr	75	nr	75	-155	0	-115	0	-951	0	na	na	na	na	nr		0
212	INC	nr	0	33	33	nr	0	nr	0	28	28	-47	0	-917	0	na	na	na	na	nr		0
214	INC	84	84	30	30	81	81	24	24	-5379	0	-377	0	-231	0	na	na	na	na	-104		0
216	INC	61	61	51	51	84	84	10	10	-857	0	nr	0	-385	0	na	na	na	na	nr		0
221	INC	-195	0	-8	0	-187	0	-45	0	-312	0	-74	0	-226	0	na	na	na	na	52		52
222	INC	nr	50	-563	0	-3668	0	nr	0	-4642	0	-1537	0	-34	0	na	na	na	na	81	383	81
229	INC	nr	0	21	21	-184	0	-76	0	10	10	nr	0	nr	75	na	na	na	na	97		97
324	INC	nr	25	28	28	96	96	15	15	50	50	nr	0	-60	0	na	na	na	na	nr		75
325	INC	52	52	-339	0	-15	0	-207	0	-816	0	-756	0	-384	0	na	na	na	na	91		91
327	INC	97	97	-961	0	-322	0	-307	0	-2304	0	-17	0	-498	0	na	na	na	na	98		98
329	INC	nr	75	52	52	nr	75	nr	75	-1053	0	-140	0	-418	0	na	na	na	na	nr		50
330	INC	-478	0	63	63	64	64	-114	0	-72	0	nr	0	nr	0	na	na	na	na	99		99
331	INC	23	23	-80	0	97	97	-120	0	nr	0	nr	50	nr	0	na	na	na	na	-213		0
332	INC	nr	0	87	87	nr	0	nr	0	-48	0	nr	0	90	90	na	na	na	na	nr		75
333	INC	nr	50	-796	0	nr	0	nr	50	-79	0	nr	0	-1018	0	na	na	na	na	nr		0
334	INC	-333	0	75	75	98	98	83	83	-452	0	-203	0	33	33	na	na	na	na	90		90
337	INC	84	84	-5052	0	-28	0	58	58	-92	0	-87	0	-6481	0	na	na	na	na	nr	413	0
338	INC	49	49	-1100	0	-308	0	-30	0	-37813	0	-245	0	-2389	0	na	na	na	na	nr	415	0
339	INC	nr	75	-445	0	nr	0	nr	0	-731	0	-365	0	nr	0	na	na	na	na	nr		0
340	INC	-201	0	-139	0	-1165	0	-39	0	-427	0	-237	0	-69	0	na	na	na	na	nr	444	75
341	INC	-2526	0	-675	0	-767	0	-1075	0	-2118	0	nr	25	13	13	na	na	na	na	nr		50
342	INC	-380	0	-297	0	-480	0	-2829	0	-37349	0	nr	0	nr	0	na	na	na	na	nr		0
344	INC	nr	50	-852	0	-398	0	-22	0	-8120	0	-228	0	-210	0	na	na	na	na	nr		0
346	INC	-8233	0	-1089	0	-34	0	-638	0	-10700	0	nr	0	-78	0	na	na	na	na	-60		0
347	INC	-398	0	-133	0	-1033	0	-602	0	-5235	0	nr	0	nr	0	na	na	na	na	-933		0
348	INC	nr	75	-782	0	-443	0	-2921	0	-10670	0	nr	0	-502	0	na	na	na	na	nr		75
349	INC	nr	0	-630	0	-202	0	nr	75	nr	0	nr	0	-477	0	na	na	na	na	nr	350	0
350	INC	nr	0	-596	0	nr	75	nr	75	nr	0	nr	50	-1385	0	na	na	na	na	nr		0
351	INC	nr	0	-68	0	nr	0	-965	0	nr	0	nr	25	32	32	na	na	na	na	nr	290	50
353	INC	-568	0	32	32	-8	0	42	42	nr	50	nr	0	-215	0	na	na	na	na	-16		0
354	INC	-2018	0	-112	0	-4675	0	-991	0	-3160	0	nr	0	-1591	0	na	na	na	na	-2076		0
356	INC	nr	0	54	54	nr	0	nr	0	nr	0	nr	50	-1251	0	na	na	na	na	nr		75
357	INC	nr	0	40	40	nr	50	nr	0	-1174	0	nr	0	-354	0	na	na	na	na	nr		0
358	INC	nr	50	53	53	nr	0	nr	0	-2595	0	nr	0	-3232	0	na	na	na	na	nr		0
359	INC	nr	75	39	39	77	77	100	100	-1046	0	nr	0	50	50	na	na	na	na	nr	375	0
400	INC	-55	0	-141	0	82	82	-8	0	nr	0	nr	0	nr	0	na	na	na	na	nr	400	50
500	INC	-942	0	-763	0	-3257	0	-3021	0	-124	0	nr	25	nr	0	na	na	na	na	-442		0
502	INC	nr	50	58	58	92	92	-67	0	-388	0	nr	0	nr	0	na	na	na	na	-951		0
503	INC	-36	0	47	47	85	85	75	75	nr	0	nr	50	nr	75	na	na	na	na	nr	285	75
504	INC	98	98	28	28	-173	0	30	30	-1782	0	nr	0	nr	0	na	na	na	na	nr		0
600	INC	nr	0	-100	0	nr	0	nr	75	-7942	0	nr	0	nr	50	na	na	na	na	nr		0

TABLE 2-5. MODEL GROUP SELECTION FOR THE 6 PERCENT FLOOR

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
200	CK	FF	0	0	45	82	0	0	na	na	na	550	0	3	Add FF
201	CK	FF	0	58	96	87	0	0	na	na	na	550	75	18	Add Q, FF
202	CK	FF	0	0	69	0	0	0	na	na	na	440	0	7	Moderate DOM on exisiting FF
203	CK	ESP	0	0	94	0	0	0	na	na	na	500	7	18	Add Q, FF
204	CK	ESP	0	47	93	0	0	0	na	na	na	600	0	3	Add FF
205	CK	ESP	0	70	97	0	0	0	na	na	na	500	0	3	Add FF
206	CK	ESP	0	34	88	0	0	0	na	na	na	500	0	3	Add FF
207	CK	MC / ESP	0	35	91	0	0	0	na	na	na	400	0	3	Add FF
208	CK	ESP	0	0	63	0	0	0	na	na	na	420	0	2	Moderate DOM on exisiting ESP
228	CK	ESP	0	50	75	0	0	0	na	na	na	500	0	3	Add FF
300	CK	ESP	0	79	99	35	0	0	na	na	na	600	57	18	Add Q, FF
301	CK	FF	6	57	0	0	0	0	na	76	57	400	0	28	Moderate DOM on Combustor, Add CI, FF
302	CK	ESP	0	55	98	0	0	0	na	na	na	420	0	3	Add FF
303	CK	QC/FF	0	36	0	0	0	0	na	0	12	250	0	7	Moderate DOM on exisiting FF
304	CK	ESP	0	74	94	0	0	0	na	na	na	460	0	3	Add FF
305	CK	ESP	0	79	97	0	0	0	na	na	na	730	90	18	Add Q, FF
306	CK	MC/FF	96	8	0	0	0	0	na	na	na	550	0	34	Small DOM on Existing FF, Add Q, CB
308	CK	ESP	0	27	64	0	0	0	na	na	na	440	75	2	Moderate DOM on exisiting ESP
309	CK	MC / ESP	0	39	94	0	0	0	na	na	na	640	91	18	Add Q, FF
315	CK	FF	0	0	0	0	0	0	na	0	0	450	0	1	None
316	CK	FF	0	0	0	0	0	0	na	15	82	500	25	35	Moderate DOM on Combustor, Add Q, CI, FF
317	CK	FF	0	0	0	0	0	0	na	na	na	500	0	1	None
318	CK	ESP	0	0	76	0	0	0	na	na	na	420	0	3	Add FF
319	CK	ESP	0	60	95	0	0	0	na	na	na	540	19	18	Add Q, FF
320	CK	FF	0	0	0	0	0	0	na	na	na	480	0	1	None
321	CK	ESP	0	93	0	0	0	0	na	nr	0	240	0	3	Add FF
322	CK	ESP	0	21	77	0	0	0	na	na	na	550	0	3	Add FF
323	CK	ESP	75	32	97	46	0	0	na	na	na	500	9	5	Add Q,CI,FF
335	CK	ESP	0	36	95	0	0	0	na	na	na	718	86	18	Add Q, FF
401	CK	ESP	0	72	97	33	0	0	na	na	na	400	0	3	Add FF
402	CK	ESP	0	74	99	37	0	0	na	7	90	450	0	36	Moderate DOM on Combustor, Add Q, CI, FF
403	CK	ESP	89	55	0	0	0	0	na	na	na	500	0	5	Add Q,CI,FF
404	CK	ESP	0	0	41	49	0	0	na	na	na	500	0	2	Moderate DOM on existing ESP
405	CK	ESP	0	58	97	78	0	0	na	na	na	250	0	3	Add FF
406	CK	ESP	0	21	95	64	0	0	na	na	na		0	3	Add FF
223	LWAK	FF	0	0	0	0	33	0	0	na	na		0	5	Add ST
224	LWAK	FF	0	0	0	0	0	0	0	na	na		0	1	None
225	LWAK	FF	0	0	0	0	0	50	0	na	na		0	18	Moderate DOM on Combustor
226	LWAK	FF	0	0	0	0	0	0	0	na	na		0	1	none
227	LWAK	FF	0	0	76	0	0	49	96	na	na		0	17	Add AB, WQ, FF
307	LWAK	FF/VS	0	0	0	0	0	0	0	na	na		0	1	None
310	LWAK	FF	0	18	99	0	0	0	42	na	na		0	16	Moderate DOM on Combustor, Add FF
311	LWAK	FF	0	0	99	0	0	0	25	na	na		0	16	Moderate DOM on Combustor, Add FF
312	LWAK	FF	0	0	98	0	0	0	42	na	na		0	16	Moderate DOM on Combustor, Add FF

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
313	LWAK	FF	0	0	99	21	7	0	0	na	na		0	6	Add IWS
314	LWAK	FF	0	33	100	0	0	0	0	na	na		0	2	Add FF
336	LWAK	FF	0	0	75	0	0	0	25	na	na		0	16	Moderate DOM on Combustor, Add FF
209	INC	WHB, FF/VQ/PT/DM	0	0	0	0	0	25	82	na	na		0	81	Add AB
210	INC	FF/S	75	0	50	75	0	0	0	na	na		0	9	Add RH, CI, FF
211	INC	SS/PT/VS	0	0	75	75	0	0	0	na	na		0	6	Add FF
212	INC	FF/S	0	33	0	0	28	0	0	na	na		0	7	Moderate DOM on Existing FF and WS
214	INC	IWS	72	30	81	24	0	0	0	na	na		0	9	Add RH, CI, FF
216	INC	HES / WS	31	51	84	10	0	0	0	na	na		0	9	Add RH, CI, FF
221	INC	PT	0	0	0	0	0	0	0	na	na		0	1	None
222	INC	WHB/SD/ESP/Q/PBS	50	0	0	0	0	0	0	na	na	383	0	8	Add CI
229	INC	WHB/ACS/HCS/CS	0	21	0	0	10	0	75	na	na		0	78	Moderate DOM on Existing WS, Add AB, FF
324	INC	?	0	28	96	15	50	0	0	na	na		0	4	Add IWS
325	INC	SD/FF/WS/ IWS	15	0	0	0	0	0	0	na	na		0	8	Add CI
327	INC	SD/FF/WS/ ESP	94	0	0	0	0	0	0	na	na		0	8	Add CI
329	INC	PT/IWS	75	52	75	75	0	0	0	na	na		0	9	Add RH, CI, FF
330	INC	QT/WS/DM	0	63	64	0	0	0	0	na	na		44	9	Add RH, CI, FF
331	INC	PT/IWS	0	0	97	0	0	50	0	na	na		0	55	Moderate DOM on Combustor, Add FF
332	INC	WS	0	87	0	0	0	0	90	na	na		0	21	Add AB, FF
333	INC	SD/FF	0	0	0	50	0	0	0	na	na		0	66	Moderate DOM on existing FF
334	INC	WS/ESP/PT	0	75	98	83	0	0	33	na	na		0	55	Moderate DOM on Combustor, Add FF
337	INC	WHB/DA/DI/FF	72	0	0	58	0	0	0	na	na	413	0	67	Moderate DOM on existing FF, Add CI
338	INC	QC/FF/SS/C/HES/DM	10	0	0	0	0	0	0	na	na	415	0	8	Add CI
339	INC	AT/PT/RJS/ESP	75	0	0	0	0	0	0	na	na		0	61	Add RH, CB
340	INC	WHB/ESP/WS	0	0	0	0	0	0	0	na	na	444	0	1	None
341	INC	DA/DI/FF/HEPA/CA	0	0	0	0	0	25	13	na	na		0	94	Moderate DOM on Combustor
342	INC	WHB/QC/S/VS/DM	0	0	0	0	0	0	0	na	na		0	1	None
344	INC	QC/VS/PT/DM	50	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
346	INC	C/QC/VS/PT/DM	0	0	0	0	0	0	0	na	na		0	1	None
347	INC	C/QC/VS/S/DM	0	0	0	0	0	0	0	na	na		0	1	None
348	INC	QC/AS/IWS	75	0	0	0	0	0	0	na	na		0	61	Add RH, CB
349	INC	QC/FF/QC/PT	0	0	0	75	0	0	0	na	na	350	0	6	Add FF
350	INC	WHB/HE/FF	0	0	75	75	0	50	0	na	na		0	55	Moderate DOM on Combustor, Add FF
351	INC	GC/C/ FF	25	0	0	0	0	25	32	na	na	290	0	53	Moderate DOM on Combustor, Add CB
353	INC	QC/VS/DM/ ESP	0	32	0	42	50	0	0	na	na		0	22	Moderate DOM on Existing ESP, Add PT
354	INC	QC/AS/VS/DM/IWS	0	0	0	0	0	0	0	na	na		0	1	None
356	INC	QC/AS/FN/DM	0	54	0	0	0	50	0	na	na		0	55	Moderate DOM on Combustor, Add FF
357	INC	QC/VS/PT/IWS	0	40	50	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
358	INC	QC/VS/C/CT/S/DM	0	53	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
359	INC	WHB/ FF/S	50	39	77	100	0	0	50	na	na	375	0	54	Moderate DOM on Combustor, Add RH, CI, FF
400	INC	SD/FF	0	0	82	0	0	0	0	na	na	400	0	6	Add FF
500	INC	QC/VS/KOV/ DM	0	0	0	0	0	25	0	na	na		0	94	Moderate DOM on Combustor
502	INC	WHB /QC/ PBC/ VS/ES	0	58	92	0	0	0	0	na	na		0	9	Add RH, CB, FF
503	INC	HTHE/LTHE/FF	0	47	85	75	0	50	75	na	na	285	0	21	Add AB, FF
504	INC	VS/C	96	28	0	30	0	0	0	na	na		0	63	Moderate DOM on existing VS, Add RH, CB

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
600	INC	WHB/QC/PT/IWS	0	0	0	75	0	0	50	na	na		0	55	Moderate DOM on Combustor, Add FF
700	INC	SD/RJS/VS/WS	0	66	100	85	0	0	0	na	na		0	6	Add FF
701	INC	VS/PT	0	65	0	75	0	0	0	na	na		0	6	Add FF
702	INC	QT/S/C	0	82	75	0	0	0	0	na	na		0	6	Add FF
703	INC	WHB	25	0	0	0	73	0	0	na	na		0	20	Add Q, CB, PT
704	INC	NONE	0	20	0	0	49	0	0	na	na		0	4	Add IWS
705	INC	QT/VS/ESP/PT	0	63	43	33	0	25	0	na	na		0	82	Moderate DOM on Combustorand ESP
706	INC	QT/HS/C	0	65	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
707	INC	QT/WS	0	94	75	75	0	0	99	na	na		0	21	Add AB, FF
708	INC	WS/ESP	0	43	0	50	0	0	0	na	na		0	17	Moderate DOM on Existing ESP
709	INC	NONE	50	70	0	0	25	0	0	na	na		0	42	Add RH, CB, IWS
710	INC	QT/OS/C/S	0	44	75	0	75	63	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
711	INC	C/VS/AS	0	53	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
712	INC	NONE	0	50	0	0	0	0	0	na	na		0	6	Add FF
713	INC	VS/PT	0	77	0	0	0	50	0	na	na		0	55	Moderate DOM on Combustor, Add FF
714	INC	WS	0	18	75	0	0	0	0	na	na		0	6	Add FF
725	INC	WS/QT	0	30	0	0	20	0	0	na	na		0	12	Moderate DOM on Existing WS, Add FF
726	INC	QC/CS/DM/VS	50	0	75	75	0	48	0	na	na		0	54	Moderate DOM on Combustor, Add RH, CB, FF
727	INC	GC/C/FF	0	82	75	50	0	96	98	na	na		0	21	Add AB, FF
728	INC	QT/PT/VS	0	66	0	0	0	0	0	na	na		0	19	Moderate DOM on existing VS
784	INC	NONE	0	63	75	50	91	0	0	na	na		0	4	Add IWS
805	INC	QT/QS/VS/ES/PBS	0	72	0	0	10	20	85	na	na		0	83	Moderate DOM on VS, Small DOM on WS, Add AB
806	INC	C/VS	63	65	77	0	0	74	75	na	na		0	25	Add AB, RH, CI, FF
807	INC	C/WHB/VQ/PT/HS/DM	0	47	43	24	0	15	0	na	na		0	96	Moderate DOM on Combustor and VS
808	INC	QT/PBS/ESP	0	22	75	75	0	0	2	na	na		0	55	Moderate DOM on Combustor, Add FF
809	INC	VS	0	0	99	97	0	0	96	na	na		0	21	Add AB, FF
810	INC	Q/VS/PBS	0	75	91	81	0	0	0	na	na		0	6	Add FF
824	INC	QT/VS/PT/DM	0	0	0	11	0	0	0	na	na		0	95	Small DOM on Existing VS
825	INC	CCS/QC/ESP	25	77	0	0	0	75	75	na	na		0	25	Add AB, RH, CI, FF
902	INC	QT/VS/PT	0	30	0	0	0	0	0	na	na		0	19	Add AB, RH, CI, FF
904	INC	?	0	0	75	0	75	17	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
905	INC	QT/VS/AS/CS	0	50	100	38	0	0	0	na	na		0	6	Add FF
906	INC	QT/PT	0	79	50	75	38	0	0	na	na		0	12	Moderate DOM on Existing WS, Add FF
914	INC	?	0	0	0	75	58	75	0	na	na		0	5	Add AB, IWS
915	INC	QC/VS/C	50	74	91	83	0	66	92	na	na		0	25	Add AB, RH, CI, FF

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
700	INC	nr	0	66	66	100	100	85	85	-469	0	nr	0	nr	0	na	na	na	na	nr		0
701	INC	nr	0	65	65	nr	0	nr	75	-737	0	-523	0	nr	0	na	na	na	na	nr		50
702	INC	nr	0	82	82	nr	75	nr	0	nr	0	nr	0	nr	0	na	na	na	na	nr		75
703	INC	nr	75	-429	0	nr	0	nr	0	73	73	-1516	0	-4240	0	na	na	na	na	nr		0
704	INC	nr	0	20	20	nr	0	nr	0	49	49	nr	0	-1042	0	na	na	na	na	nr		0
705	INC	-172	0	63	63	43	43	33	33	-795	0	nr	25	-1632	0	na	na	na	na	nr		75
706	INC	nr	0	65	65	nr	0	nr	0	-18062	0	-20	0	-26	0	na	na	na	na	-893		0
707	INC	nr	0	94	94	nr	75	nr	75	-1407	0	nr	0	99	99	na	na	na	na	nr		50
708	INC	nr	0	43	43	nr	0	nr	50	-7418	0	nr	0	-474	0	na	na	na	na	nr		75
709	INC	nr	50	70	70	nr	0	nr	0	nr	25	-307	0	-544	0	na	na	na	na	nr		0
710	INC	nr	0	44	44	nr	75	nr	0	75	75	63	63	-70	0	na	na	na	na	nr		0
711	INC	nr	0	53	53	nr	0	nr	0	-10006	0	nr	0	-246	0	na	na	na	na	nr		75
712	INC	nr	0	50	50	-4909	0	-228	0	nr	0	nr	0	nr	0	na	na	na	na	nr		0
713	INC	nr	0	77	77	nr	0	nr	0	-257	0	nr	50	-2399	0	na	na	na	na	nr		75
714	INC	nr	0	18	18	nr	75	nr	0	-53	0	nr	0	-195	0	na	na	na	na	nr		50
725	INC	-1714	0	30	30	-221	0	-117	0	20	20	-263	0	-1110	0	na	na	na	na	-17		0
726	INC	nr	75	-500	0	nr	75	nr	75	nr	0	48	48	-147	0	na	na	na	na	nr		0
727	INC	nr	0	82	82	nr	75	nr	50	nr	0	96	96	98	98	na	na	na	na	nr		0
728	INC	nr	0	66	66	nr	0	nr	0	-21876	0	nr	0	nr	0	na	na	na	na	nr		75
784	INC	nr	0	63	63	nr	75	nr	50	91	91	nr	0	-1273	0	na	na	na	na	nr		0
805	INC	nr	0	72	72	nr	0	nr	0	10	10	20	20	85	85	na	na	na	na	nr		75
806	INC	79	79	65	65	77	77	-1300	0	-97	0	74	74	75	75	na	na	na	na	nr		0
807	INC	-166	0	47	47	43	43	24	24	-3402	0	15	15	-831	0	na	na	na	na	50		50
808	INC	nr	0	22	22	nr	75	nr	75	-17835	0	nr	0	2	2	na	na	na	na	-30		0
809	INC	nr	0	nr	0	99	99	97	97	nr	0	-41	0	96	96	na	na	na	na	nr		75
810	INC	nr	0	nr	75	91	91	81	81	nr	0	nr	0	-222	0	na	na	na	na	nr		0
824	INC	-3835	0	-139	0	-189	0	11	11	-3855	0	nr	0	-487	0	na	na	na	na	nr		0
825	INC	nr	50	77	77	nr	0	nr	0	-2307	0	nr	75	nr	75	na	na	na	na	nr		50
902	INC	37	37	30	30	-403	0	-1054	0	-1995	0	-13	0	-27	0	na	na	na	na	-2877		0
904	INC	nr	50	-37	0	nr	75	nr	0	nr	75	17	17	-9832	0	na	na	na	na	nr		0
905	INC	nr	0	nr	50	100	100	38	38	nr	0	nr	0	-36	0	na	na	na	na	nr		0
906	INC	nr	0	79	79	nr	50	nr	75	38	38	-206	0	-730	0	na	na	na	na	nr		75
914	INC	nr	0	-269	0	nr	0	nr	75	58	58	nr	75	-1289	0	na	na	na	na	95		95
915	INC	nr	75	74	74	91	91	83	83	nr	0	66	66	92	92	na	na	na	na	56		56

TABLE 2-6. MODEL GROUP SELECTION FOR THE 6 PERCENT BTF PROPOSAL

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
200	CK	FF	0	0	45	82	0	0	na	na	na	550	50	18	Add Q, FF
201	CK	FF	0	58	96	87	0	0	na	na	na	550	75	18	Add Q, FF
202	CK	FF	0	0	69	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
203	CK	ESP	0	0	94	0	0	0	na	na	na	500	96	5	Add Q,CI,FF
204	CK	ESP	0	47	93	0	0	0	na	na	na	600	74	18	Add Q, FF
205	CK	ESP	0	70	97	0	0	0	na	na	na	500	0	3	Add FF
206	CK	ESP	0	34	88	0	0	0	na	na	na	500	83	18	Add Q, FF
207	CK	MC / ESP	0	35	91	0	0	0	na	na	na	400	0	3	Add FF
208	CK	ESP	0	0	63	0	0	0	na	na	na	420	0	2	Moderate DOM on exisiting ESP
228	CK	ESP	50	50	75	0	0	0	na	na	na	500	18	5	Add Q,CI,FF
300	CK	ESP	0	79	99	35	0	0	na	na	na	600	98	18	Add Q, FF
301	CK	FF	74	57	0	0	0	0	na	76	57	400	50	28	Moderate DOM on Combustor, Add CI, FF
302	CK	ESP	50	55	98	0	0	0	na	na	na	420	75	4	Add CI,FF
303	CK	QC/FF	37	36	0	0	0	0	na	0	12	250	0	4	Add CI,FF
304	CK	ESP	28	74	94	0	0	0	na	na	na	460	89	5	Add Q,CI,FF
305	CK	ESP	0	79	97	0	0	0	na	na	na	730	100	5	Add Q,CI,FF
306	CK	MC/FF	95	8	0	0	0	0	na	na	na	550	0	34	Small DOM on Existing FF, Add Q, CB
308	CK	ESP	0	27	64	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
309	CK	MC / ESP	30	39	94	0	0	0	na	na	na	640	100	5	Add Q,CI,FF
315	CK	FF	0	0	0	0	0	0	na	0	0	450	0	1	None
316	CK	FF	50	0	0	0	0	0	na	15	82	500	25	37	Moderate DOM on Combustor, Add Q, CI, FF
317	CK	FF	0	0	0	0	0	0	na	na	na	500	84	17	Add Q
318	CK	ESP	0	0	76	0	0	0	na	na	na	420	0	3	Add FF
319	CK	ESP	46	60	95	0	0	0	na	na	na	540	97	5	Add Q,CI,FF
320	CK	FF	0	0	0	0	0	0	na	na	na	480	0	1	None
321	CK	ESP	50	93	0	0	0	0	na	0	0	240	0	4	Add CI,FF
322	CK	ESP	0	21	77	0	0	0	na	na	na	550	95	18	Add Q, FF
323	CK	ESP	75	32	97	46	0	0	na	na	na	500	96	5	Add Q,CI,FF
335	CK	ESP	50	36	95	0	0	0	na	na	na	718	99	5	Add Q,CI,FF
401	CK	ESP	67	72	97	33	0	0	na	na	na	400	58	4	Add CI,FF
402	CK	ESP	15	74	99	37	0	0	na	7	90	450	50	37	Moderate DOM on Combustor, Add Q, CI, FF
403	CK	ESP	97	55	0	0	0	0	na	na	na	500	95	33	Moderate DOM on Existing ESP, Add Q, CB
404	CK	ESP	0	0	41	49	0	0	na	na	na	500	80	20	Moderate DOM on existing ESP, Add Q
405	CK	ESP	0	58	97	78	0	0	na	na	na	250	0	3	Add FF
406	CK	ESP	0	21	95	64	0	0	na	na	na	280	60	4	Add CI, FF
223	LWAK	FF	0	0	0	0	90	0	0	na	na		0	5	Add ST
224	LWAK	FF	0	0	0	0	0	0	0	na	na		0	1	None
225	LWAK	FF	0	0	0	0	67	50	0	na	na		0	19	Moderate DOM on Combustor, Add ST
226	LWAK	FF	0	0	0	0	75	0	0	na	na		0	5	Add ST
227	LWAK	FF	0	0	76	0	84	49	96	na	na		0	13	Add AB, WQ, IWS
307	LWAK	FF/VS	93	0	0	0	0	0	0	na	na		0	3	Add CI, FF
310	LWAK	FF	0	18	99	0	82	0	42	na	na		0	20	Moderate DOM on Combustor, Add IWS
311	LWAK	FF	0	0	99	0	83	0	25	na	na		0	20	Moderate DOM on Combustor, Add IWS
312	LWAK	FF	0	0	98	0	83	0	42	na	na		0	20	Moderate DOM on Combustor, Add IWS

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
313	LWAK	FF	0	0	99	21	86	0	0	na	na		0	6	Add IWS
314	LWAK	FF	0	33	100	0	75	0	0	na	na		0	6	Add IWS
336	LWAK	FF	0	0	75	0	75	0	25	na	na		0	20	Moderate DOM on Combustor, Add IWS
209	INC	WHB, FF/VQ/PT/DM	0	0	0	0	0	25	82	na	na		75	44	Add AB, CI
210	INC	FF/S	75	0	50	75	0	0	0	na	na		50	9	Add RH, CI, FF
211	INC	SS/PT/VS	0	0	75	75	0	0	0	na	na		0	6	Add FF
212	INC	FF/S	0	33	0	0	28	0	0	na	na		0	7	Moderate DOM on Existing FF and WS
214	INC	IWS	84	30	81	24	0	0	0	na	na		0	9	Add RH, CI, FF
216	INC	HES / WS	61	51	84	10	0	0	0	na	na		0	9	Add RH, CI, FF
221	INC	PT	0	0	0	0	0	0	0	na	na		52	9	Add RH, CI, FF
222	INC	WHB/SD/ESP/Q/PBS	50	0	0	0	0	0	0	na	na	383	81	8	Add CI
229	INC	WHB/ACS/HCS/CS	0	21	0	0	10	0	75	na	na		97	70	Moderate DOM on Existing WS, Add AB, RH, CB, FF
324	INC	?	25	28	96	15	50	0	0	na	na		75	13	Add PT, RH, CI, FF
325	INC	SD/FF/WS/ IWS	52	0	0	0	0	0	0	na	na		91	8	Add CI
327	INC	SD/FF/WS/ ESP	97	0	0	0	0	0	0	na	na		98	61	Add RH, CB
329	INC	PT/IWS	75	52	75	75	0	0	0	na	na		50	9	Add RH, CI, FF
330	INC	QT/WS/DM	0	63	64	0	0	0	0	na	na		99	9	Add RH, CI, FF
331	INC	PT/IWS	23	0	97	0	0	50	0	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
332	INC	WS	0	87	0	0	0	0	90	na	na		75	25	Add AB, RH, CI, FF
333	INC	SD/FF	50	0	0	50	0	0	0	na	na		0	67	Moderate DOM on existing FF, Add CI
334	INC	WS/ESP/PT	0	75	98	83	0	0	33	na	na		90	54	Moderate DOM on Combustor, Add RH, CI, FF
337	INC	WHB/DA/DI/FF	84	0	0	58	0	0	0	na	na	413	0	67	Moderate DOM on existing FF, Add CI
338	INC	QC/FF/SS/C/HES/DM	49	0	0	0	0	0	0	na	na	415	0	8	Add CI
339	INC	AT/PT/RJS/ESP	75	0	0	0	0	0	0	na	na		0	61	Add RH, CB
340	INC	WHB/ESP/WS	0	0	0	0	0	0	0	na	na	444	75	32	Add Q, CI
341	INC	DA/DI/FF/HEPA/CA	0	0	0	0	0	25	13	na	na		50	53	Moderate DOM on Combustor, Add CI
342	INC	WHB/QC/S/VS/DM	0	0	0	0	0	0	0	na	na		0	1	None
344	INC	QC/VS/PT/DM	50	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
346	INC	C/QC/VS/PT/DM	0	0	0	0	0	0	0	na	na		0	1	None
347	INC	C/QC/VS/S/DM	0	0	0	0	0	0	0	na	na		0	1	None
348	INC	QC/AS/IWS	75	0	0	0	0	0	0	na	na		75	61	Add RH, CB
349	INC	QC/FF/QC/PT	0	0	0	75	0	0	0	na	na	350	0	6	Add FF
350	INC	WHB/HE/FF	0	0	75	75	0	50	0	na	na		0	55	Moderate DOM on Combustor, Add FF
351	INC	GC/C/ FF	0	0	0	0	0	25	32	na	na	290	50	53	Moderate DOM on Combustor, Add CB
353	INC	QC/VS/DM/ ESP	0	32	0	42	50	0	0	na	na		0	22	Moderate DOM on Existing ESP, Add PT
354	INC	QC/AS/VS/DM/IWS	0	0	0	0	0	0	0	na	na		0	1	None
356	INC	QC/AS/FN/DM	0	54	0	0	0	50	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CB, FF
357	INC	QC/VS/PT/IWS	0	40	50	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
358	INC	QC/VS/C/CT/S/DM	50	53	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
359	INC	WHB/ FF/S	75	39	77	100	0	0	50	na	na	375	0	54	Moderate DOM on Combustor, Add RH, CI, FF
400	INC	SD/FF	0	0	82	0	0	0	0	na	na	400	50	49	Add CI, FF
500	INC	QC/VS/KOV/ DM	0	0	0	0	0	25	0	na	na		0	94	Moderate DOM on Combustor
502	INC	WHB /QC/ PBC/ VS/ES	50	58	92	0	0	0	0	na	na		0	9	Add RH, CB, FF
503	INC	HTHE/LTHE/FF	0	47	85	75	0	50	75	na	na	285	75	97	Add AB, CB, FF
504	INC	VS/C	98	28	0	30	0	0	0	na	na		0	63	Moderate DOM on existing VS, Add RH, CB

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet the Final 6 Percent BTF Proposal											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
600	INC	WHB/QC/PT/IWS	0	0	0	75	0	0	50	na	na		0	55	Moderate DOM on Combustor, Add FF
700	INC	SD/RJS/VS/WS	0	66	100	85	0	0	0	na	na		0	6	Add FF
701	INC	VS/PT	0	65	0	75	0	0	0	na	na		50	9	Add RH, CI, FF
702	INC	QT/S/C	0	82	75	0	0	0	0	na	na		75	9	Add RH, CI, FF
703	INC	WHB	75	0	0	0	73	0	0	na	na		0	20	Add Q, CB, PT
704	INC	NONE	0	20	0	0	49	0	0	na	na		0	4	Add IWS
705	INC	QT/VS/ESP/PT	0	63	43	33	0	25	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CI, FF
706	INC	QT/HS/C	0	65	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
707	INC	QT/WS	0	94	75	75	0	0	99	na	na		50	25	Add AB, RH, CI, FF
708	INC	WS/ESP	0	43	0	50	0	0	0	na	na		75	28	Moderate DOM on Existing ESP, Add RH, CB
709	INC	NONE	50	70	0	0	25	0	0	na	na		0	42	Add RH, CB, IWS
710	INC	QT/OS/C/S	0	44	75	0	75	63	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
711	INC	C/VS/AS	0	53	0	0	0	0	0	na	na		75	9	Add RH, CI, FF
712	INC	NONE	0	50	0	0	0	0	0	na	na		0	6	Add FF
713	INC	VS/PT	0	77	0	0	0	50	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CB, FF
714	INC	WS	0	18	75	0	0	0	0	na	na		50	9	Add RH, CI, FF
725	INC	WS/QT	0	30	0	0	20	0	0	na	na		0	12	Moderate DOM on Existing WS, Add FF
726	INC	QC/CS/DM/VS	75	0	75	75	0	48	0	na	na		0	54	Moderate DOM on Combustor, Add RH, CB, FF
727	INC	GC/C/FF	0	82	75	50	0	96	98	na	na		0	21	Add AB, FF
728	INC	QT/PT/VS	0	66	0	0	0	0	0	na	na		75	63	Moderate DOM on existing VS, Add RH, CB
784	INC	NONE	0	63	75	50	91	0	0	na	na		0	4	Add IWS
805	INC	QT/QS/VS/ES/PBS	0	72	0	0	10	20	85	na	na		75	98	Small DOM on Existing WS, Add AB, RH, CI, FF
806	INC	C/VS	79	65	77	0	0	74	75	na	na		0	25	Add AB, RH, CI, FF
807	INC	C/WHB/VQ/PT/HS/DM	0	47	43	24	0	15	0	na	na		50	54	Moderate DOM on Combustor, Add RH, CI, FF
808	INC	QT/PBS/ESP	0	22	75	75	0	0	2	na	na		0	55	Moderate DOM on Combustor, Add FF
809	INC	VS	0	0	99	97	0	0	96	na	na		75	25	Add AB, RH, CI, FF
810	INC	Q/VS/PBS	0	75	91	81	0	0	0	na	na		0	6	Add FF
824	INC	QT/VS/PT/DM	0	0	0	11	0	0	0	na	na		0	95	Small DOM on Existing VS
825	INC	CCS/QC/ESP	50	77	0	0	0	75	75	na	na		50	25	Add AB, RH, CI, FF
902	INC	QT/VS/PT	37	30	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
904	INC	?	50	0	75	0	75	17	0	na	na		0	93	Moderate DOM on Combustor, Add RH, CB, IWS
905	INC	QT/VS/AS/CS	0	50	100	38	0	0	0	na	na		0	6	Add FF
906	INC	QT/PT	0	79	50	75	38	0	0	na	na		75	3	Moderate DOM on Existing WS, Add RH, CB, FF
914	INC	?	0	0	0	75	58	75	0	na	na		95	39	Add AB, RH, CI, FF, PT
915	INC	QC/VS/C	75	74	91	83	0	66	92	na	na		56	25	Add AB, RH, CI, FF

TABLE 2-7. CHARACTERIZATION OF MODEL PLANTS FOR 6 PERCENT FLOOR

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
CK	1	None	1	315	*	S	Southdown	FF	102,042	147,000	
CK	1	None	1	317	*	L	Southdown	FF	422,190	370,000	
CK	1	None	3	320	*	L	Lafarge	FF	nr.	370,000	
CK	2	Moderate DOM on exisiting ESP	3	308	*	S	North Texas	ESP	162,599	147,000	
CK	2	Moderate DOM on exisiting ESP	1	208	*	L	Keystone	ESP	307,644	370,000	
CK	2	Moderate DOM on exisiting ESP	1	404		L	Ash Grove	ESP	265,721	370,000	85
CK	3	Add FF	2	200	*	S	Giant	FF	123,584	147,000	
CK	3	Add FF	1	207	*	S	Keystone	MC/ESP	90,681	147,000	
CK	3	Add FF	1	228	*	S	Ash Grove	ESP	148,537	147,000	
CK	3	Add FF	2	302	*	S	Lafarge	ESP	130,576	147,000	
CK	3	Add FF	4	318	*	S	Texas Industries	ESP	152,675	147,000	
CK	3	Add FF	1	321	*	S	Lafarge	ESP	59,542	147,000	
CK	3	Add FF	1	322	*	S	Lafarge	ESP	112,269	147,000	
CK	3	Add FF	1	401		S	Ash Grove	ESP	172,481	147,000	
CK	3	Add FF	1	405	*	S	Ash Grove	ESP	194,905	147,000	
CK	3	Add FF	1	406		S	Ash Grove	ESP	190,180	147,000	
CK	3	Add FF	1	204	*	L	Holnam	ESP	693,613	370,000	
CK	3	Add FF	1	205		L	Holnam	ESP	253,556	370,000	
CK	3	Add FF	1	206		L	Holnam	ESP	348,510	370,000	85
CK	3	Add FF	1	304	*	L	Lone Star	ESP	300,367	370,000	
CK	5	Add Q,CI,FF	1	323	*	S	Lafarge	FF	185,409	147,000	85
CK	5	Add Q,CI,FF	1	403		S	Ash Grove	ESP	184,877	147,000	
CK	7	Moderate DOM on existing FF	1	202	*	L	Heartland	FF	221,421	370,000	
CK	7	Moderate DOM on existing FF	1	303		L	Lone Star	MC/FF	408,681	370,000	
CK	18	Add Q, FF	2	201	*	S	Giant	FF	137,945	147,000	
CK	18	Add Q, FF	2	300	*	S	Essroc	ESP	164,692	147,000	
CK	18	Add Q, FF	2	305		S	Medusa	ESP	196,903	147,000	85
CK	18	Add Q, FF	1	335		S	Medusa	ESP	100,378	147,000	85
CK	18	Add Q, FF	1	203		L	Holnam	ESP	291,645	370,000	85
CK	18	Add Q, FF	1	309		L	River Cement	MC/ESP	665,839	370,000	
CK	18	Add Q, FF	1	319		L	Continental	ESP	344,250	370,000	85
CK	28	Moderate DOM on Combustor, Add CI, FF	1	301		S	Essroc	FF	185,409	147,000	
CK	34	Small DOM on Existing FF, Add Q, CB	1	306	*	L	National	MC/FF	280,868	370,000	
CK	35	Moderate DOM on Combustor, Add Q	1	316	*	L	Southdown	FF	nr.	370,000	
CK	36	Moderate DOM on Combustor, Add FF	1	402	*	S	Ash Grove	ESP	187,605	147,000	
INC	1	None	1	342	*	S	Upjohn	WHB/QC/S/VS/DM	5,640	3,900	
INC	1	None	1	340	*	M	Miles	WHB/ESP/WS	16,003	22,100	
INC	1	None	1	346	*	M	Department of Army	C/QC/VS/PT/DM	21,812	22,100	
INC	1	None	1	347	*	M	Department of Army	C/QC/VS/S/DM	10,795	22,100	
INC	1	None	1	354	*	M	Dow Chemical	QC/AS/VS/DM/IWS	27,383	22,100	
INC	1	None	1	221		L	Rollins	PT	51,114	60,800	
INC	4	Add IWS	1	704	*	S	Ashland	NONE	5,011	3,900	92
INC	4	Add IWS	1	784	*	S	Cook Composites	NONE	nr.	3,900	92
INC	4	Add IWS	1	324	*	M	Allied	?	12,120	22,100	92
INC	5	Add AB, IWS	1	914	*	M	Vertac Superfund	?	25,849	22,100	92
INC	6	Add FF	2	349	*	S	Radford Army Ammo Plant	QC/FF/QC/PT	5,653	3,900	
INC	6	Add FF	1	905	*	S	Velsicol Chemical	QT/VS/AS/CS	nr.	3,900	92
INC	6	Add FF	1	700	*	M	Dupont	SD/RJS/VS/WS	30,185	22,100	
INC	6	Add FF	1	701	*	M	Eli Lilly	VS/PT	9,208	22,100	92
INC	6	Add FF	1	702	*	M	Dupont	QT/S/C	nr.	22,100	

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	6	Add FF	2	714	*	M	Olnin Chemical	WS	19,185	22,100	92
INC	6	Add FF	1	810	*	M	Tennessee Eastman	Q/VS/PBS	28,434	22,100	
INC	6	Add FF	1	211	*	L	LWD	SS/PT/VS	43,596	60,800	
INC	6	Add FF	1	400	*	L	Marine Shale	SD/FF	179,333	60,800	
INC	6	Add FF	1	712	*	L	Nepera	NONE	65,256	60,800	
INC	7	Moderate DOM on Existing FF and WS	1	212	*	L	LWD	FF/S	44,610	60,800	
INC	8	Add CI	1	325	*	M	Aptus	SD/FF/WS/IWS	23,127	22,100	
INC	8	Add CI	1	222	*	L	WTI	WHB/SD/ESP/Q/PBS	93,718	60,800	
INC	8	Add CI	1	327		L	Aptus	SD/FF/WS/ESP	49,572	60,800	
INC	8	Add CI	1	338	*	L	Dupont	QC/FF/SS/C/HES/DM	65,598	60,800	
INC	9	Add RH, CB, FF	1	502	*	S	Pfizer	WHB/QC/PBC/VS/ES	6,647	3,900	
INC	9	Add RH, CI, FF	1	214	*	M	Rollins	IWS	34,655	22,100	
INC	9	Add RH, CI, FF	1	330	*	M	General Electric	QT/WS/DM	10,345	22,100	
INC	9	Add RH, CI, FF	1	344	*	M	Department of Army	QC/VS/PT/DM	13,886	22,100	
INC	9	Add RH, CI, FF	1	210	*	L	LWD	FF/S	96,107	60,800	
INC	9	Add RH, CI, FF	1	216	*	L	Rollins	HES/WS	40,002	60,800	
INC	9	Add RH, CI, FF	1	329	*	L	Dupont	PT/IWS	53,489	60,800	
INC	12	Moderate DOM on Existing WS, Add FF	1	725		S	Zeneca	WS/QT	1,489	3,900	
INC	12	Moderate DOM on Existing WS, Add FF	1	906	*	S	Monsanto	QT/PT	2,738	3,900	92
INC	17	Moderate DOM on Existing ESP	1	708	*	S	Burroughs Wellcome	WS/ESP	3,687	3,900	
INC	19	Moderate DOM on Existing VS	1	728	*	S	Eli Lilly	QT/PT/VS	5,819	3,900	
INC	19	Moderate DOM on Existing VS	1	357	*	M	Department of Energy	QC/VS/PT/IWS	20,778	22,100	
INC	19	Moderate DOM on Existing VS	1	358	*	M	Eli Lilly	QC/VS/C/CT/S/DM	14,406	22,100	
INC	19	Moderate DOM on Existing VS	1	706	*	M	Ciba-Geigy	QT/HS/C	nr.	22,100	
INC	19	Moderate DOM on Existing VS	1	902	*	M	Rocky Mountain Arsenal	QT/VS/PT	25,436	22,100	
INC	19	Moderate DOM on Existing VS	1	711	*	L	Chevron Chemical	C/VS/AS	52,907	60,800	
INC	20	Add Q, CB, PT	1	703	*	S	Aristech	WHB	1,873	3,900	92
INC	21	Add AB, FF	1	503	*	S	Lake City Army Ammo Plant	HTHE/LTHE/FF	4,747	3,900	
INC	21	Add AB, FF	1	727	*	S	Iowa Army Ammo Plant	GC/C/FF	3,043	3,900	92
INC	21	Add AB, FF	1	332	*	M	Thermalkem	WS	20,208	22,100	
INC	21	Add AB, FF	1	707	*	L	Dupont	QT/WS	58,120	60,800	
INC	21	Add AB, FF	1	809	*	L	Tennessee Eastman	VS	40,524	60,800	92
INC	22	Moderate DOM on Existing ESP, Add PT	1	353	*	M	Dow Chemical	QC/VS/DM/ESP	nr.	22,100	
INC	25	Add AB, RH, CI, FF	1	806	*	M	Amoco Oli	C/VS	20,641	22,100	92
INC	25	Add AB, RH, CI, FF	1	825	*	M	General Electric	CCS/QC/ESP	21,363	22,100	92
INC	25	Add AB, RH, CI, FF	1	915	*	M	Eastman Kodak	QC/VS/C	nr.	22,100	92
INC	33	Moderate DOM on Combustor, Add IWS	1	904	*	S	First Chemical	?	5,950	3,900	92
INC	33	Moderate DOM on Combustor, Add IWS	1	710	*	M	Dupont	QT/OS/C/S	nr.	22,100	92
INC	42	Add IWS, RH, CB	1	709	*	S	Cargill Chemical	NONE	3,123	3,900	
INC	53	Moderate DOM on Combustor, Add CB	1	351	*	S	Iowa Army Ammo Plant	GC/C/FF	3,457	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	726	*	S	Shell Oil	QC/CS/DM/VS	3,669	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	359	*	M	Atochem	WHB/FF/S	13,802	22,100	
INC	55	Moderate DOM on Combustor, Add FF	1	356	*	S	Dupont	QC/AS/FN/DM	5,100	3,900	
INC	55	Moderate DOM on Combustor, Add FF	1	713	*	S	Pfizer	VS/PT	2,625	3,900	
INC	55	Moderate DOM on Combustor, Add FF	1	350	*	M	Dupont	WHB/HE/FF	15,883	22,100	
INC	55	Moderate DOM on Combustor, Add FF	1	808	*	M	Dow Chemical	QT/PBS/ESP	35,720	22,100	
INC	55	Moderate DOM on Combustor, Add FF	1	331	*	L	Ross	PT/IWS	44,379	60,800	
INC	55	Moderate DOM on Combustor, Add FF	1	334	*	L	3M	WS/ESP/PT	40,599	60,800	
INC	55	Moderate DOM on Combustor, Add FF	1	600	*	L	Dow Chemical	WHB/QC/PT/IWS	43,839	60,800	
INC	61	Add RH, CB	1	339	*	S	Dupont	AT/PT/RJS/ESP	6,263	3,900	
INC	61	Add RH, CB	1	348	*	S	Occidental Chemcial	QC/AS/IWS	nr.	3,900	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	504	*	M	Chevron Chemical	VS/C	32,804	22,100	92

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	66	Moderate DOM on existing FF	1	333	*	L	Trade Waste	SD/FF	42,042	60,800	
INC	67	Moderate DOM on existing FF, Add CI	2	337	*	M	Olnin Chemical	WHB/DA/DI/FF	13,807	22,100	
INC	78	Moderate DOM on existing WS, Add AB, FF	1	229	*	S	Vulcan Materials	WHB/ACS/HCS/CS	1,171	3,900	
INC	81	Add AB	1	209	*	M	Laidlaw	WHB, FF/VQ/PT/DM	21,716	22,100	
INC	82	Moderate DOM on Existing Combustor and ESP	1	705	*	M	Ciba-Geigy	QT/VS/ESP/PT	36,116	22,100	
INC	83	Moderate DOM on VS, Small DOM on WS, Add AB	1	805	*	M	American Cyanamid	QT/QS/VS/ES/PBS	31,943	22,100	
INC	94	Moderate DOM on Combustor	1	341	*	M	Glaxo	DA/DI/FF/HEPA/CA	nr.	22,100	
INC	94	Moderate DOM on Combustor	1	500	*	L	Chevron	QC/VS/KOV/DM	49,822	60,800	
INC	95	Small DOM on Existing VS	1	824	*	S	Pennwalt	QT/VS/PT/DM	1,086	3,900	
INC	96	Moderate DOM on Existing Combustor and VS	1	807		M	Bros Lagoon Site	C/WHB/VQ/PT/HS/DM	34,109	22,100	
LWAK	1	None	1	224	*	M (Lo HCl)	Solite	FF	39,049	40,500	
LWAK	1	None	1	226	*	M (Lo HCl)	Solite	FF	nr.	40,500	
LWAK	1	None	2	307	*	M (Lo HCl)	Norlite	FF/VS	49,050	40,500	
LWAK	2	Add FF	1	314	*	M (Lo HCl)	Solite	FF	36,793	40,500	
LWAK	5	Add ST	1	223	*	M (Hi HCl)	Solite	FF	29,092	40,500	1570
LWAK	6	Add IWS	1	313	*	M (Hi HCl)	Solite	FF	36,793	40,500	1570
LWAK	16	Moderate DOM on Combustor, Add FF	1	310	*	M (Lo HCl)	Solite	FF	47,770	40,500	
LWAK	16	Moderate DOM on Combustor, Add FF	1	336	*	M (Lo HCl)	Solite	FF	30336	40500	875
LWAK	16	Moderate DOM on Combustor, Add FF	1	311	*	M (Hi HCl)	Solite	FF	51,627	40,500	
LWAK	16	Moderate DOM on Combustor, Add FF	1	312	*	M (Hi HCl)	Solite	FF	47,698	40,500	
LWAK	17	Add AB, Q, FF	1	227	*	M (Hi HCl)	Solite	FF	38,796	40,500	1570
LWAK	18	Moderate DOM on Combustor	1	225	*	M (Lo HCl)	Solite	FF	38,270	40,500	

* Facility has been assigned to model group based on assumed emission level. Facility did not report the necessary emission value, therefore one was assigned based on the distribution of reported values from other facilities.

** Reported Ratio is equal to the number of total units located at a site divided by the number of units for which information was reported.
Often a facility will report data for only one unit even when the facility has two or three units at the particular site, since the single reported unit can be considered as representative of the other nonreported units.

nr = not reported

TABLE 2-8. CHARACTERIZATION OF MODEL PLANTS FOR 6 PERCENT BTF PROPOSAL

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
CK	1	None	1	315	*	S	Southdown	FF	102,042	147,000	
CK	1	None	3	320	*	L	Lafarge	FF	nr.	370,000	
CK	2	Moderate DOM on exisiting ESP	1	208	*	L	Keystone	ESP	307,644	370,000	
CK	3	Add FF	1	207	*	S	Keystone	MC/ESP	90,681	147,000	
CK	3	Add FF	4	318	*	S	Texas Industries	ESP	152,675	147,000	
CK	3	Add FF	1	405	*	S	Ash Grove	ESP	194,905	147,000	
CK	3	Add FF	1	205		L	Holnam	ESP	253,556	370,000	
CK	4	Add CI,FF	2	302	*	S	Lafarge	ESP	130,576	147,000	
CK	4	Add CI,FF	1	321	*	S	Lafarge	ESP	59,542	147,000	
CK	4	Add CI,FF	1	401		S	Ash Grove	ESP	172,481	147,000	
CK	4	Add CI, FF	1	406		S	Ash Grove	ESP	190,180	147,000	
CK	4	Add CI,FF	1	303		L	Lone Star	MC/FF	408,681	370,000	
CK	5	Add Q,CI,FF	1	228	*	S	Ash Grove	ESP	148,537	147,000	
CK	5	Add Q,CI,FF	2	305		S	Medusa	ESP	196,903	147,000	85
CK	5	Add Q,CI,FF	3	308	*	S	North Texas	ESP	162,599	147,000	
CK	5	Add Q,CI,FF	1	323	*	S	Lafarge	FF	185,409	147,000	85
CK	5	Add Q,CI,FF	1	335		S	Medusa	ESP	100,378	147,000	85
CK	5	Add Q,CI,FF	1	202	*	L	Heartland	FF	221,421	370,000	
CK	5	Add Q,CI,FF	1	203		L	Holnam	ESP	291,645	370,000	85
CK	5	Add Q,CI,FF	1	304	*	L	Lone Star	ESP	300,367	370,000	
CK	5	Add Q,CI,FF	1	309		L	River Cement	MC/ESP	665,839	370,000	
CK	5	Add Q,CI,FF	1	319		L	Continental	ESP	344,250	370,000	85
CK	17	Add Q	1	317	*	L	Southdown	FF	422,190	370,000	
CK	18	Add Q, FF	2	200	*	S	Giant	FF	123,584	147,000	
CK	18	Add Q, FF	2	201	*	S	Giant	FF	137,945	147,000	
CK	18	Add Q, FF	2	300	*	S	Essroc	ESP	164,692	147,000	
CK	18	Add Q, FF	1	322	*	S	Lafarge	ESP	112,269	147,000	
CK	18	Add Q, FF	1	204	*	L	Holnam	ESP	693,613	370,000	
CK	18	Add Q, FF	1	206		L	Holnam	ESP	348,510	370,000	85
CK	20	Moderate DOM on existing ESP, Add Q	1	404		L	Ash Grove	ESP	265,721	370,000	85
CK	28	Moderate DOM on Combustor, Add CI, FF	1	301		S	Essroc	FF	185,409	147,000	
CK	33	Moderate DOM on Existing ESP, Add Q, Add CB	1	403		S	Ash Grove	ESP	184,877	147,000	
CK	34	Small DOM on Existing FF, Add Q, CB	1	306	*	L	National	MC/FF	280,868	370,000	
CK	37	Moderate DOM on Combustor, Add Q, CI, FF	1	402	*	S	Ash Grove	ESP	187,605	147,000	
CK	37	Moderate DOM on Combustor, Add Q, CI, FF	1	316	*	L	Southdown	FF	nr.	370,000	
INC	1	None	1	342	*	S	Upjohn	WHB/QC/S/VS/DM	5,640	3,900	
INC	1	None	1	346	*	M	Department of Army	C/QC/VS/PT/DM	21,812	22,100	
INC	1	None	1	347	*	M	Department of Army	C/QC/VS/S/DM	10,795	22,100	
INC	1	None	1	354	*	M	Dow Chemical	QC/AS/VS/DM/IWS	27,383	22,100	
INC	3	Moderate DOM on Existing WS, Add RH, CB, FF	1	906	*	S	Monsanto	QT/PT	2,738	3,900	92
INC	4	Add IWS	1	704	*	S	Ashland	NONE	5,011	3,900	92
INC	4	Add IWS	1	784	*	S	Cook Composites	NONE	nr.	3,900	92
INC	6	Add FF	2	349	*	S	Radford Army Ammo Plant	QC/FF/QC/PT	5,653	3,900	
INC	6	Add FF	1	905	*	S	Velsicol Chemical	QT/VS/AS/CS	nr.	3,900	92
INC	6	Add FF	1	700	*	M	Dupont	SD/RJS/VS/WS	30,185	22,100	
INC	6	Add FF	1	810	*	M	Tennessee Eastman	Q/VS/PBS	28,434	22,100	
INC	6	Add FF	1	211	*	L	LWD	SS/PT/VS	43,596	60,800	
INC	6	Add FF	1	712	*	L	Nepera	NONE	65,256	60,800	
INC	7	Moderate DOM on Existing FF and WS	1	212	*	L	LWD	FF/S	44,610	60,800	
INC	8	Add CI	1	325	*	M	Aptus	SD/FF/WS/IWS	23,127	22,100	

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	8	Add CI	1	340	*	M	Miles	WHB/ESP/WS	16,003	22,100	
INC	8	Add CI	1	222	*	L	WTI	WHB/SD/ESP/Q/PBS	93,718	60,800	
INC	8	Add CI	1	338	*	L	Dupont	QC/FF/SS/C/HES/DM	65,598	60,800	
INC	9	Add RH, CB, FF	1	502	*	S	Pfizer	WHB/QC/PBC/VS/ES	6,647	3,900	
INC	9	Add RH, CI, FF	1	214	*	M	Rollins	IWS	34,655	22,100	
INC	9	Add RH, CI, FF	1	330	*	M	General Electric	QT/WS/DM	10,345	22,100	
INC	9	Add RH, CI, FF	1	344	*	M	Department of Army	QC/VS/PT/DM	13,886	22,100	
INC	9	Add RH, CI, FF	1	358	*	M	Eli Lilly	QC/VS/C/CT/S/DM	14,406	22,100	
INC	9	Add RH, CI, FF	1	701	*	M	Eli Lilly	VS/PT	9,208	22,100	92
INC	9	Add RH, CI, FF	1	702	*	M	Dupont	QT/S/C	nr.	22,100	
INC	9	Add RH, CI, FF	2	714	*	M	Olnin Chemical	WS	19,185	22,100	92
INC	9	Add RH, CI, FF	1	902	*	M	Rocky Mountain Arsenal	QT/VS/PT	25,436	22,100	
INC	9	Add RH, CI, FF	1	210	*	L	LWD	FF/S	96,107	60,800	
INC	9	Add RH, CI, FF	1	216	*	L	Rollins	HES/WS	40,002	60,800	
INC	9	Add RH, CI, FF	1	221		L	Rollins	PT	51,114	60,800	
INC	9	Add RH, CI, FF	1	329	*	L	Dupont	PT/IWS	53,489	60,800	
INC	9	Add RH, CI, FF	1	711	*	L	Chevron Chemical	C/VS/AS	52,907	60,800	
INC	12	Moderate DOM on Existing WS, Add FF	1	725		S	Zeneca	WS/QT	1,489	3,900	
INC	13	Add PT, RH, CI, FF	1	324	*	M	Allied	?	12,120	22,100	92
INC	19	Moderate DOM on Existing VS	1	357	*	M	Department of Energy	QC/VS/PT/IWS	20,778	22,100	
INC	19	Moderate DOM on Existing VS	1	706	*	M	Ciba-Geigy	QT/HS/C	nr.	22,100	
INC	20	Add Q, CB, PT	1	703	*	S	Aristech	WHB	1,873	3,900	92
INC	21	Add AB, FF	1	727	*	S	Iowa Army Ammo Plant	GC/C/FF	3,043	3,900	92
INC	22	Moderate DOM on Existing ESP, Add PT	1	353	*	M	Dow Chemical	QC/VS/DM/ESP	nr.	22,100	
INC	25	Add AB, RH, CI, FF	1	332	*	M	Thermalkem	WS	20,208	22,100	
INC	25	Add AB, RH, CI, FF	1	806	*	M	Amoco Oli	C/VS	20,641	22,100	92
INC	25	Add AB, RH, CI, FF	1	825	*	M	General Electric	CCS/QC/ESP	21,363	22,100	92
INC	25	Add AB, RH, CI, FF	1	915	*	M	Eastman Kodak	QC/VS/C	nr.	22,100	92
INC	25	Add AB, RH, CI, FF	1	707	*	L	Dupont	QT/WS	58,120	60,800	
INC	25	Add AB, RH, CI, FF	1	809	*	L	Tennessee Eastman	VS	40,524	60,800	92
INC	28	Moderate DOM on Existing ESP, Add RH, CB	1	708	*	S	Burroughs Wellcome	WS/ESP	3,687	3,900	
INC	33	Moderate DOM on Combustor, Add IWS	1	710	*	M	Dupont	QT/OS/C/S	nr.	22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	914	*	M	Vertac Superfund	?	25,849	22,100	92
INC	42	Add RH, CB, IWS	1	709	*	S	Cargill Chemical	NONE	3,123	3,900	
INC	44	Add AB, CI	1	209	*	M	Laidlaw	WHB, FF/VQ/PT/DM	21,716	22,100	
INC	49	Add CI, FF	1	400	*	L	Marine Shale	SD/FF	179,333	60,800	
INC	53	Moderate DOM on Combustor, Add CB	1	351	*	S	Iowa Army Ammo Plant	GC/C/FF	3,457	3,900	
INC	53	Moderate DOM on Combustor, Add CI	1	341	*	M	Glaxo	DA/DI/FF/HEPA/CA	nr.	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	356	*	S	Dupont	QC/AS/FN/DM	5,100	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	713	*	S	Pfizer	VS/PT	2,625	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	726	*	S	Shell Oil	QC/CS/DM/VS	3,669	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	359	*	M	Atochem	WHB/FF/S	13,802	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	705	*	M	Ciba-Geigy	QT/VS/ESP/PT	36,116	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	807		M	Bros Lagoon Site	C/WHB/VQ/PT/HS/DM	34,109	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	331	*	L	Ross	PT/IWS	44,379	60,800	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	334	*	L	3M	WS/ESP/PT	40,599	60,800	
INC	55	Moderate DOM on Combustor, Add FF	1	350	*	M	Dupont	WHB/HE/FF	15,883	22,100	
INC	55	Moderate DOM on Combustor, Add FF	1	808	*	M	Dow Chemical	QT/PBS/ESP	35,720	22,100	
INC	55	Moderate DOM on Combustor, Add FF	1	600	*	L	Dow Chemical	WHB/QC/PT/IWS	43,839	60,800	
INC	61	Add RH, CB	1	339	*	S	Dupont	AT/PT/RJS/ESP	6,263	3,900	
INC	61	Add RH, CB	1	348	*	S	Occidental Chemcial	QC/AS/IWS	nr.	3,900	
INC	61	Add RH, CB	1	327		L	Aptus	SD/FF/WS/ESP	49,572	60,800	

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	63	Moderate DOM on existing VS, Add RH, CB	1	728	*	S	Eli Lilly	QT/PT/VS	5,819	3,900	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	504	*	M	Chevron Chemical	VS/C	32,804	22,100	92
INC	67	Moderate DOM on existing FF, Add CI	2	337	*	M	Olnin Chemical	WHB/DA/DI/FF	13,807	22,100	
INC	67	Moderate DOM on existing FF, Add CI	1	333	*	L	Trade Waste	SD/FF	42,042	60,800	
INC	70	Moderate DOM on Existing WS, Add AB, RH, CB, FF	1	229	*	S	Vulcan Materials	WHB/ACS/HCS/CS	1,171	3,900	
INC	93	Moderate DOM on Combustor, Add RH, CB, IWS	1	904	*	S	First Chemical	?	5,950	3,900	92
INC	94	Moderate DOM on Combustor	1	500	*	L	Chevron	QC/VS/KOV/DM	49,822	60,800	
INC	95	Small DOM on Existing VS	1	824	*	S	Pennwalt	QT/VS/PT/DM	1,086	3,900	
INC	97	Add AB, CB, FF	1	503	*	S	Lake City Army Ammo Plant	HTHE/LTHE/FF	4,747	3,900	
INC	98	Small DOM on Existing WS, Add AB, RH, CI, FF	1	805	*	M	American Cyanamid	QT/QS/VS/ES/PBS	31,943	22,100	
LWAK	1	None	1	224	*	M (Lo HCl)	Solite	FF	39,049	40,500	
LWAK	3	Add CI, FF	2	307	*	M (Lo HCl)	Norlite	FF/VS	49,050	40,500	
LWAK	4	Add CI, FF, ST	1	223	*	M (Hi HCl)	Solite	FF	29,092	40,500	1570
LWAK	5	Add ST	1	226	*	M (Lo HCl)	Solite	FF	nr.	40,500	
LWAK	6	Add IWS	1	314	*	M (Lo HCl)	Solite	FF	36,793	40,500	
LWAK	6	Add IWS	1	313	*	M (Hi HCl)	Solite	FF	36,793	40,500	1570
LWAK	13	Add AB, WQ, IWS	1	227	*	M (Hi HCl)	Solite	FF	38,796	40,500	1570
LWAK	19	Moderate DOM on Combustor, Add ST	1	225	*	M (Lo HCl)	Solite	FF	38270	40500	
LWAK	20	Moderate DOM on Combustor, Add IWS	1	310	*	M (Lo HCl)	Solite	FF	47,770	40,500	
LWAK	20	Moderate DOM on Combustor, Add IWS	1	336	*	M (Lo HCl)	Solite	FF	30,336	40,500	875
LWAK	20	Moderate DOM on Combustor, Add IWS	1	311	*	M (Hi HCl)	Solite	FF	51,627	40,500	
LWAK	20	Moderate DOM on Combustor, Add IWS	1	312	*	M (Hi HCl)	Solite	FF	47,698	40,500	

* Facility has been assigned to model group based on assumed emission level. Facility did not report the necessary emission value, therefore one was assigned based on the distribution of reported values from other facilities.

** Reported Ratio is equal to the number of total units located at a site divided by the number of units for which information was reported.
Often a facility will report data for only one unit even when the facility has two or three units at the particular site, since the single reported unit can be considered as representative of the other nonreported units.

nr = not reported

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	1	S	None	1	$0K	$0K	$0K
CK	1	L	None	4	$0K	$0K	$0K
CK	2	S	Moderate DOM on exisiting ESP	3	$1,757K	$149K	$380K
CK	2	L	Moderate DOM on exisiting ESP	2	$3,136K	$287K	$699K
CK	3	S	Add FF	15	$2,141K	$355K	$596K
CK	3	L	Add FF	4	$5,072K	$754K	$1,325K
CK	5	S	Add Q,CI,FF	2	$3,144K	$806K	$1,180K
CK	7	L	Moderate DOM on existing FF	2	$315K	$104K	$115K
CK	18	S	Add Q, FF	7	$2,673K	$443K	$754K
CK	18	L	Add Q, FF	3	$5,984K	$909K	$1,601K
CK	28	S	Moderate DOM on Combustor, Add CI, FF	1	$2,832K	$718K	$1,058K
CK	34	L	Small DOM on Existing FF, Add Q, CB	1	$16,657K	$1,744K	$3,936K
CK	35	L	Moderate DOM on Combustor, Add Q	1	$1,179K	$155K	$319K
CK	36	S	Moderate DOM on Combustor, Add FF	1	$2,361K	$355K	$632K
INC	1	S	None	1	$0K	$0K	$0K
INC	1	M	None	4	$0K	$0K	$0K
INC	1	L	None	1	$0K	$0K	$0K
INC	4	S	Add IWS	2	$215K	$97K	$132K
INC	4	M	Add IWS	1	$680K	$144K	$254K
INC	5	M	Add AB, IWS	1	$1,097K	$677K	$843K
INC	6	S	Add FF	3	$82K	$89K	$98K
INC	6	M	Add FF	6	$295K	$121K	$154K
INC	6	L	Add FF	3	$943K	$198K	$305K
INC	7	L	Moderate DOM on Existing FF and WS	1	$247K	$58K	$111K
INC	8	M	Add CI	1	$397K	$147K	$199K
INC	8	L	Add CI	3	$425K	$224K	$280K
INC	9	S	Add RH, CB, FF	1	$575K	$241K	$315K
INC	9	M	Add RH, CI, FF	3	$932K	$391K	$508K
INC	9	L	Add RH, CI, FF	3	$1,681K	$672K	$876K
INC	12	S	Moderate DOM on Existing WS, Add FF	2	$95K	$92K	$104K
INC	17	S	Moderate DOM on Existing ESP	1	$180K	$27K	$50K
INC	19	S	Moderate DOM on Existing VS	1	$11K	$6K	$10K
INC	19	M	Moderate DOM on Existing VS	4	$46K	$35K	$47K
INC	19	L	Moderate DOM on Existing VS	1	$105K	$97K	$127K
INC	20	S	Add Q, CB, PT	1	$619K	$222K	$305K
INC	21	S	Add AB, FF	2	$347K	$282K	$326K
INC	21	M	Add AB, FF	1	$712K	$654K	$742K
INC	21	L	Add AB, FF	2	$1,486K	$1,473K	$1,651K
INC	22	M	Moderate DOM on Existing ESP, Add PT	1	$740K	$174K	$277K
INC	25	M	Add AB, RH, CI, FF	3	$1,349K	$924K	$1,096K
INC	33	S	Moderate DOM on Combustor, Add IWS	1	$331K	$97K	$151K
INC	33	M	Moderate DOM on Combustor, Add IWS	1	$834K	$144K	$280K
INC	42	S	Add RH, CB, IWS	1	$708K	$249K	$348K
INC	53	S	Moderate DOM on Combustor, Add CB	1	$457K	$91K	$155K
INC	54	S	Moderate DOM on Combustor, Add RH, CB, FF	1	$691K	$241K	$334K
INC	54	M	Moderate DOM on Combustor, Add RH, CI, FF	1	$1,087K	$391K	$533K
INC	55	S	Moderate DOM on Combustor, Add FF	2	$198K	$89K	$117K
INC	55	M	Moderate DOM on Combustor, Add FF	2	$450K	$121K	$179K
INC	55	L	Moderate DOM on Combustor, Add FF	3	$1,129K	$198K	$335K
INC	61	S	Add RH, CB	2	$493K	$152K	$216K
INC	63	M	Moderate DOM on existing VS, Add RH, CB	1	$1,625K	$334K	$554K
INC	66	L	Moderate DOM on existing FF	1	$52K	$17K	$19K
INC	67	M	Moderate DOM on existing FF, Add CI	2	$415K	$153K	$206K
INC	78	S	Moderate DOM on existing WS, Add AB, FF	1	$360K	$284K	$332K
INC	81	M	Add AB	1	$417K	$534K	$588K
INC	82	M	Moderate DOM on Existing Combustor and ESP	1	$432K	$48K	$110K
INC	83	M	Moderate DOM on VS, Small DOM on WS, Add AB	1	$502K	$581K	$656K
INC	94	M	Moderate DOM on Combustor	1	$154K	$K	$25K
INC	94	L	Moderate DOM on Combustor	1	$186K	$K	$30K
INC	95	S	Small DOM on Existing VS	1	$5K	$7K	$8K

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
INC	96	M	Moderate DOM on Existing Combustor and VS	1	$200K	$35K	$72K
LWAK	1	M (Lo HCl)	None	4	$0K	$0K	$0K
LWAK	2	M (Lo HCl)	Add FF	1	$661K	$161K	$236K
LWAK	5	M (Hi HCl)	Add ST	1	$1,229K	$330K	$530K
LWAK	6	M (Hi HCl)	Add IWS	1	$1,016K	$682K	$847K
LWAK	16	M (Lo HCl)	Moderate DOM on Combustor, Add FF	2	$833K	$161K	$264K
LWAK	16	M (Hi HCl)	Moderate DOM on Combustor, Add FF	2	$833K	$161K	$264K
LWAK	17	M (Hi HCl)	Add AB, Q, FF	1	$1,470K	$1,425K	$1,606K
LWAK	18	M (Lo HCl)	Moderate DOM on Combustor	1	$172K	$0K	$28K

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	1	S	None	1	$0K	$0K	$0K
CK	1	L	None	3	$0K	$0K	$0K
CK	2	L	Moderate DOM on exisiting ESP	1	$3,136K	$287K	$699K
CK	3	S	Add FF	6	$2,141K	$355K	$596K
CK	3	L	Add FF	1	$5,072K	$754K	$1,325K
CK	4	S	Add CI,FF	5	$2,611K	$718K	$1,022K
CK	4	L	Add CI,FF	1	$5,658K	$1,490K	$2,139K
CK	5	S	Add Q,CI,FF	8	$3,144K	$806K	$1,180K
CK	5	L	Add Q,CI,FF	5	$6,570K	$1,645K	$2,414K
CK	17	L	Add Q	1	$912K	$155K	$275K
CK	18	S	Add Q, FF	7	$2,673K	$443K	$754K
CK	18	L	Add Q, FF	2	$5,984K	$909K	$1,601K
CK	20	L	Moderate DOM on existing ESP, Add Q	1	$4,048K	$442K	$974K
CK	28	S	Moderate DOM on Combustor, Add CI, FF	1	$2,832K	$718K	$1,058K
CK	33	S	Moderate DOM on Existing ESP, Add Q, CB	1	$9,162K	$924K	$2,129K
CK	34	L	Small DOM on Existing FF, Add Q, CB	1	$16,657K	$1,744K	$3,936K
CK	37	S	Moderate DOM on Combustor, Add Q, CI, FF	1	$3,365K	$806K	$1,216K
CK	37	L	Moderate DOM on Combustor, Add Q, CI, FF	1	$6,837K	$1,645K	$2,457K
INC	1	S	None	1	$0K	$0K	$0K
INC	1	M	None	3	$0K	$0K	$0K
INC	3	S	Moderate DOM on Existing WS, Add RH, CB, FF	1	$588K	$243K	$321K
INC	4	S	Add IWS	2	$215K	$97K	$132K
INC	6	S	Add FF	3	$82K	$89K	$98K
INC	6	M	Add FF	2	$295K	$121K	$154K
INC	6	L	Add FF	2	$943K	$198K	$305K
INC	7	L	Moderate DOM on Existing FF and WS	1	$247K	$58K	$111K
INC	8	M	Add CI	2	$397K	$147K	$199K
INC	8	L	Add CI	2	$425K	$224K	$280K
INC	9	S	Add RH, CB, FF	1	$575K	$241K	$315K
INC	9	M	Add RH, CI, FF	9	$932K	$391K	$508K
INC	9	L	Add RH, CI, FF	5	$1,681K	$672K	$876K
INC	12	S	Moderate DOM on Existing WS, Add FF	1	$95K	$92K	$104K
INC	13	M	Add PT, RH, CI, FF	1	$1,137K	$515K	$665K
INC	19	M	Moderate DOM on Existing VS	2	$46K	$35K	$47K
INC	20	S	Add Q, CB, PT	1	$619K	$222K	$305K
INC	21	S	Add AB, FF	1	$347K	$282K	$326K
INC	22	M	Moderate DOM on Existing ESP, Add PT	1	$740K	$174K	$277K
INC	25	M	Add AB, RH, CI, FF	4	$1,349K	$924K	$1,096K
INC	25	L	Add AB, RH, CI, FF	2	$2,223K	$1,947K	$2,223K
INC	28	S	Moderate DOM on Existing ESP, Add RH, CB	1	$673K	$178K	$267K
INC	33	M	Moderate DOM on Combustor, Add IWS	1	$834K	$144K	$280K
INC	39	M	Add AB, RH, CI, FF, PT	1	$1,554K	$1,048K	$1,253K
INC	42	S	Add RH, CB, IWS	1	$708K	$249K	$348K
INC	44	M	Add AB, CI	1	$813K	$681K	$788K
INC	49	L	Add CI, FF	1	$1,368K	$422K	$584K
INC	53	S	Moderate DOM on Combustor, Add CB	1	$457K	$91K	$155K
INC	53	M	Moderate DOM on Combustor, Add CI	1	$551K	$147K	$225K
INC	54	S	Moderate DOM on Combustor, Add RH, CB, FF	3	$691K	$241K	$334K
INC	54	M	Moderate DOM on Combustor, Add RH, CI, FF	3	$1,087K	$391K	$533K
INC	54	L	Moderate DOM on Combustor, Add RH, CI, FF	2	$1,866K	$672K	$906K
INC	55	M	Moderate DOM on Combustor, Add FF	2	$450K	$121K	$179K
INC	55	L	Moderate DOM on Combustor, Add FF	1	$1,129K	$198K	$335K
INC	61	S	Add RH, CB	2	$493K	$152K	$216K
INC	61	L	Add RH, CB	1	$3,687K	$603K	$1,088K
INC	63	S	Moderate DOM on existing VS, Add RH, CB	1	$504K	$158K	$226K
INC	63	M	Moderate DOM on existing VS, Add RH, CB	1	$1,625K	$334K	$554K
INC	67	M	Moderate DOM on existing FF, Add CI	2	$415K	$153K	$206K
INC	67	L	Moderate DOM on existing FF, Add CI	1	$476K	$241K	$299K
INC	70	S	Moderate DOM on Existing WS, Add AB, RH, CB, FF	1	$853K	$436K	$548K
INC	93	S	Moderate DOM on Combustor, Add IWS, RH, CB	1	$824K	$249K	$367K
INC	94	L	Moderate DOM on Combustor	1	$186K	$K	$30K
INC	95	S	Small DOM on Existing VS	1	$5K	$7K	$8K
INC	97	S	Add AB, CB, FF	1	$687K	$373K	$462K
INC	98	M	Small DOM on Existing WS, Add AB, RH, CI, FF	1	$1,389K	$937K	$1,116K
LWAK	1	M (Lo HCl)	None	1	$0K	$0K	$0K
LWAK	3	M (Lo HCl)	Add CI, FF	2	$1,074K	$350K	$480K
LWAK	4	M (Hi HCl)	Add CI, FF, ST	1	$2,302K	$680K	$1,009K
LWAK	5	M (Lo HCl)	Add ST	1	$1,229K	$261K	$461K
LWAK	6	M (Lo HCl)	Add IWS	1	$1,016K	$449K	$615K
LWAK	6	M (Hi HCl)	Add IWS	1	$1,016K	$682K	$847K
LWAK	13	M (Hi HCl)	Add AB, WQ, IWS	1	$1,825K	$1,946K	$2,218K
LWAK	19	M (Lo HCl)	Moderate DOM on Combustor, Add ST	1	$1,401K	$261K	$489K
LWAK	20	M (Lo HCl)	Moderate DOM on Combustor, Add IWS	2	$1,188K	$449K	$643K
LWAK	20	M (Hi HCl)	Moderate DOM on Combustor, Add IWS	2	$1,188K	$682K	$875K

TABLE 2-11. COST MODELS

Model No.	Description	Reference
1M	Installation of an ESP	OAQPS Control Cost Manual
2M	Installation of Water Quench Tower and DOM small for ESP	OAQPS Cost Model
3M	DOM moderate for ESP (additional ESP fields)	OAQPS Cost Model and Cost Model 1M
4M	Installation of a FF	OAQPS Control Cost Manual
6M	Installation of a carbon bed	EER vendor quote
8M	Retrofit of carbon injection to a facility with existing dry injection system or spray dryer	Cost Model 9M
9M	Installation of carbon injection system	OAQPS Cost Model
10M	Installation of a spray dryer	OAQPS Cost Model
11M	Installation of a venturi scrubber	EER
12M	Installation of spray tower scrubber	OAQPS Cost Model
13M	Installation of sorbent injection system	Cost Model 9M
15M	Installation of IWS	EER
16M	Installation of packed tower scrubber	OAQPS Control Cost Manual
17M	Installation of an afterburner	ORD AB model
18M	Installation of a reheat burner	Cost Model 17M

TABLE 2-12. D/O/M EQUATIONS

Equation No	Description	Reference
1E	DOM small for ESP	OAQPS Cost Model
2E	DOM moderate for ESP	OAQPS Cost Model
3E	DOM small for FF	EER
4E	DOM moderate for FF	EER
5E	DOM small for low energy wet scrubber	EER
7E	DOM moderate for High Energy Wet Scrubber	EER
12E	DOM moderate for low energy wet scrubber	EER
13E	DOM moderate for spray dryer/ Sorbent Injection	EER
14E	DOM moderate for combustor	EER

SECTION 3

NATIONAL EMISSIONS ESTIMATES AND ENGINEERING COST PER HAP

For each HAP, EPA makes the determination of whether to set the emission limit at the floor or to go beyond the floor based on the cost effectiveness in terms of dollars per pound of HAP removed or dollars per life saved. These calculations are performed as a part of the regulatory impact analysis. The national emissions estimates and national engineering costs per HAP are two of the required inputs for calculation of the cost effectiveness. A description of these parameters and the procedure for their calculation is provided below.

As described in section 2.2, the standards for some HAPs have changed since this analysis was performed. These national emissions estimates and engineering cost per HAP calculations have been performed for the initial 6 Percent Floor. The standards and design levels utilized in this analysis are shown in Table 2-2 along with the final proposed 6 Percent Floor standards and design levels. An analysis of the impact on engineering costs of the change in proposed design levels is presented in section 2-8.

3.1 NATIONAL EMISSIONS ESTIMATES

Two types of estimates of national emissions were calculated. The first is the total current HAP emissions (in lb/year) from all facilities nationwide based on measured emissions for facilities in the OSW database. The second set of estimates is of the HAP emissions from all facilities if all facilities complied with the emission limits set for the initial 6 percent Floor or 6 Percent BTF Proposal respectively. The baseline emissions estimate and emissions estimate for the 6 Percent Floor and 6 Percent BTF Proposal are presented in Table 3-1. Comparison of these estimates provides the incremental benefits (in pounds removed per year) of going from the existing baseline to the floor, going from the existing baseline to the beyond-the-floor proposal, and going from the floor to the beyond-the-floor proposal.

3.1.1 Baseline Emissions Estimate

The baseline national emissions estimate is a two step calculation. The first step is the estimation of emissions from all facilities represented in the OSW database. The second step is the calculation of the total emissions nationwide through determination of the number of facilities that are not represented in the OSW database.

3.1.1.1 Baseline Estimate for Facilities Represented in the OSW Database

The database contains stack gas flow rates and emission measurements (some facilities did not report measurements for all HAPs) from 47 cement kilns, 78 incinerators, and 12 light weight aggregate kilns. This includes HWC units which have been tested directly and units which have not been tested but are represented by other tested similar units at the same facility. Emissions

from the units listed above were calculated using the following procedure.

A1) Average hourly emissions and stack gas flow rates (lb/hr) are calculated for all HAPs for each HWC unit with emission measurements in the OSW database. For facilities with tested and untested similar units, to calculate the total emission per facility for each HAP, the emissions are summed for all units assuming that the untested units have the same emission rate as the similar tested units.

A2) The average hourly emissions and stack gas flow rates are totaled for each system type and HAP. Emission factors (EFs) are calculated for each category as the ratio of the total emissions to the total stack gas flow rate as illustrated in the following equation:

[--- Unable To Translate Graphic ---]

A3) For some units the emissions rate is not measured or not reported. Emissions of non-reported (or non-measured) HAPs are calculated for units in the OSW database (with reported stack gas flow rates) using the emission factors (from Step A2) and each device's average stack gas flow rate.

A4) Total emissions from all HWC units represented in the OSW database by system type and substance are calculated by summing the total emission rates from Steps A1 and A3 or by multiplying the emission factor from Step A2 by the summation of all facility flow rates @ 7% O_2 .

3.1.1.2 Estimate for Facilities Not Represented in the OSW Database

Based on an EPA "List of Hazardous Waste Incinerators" (November, 1994) it was determined that there are 121 incinerator facilities in operation in the United States that are not represented in the OSW database. From the OSW database it was determined that on average facilities have 1.2 incinerator units. Using this average, the number of incinerator units which are not represented in the OSW database is 145. In addition, two incinerators and one LWA kiln are represented in the database but no stack flow rates are available to estimate emissions of HAPs. Emissions from the sources listed above were determined using the following procedure.

B1) Total emissions by system type and substance from Step A4 above are normalized by the total number of corresponding units to provide an average emission per device.

B2) Total emissions from units not represented in the OSW database are calculated by multiplying the average incinerator emissions by 147 and the average LWAK emissions by 1.

B3) Total hourly emissions by system type and HAP from all units, including those represented and those not represented in the OSW database, are calculated by summing the results from Steps A4 and B2.

3.1.1.3 Total Yearly Emissions

Based on the assumption that facilities operate 24 hours a day and 330 days a year, or 7920 hrs/year, total yearly emissions by HAP and source type are calculated by multiplying the total hourly emissions from Step B3 by 7920 hrs/year.

3.2 FLOOR AND BTF OPTION EMISSIONS ESTIMATES

The methodology used to calculate the national yearly emissions for the 6 Percent Floor and 6 Percent BTF Proposal is similar to the described methodology for calculating baseline emission except that projected emissions at the standard are used for those facilities which have actual emissions exceeding the standard, and actual emissions are used for those facilities in compliance with the standard. The specific procedure is as follows:

C1) Using the projected or actual emissions as explained above, average hourly emissions and stack gas flow rates (lb/hr) are calculated for all HAPs for each HWC unit with emission measurements in the OSW database. For facilities with tested and untested similar units, to calculate the total emission per facility for each HAP, the emissions are summed for all units assuming that the untested units have the same emission rate as the similar tested units.

C2) The average hourly emissions and stack gas flow rates are totaled for each system type and HAP. Emission factors (EFs) are calculated for each category as the ratio of the total emissions to the total stack gas flow rate as illustrated in the following equation:

[--- Unable To Translate Graphic ---]

Where, EF is the emission factor per source type (cement kiln, LWA kiln, or incinerator) and HAP; and the *Emissions Standard* is the standard for the regulatory option under consideration (in this case, the 6% Floor or the 6% BTF Proposal).

C3) Emissions of non-reported (or non-measured) HAPs are calculated for units in the OSW database (with reported stack gas flow rates) using the emission factors (from Step C2) and each device's average stack gas flow rate.

C4) Total emissions from all HWC units represented in the OSW database by system type and substance are calculated by summing the total emission rates from Steps C1 and C3 or by multiplying the emission factor from Step C2 by the summation of all facility flow rates @ 7% O_2 .

Estimation of emissions for facilities not represented in the OSW database is presented below, following the same procedure as outlined above in Steps B1-B3.

D1) Total emissions by system type and substance from Step C4 above are normalized by the total number of corresponding units to provide an average emission per device.

D2) Total emissions from units not represented in the OSW database are calculated by

multiplying the average incinerator emissions by 147 and the average LWAK emissions by 1.

D3) Total hourly emissions by system type and HAP from all units, including those represented and those not represented in the OSW database, are calculated by summing the results from Steps C4 and D2.

And finally, total yearly emissions by HAP and source type are calculated by multiplying the total hourly emissions from Step D3 by 7920 hrs/year.

3.3 CHARACTERISTIC EMISSIONS ESTIMATES

In addition to national emissions estimates, characteristic risk estimates are required in order to estimate risks from typical facilities. Estimates for various HAPs of the 50th and 90th percentile emissions concentrations were made for the different HWC source categories. These characteristic emissions estimates served as inputs to EPA risk assessment model plants to allow estimation of local and global risks posed by current emissions; and the consequent risk reduction provided by floor and beyond-the-floor standards. 50th and 90th percentiles are provided in Table 3-2 for metals, dioxin/furans, and HCl/chlorine. The percentiles were generated assuming the emissions data have a log normal distribution.

3.4 NATIONAL ENGINEERING COST PER HAP

The national engineering cost per HAP is a breakdown by HAP of the total engineering cost for a particular regulatory option. Table 3-5 contains the national engineering cost per HAP for the 6 percent Floor and 6 Percent BTF Proposal. The procedure for calculating the total engineering cost per HAP per source category for all sources nationwide is described below.

E1) For each unit for each HAP, the percentage reduction in emissions required to meet the 6 Percent Floor and 6 Percent BTF proposal emission limit is calculated as previously presented in Tables 2-3 and 2-4.

E2) The control devices previously presented in Tables 2-5 and 2-6 are attributed to specific HAPs. Some control devices are used to control more than one HAP. For example, carbon injection can control both Hg and dioxins and a fabric filter can be utilized with carbon injection as well as for control of PM, LVM or SVM.

E3) For each HWC unit the cost of each control device is attributed to the specific HAPs that the device controls. The fraction of the cost of a control device that is attributed to a specific HAP is calculated by dividing the required emissions reduction for the HAP by the sum of all of the required emission reductions for all HAPs controlled by the device. Tables 3-3 and 3-4 show the fraction of the cost of each device that is attributed to each of the HAPs controlled by that device for the 6 Percent Floor and 6 Percent BTF Proposal respectively. These tables contain a line for each control device assigned to each HWC unit. There are two columns for each HAP on these tables. The model % reduction column shows the percent emissions reduction required for the HAP to meet the emission limit. The model fraction column gives the fraction of the cost of the device that is attributed to that

specific HAP. This fraction is multiplied by the cost of the control device to determine the cost attributed to the specified HAP.

E4) The cost per HAP is summed for all the units within each HWC source category. This includes only the units that are represented in the OSW database.

E5) The cost per HWC source category is divided by the total number of units in that source category to obtain the average cost per HAP per unit in that source category.

E6) As described above in section 3.1.1.2, there are 145 incinerator units that are not represented in the OSW database. All cement kilns and LWA Kilns are represented in the database. These 145 incinerators units are added to the 80 incinerator units included in the database to get the total number of incinerator units in the nation.

The cost per HAP per unit is multiplied by the total number of units in each source category nationwide to obtain the total cost per HAP per source category.

TABLE 3-1. NATIONAL EMISSIONS ESTIMATE FOR THE 6 PERCENT FLOOR AND 6 PERCENT BTF PROPOSAL.

System Type	Substance	National Emissions, lbs/year		
		Baseline	6% Floor	6% BTF Proposal
CEMENT KILN	Particulate	7.90E+06	3.50E+06	3.50E+06
CEMENT KILN	LVM	6.32E+03	3.25E+03	3.25E+03
CEMENT KILN	SVM	5.76E+04	3.43E+03	3.43E+03
CEMENT KILN	Mercury	1.16E+04	5.41E+03	2.86E+03
CEMENT KILN	TEQ	1.76E+00	2.28E-01	2.05E-02
CEMENT KILN	Total Cl	4.98E+06	4.98E+06	4.98E+06
CEMENT KILN	CO	1.32E+08	na	na
CEMENT KILN	CO(MHRA)	1.60E+08	na	na
CEMENT KILN	THC	8.83E+06	2.34E+06	2.34E+06
CEMENT KILN	THC(MHRA)	1.13E+07	2.20E+06	2.20E+06
INCINERATOR	Particulate	4.10E+06	1.58E+06	1.58E+06
INCINERATOR	LVM	5.64E+04	4.82E+03	4.82E+03
INCINERATOR	SVM	1.08E+05	4.71E+03	4.71E+03
INCINERATOR	Mercury	9.48E+03	1.99E+03	1.31E+03
INCINERATOR	TEQ	1.74E-01	1.58E-01	8.77E-03
INCINERATOR	Total Cl	3.53E+06	2.31E+06	2.31E+06
INCINERATOR	CO	2.90E+07	1.81E+06	1.81E+06
INCINERATOR	CO(MHRA)	1.19E+07	3.99E+06	3.99E+06
INCINERATOR	THC	4.93E+05	3.93E+05	3.93E+05
INCINERATOR	THC(MHRA)	1.40E+06	7.83E+05	7.83E+05
LWA KILN	Particulate	7.98E+04	7.31E+04	7.31E+04
LWA KILN	LVM	3.76E+02	3.57E+02	3.57E+02
LWA KILN	SVM	1.16E+03	2.42E+01	2.42E+01
LWA KILN	Mercury	5.45E+02	5.45E+02	7.31E+01
LWA KILN	TEQ	1.76E-04	1.76E-04	1.76E-04
LWA KILN	Total Cl	5.17E+06	4.85E+06	9.98E+05
LWA KILN	CO	1.27E+06	2.40E+05	2.40E+05
LWA KILN	CO(MHRA)	6.59E+06	2.57E+05	2.57E+05
LWA KILN	THC	7.63E+04	5.18E+04	5.18E+04
LWA KILN	THC(MHRA)	1.03E+05	5.18E+04	5.18E+04

TABLE 3-2. DIOXIN/FURAN AND METALS 50th AND 90th PERCENTILES BY SYSTEM TYPE.

System Type	Substance	Unit	50th Percentile	90th Percentile	Runs
Cement Kiln	4D 2378	ng/dscm 7%O2	2.10E-02	3.95E-01	119
	4D Total	ng/dscm 7%O2	2.83E+00	1.04E+02	116
	4F 2378	ng/dscm 7%O2	5.68E-01	1.18E+01	122
	4F Total	ng/dscm 7%O2	8.58E+00	1.92E+02	115
	5D 12378	ng/dscm 7%O2	7.51E-02	1.69E+00	123
	5D Total	ng/dscm 7%O2	3.04E+00	1.48E+02	116
	5F 12378	ng/dscm 7%O2	1.57E-01	3.22E+00	122
	5F 23478	ng/dscm 7%O2	3.02E-01	6.97E+00	124
	5F Total	ng/dscm 7%O2	2.44E+00	5.53E+01	115
	6D 123478	ng/dscm 7%O2	9.08E-02	2.26E+00	124
	6D 123678	ng/dscm 7%O2	1.17E-01	2.92E+00	125
	6D 123789	ng/dscm 7%O2	1.34E-01	4.01E+00	124
	6D Total	ng/dscm 7%O2	4.99E+00	2.73E+02	116
	6F 123478	ng/dscm 7%O2	2.05E-01	4.67E+00	122
	6F 123678	ng/dscm 7%O2	9.69E-02	1.98E+00	122
	6F 123789	ng/dscm 7%O2	2.76E-02	4.49E-01	122
	6F 234678	ng/dscm 7%O2	1.42E-01	4.42E+00	122
	6F Total	ng/dscm 7%O2	8.41E-01	2.62E+01	115
	7D 1234678	ng/dscm 7%O2	6.35E-01	1.22E+01	125
	7D Total	ng/dscm 7%O2	1.34E+00	3.25E+01	116
	7F 1234678	ng/dscm 7%O2	1.15E-01	2.10E+00	123
	7F 1234789	ng/dscm 7%O2	4.29E-02	6.33E-01	123
	7F Total	ng/dscm 7%O2	1.86E-01	4.30E+00	114
	8D	ng/dscm 7%O2	6.37E-01	5.32E+00	125
	8F	ng/dscm 7%O2	5.96E-02	6.14E-01	123
	TEQ	ng/dscm 7%O2	4.31E-01	7.77E+00	140
	Total PCDD/PCDF	ng/dscm 7%O2	4.06E+01	8.49E+02	129
	Antimony	ug/dscm 7%O2	6.50E+00	1.15E+02	118
	Arsenic	ug/dscm 7%O2	2.84E+00	1.87E+01	160
	Barium	ug/dscm 7%O2	7.03E+01	6.20E+02	102
	Beryllium	ug/dscm 7%O2	3.80E-01	2.55E+00	160
	Cadmium	ug/dscm 7%O2	1.26E+01	1.13E+02	160
	Chromium	ug/dscm 7%O2	1.04E+01	4.57E+01	157
	Chromium (Hex)	ug/dscm 7%O2	1.62E+00	1.32E+01	136
	Lead	ug/dscm 7%O2	1.09E+02	1.48E+03	160
	Mercury	ug/dscm 7%O2	3.03E+01	2.82E+02	102
	Nickel	ug/dscm 7%O2	1.23E+01	6.23E+01	28
	Selenium	ug/dscm 7%O2	1.06E+01	9.04E+01	23
	Silver	ug/dscm 7%O2	3.50E+00	2.72E+01	99
	Thallium	ug/dscm 7%O2	6.07E+00	6.69E+01	114
	Chlorine	ppmv 7%O2	1.66E-01	1.85E+00	176
	HCl	ppmv 7%O2	9.76E+00	9.92E+01	179

TABLE 3-2. DIOXIN/FURAN AND METALS 50th AND 90th PERCENTILES BY SYSTEM TYPE.

System Type	Substance	Unit	50th Percentile	90th Percentile	Runs
Incinerator	4D 2378	ng/dscm 7%O2	2.39E-02	2.90E-01	121
	4D Total	ng/dscm 7%O2	1.64E-01	3.56E+00	127
	4F 2378	ng/dscm 7%O2	1.29E-01	5.38E+00	127
	4F Total	ng/dscm 7%O2	1.62E+00	8.95E+01	127
	5D 12378	ng/dscm 7%O2	2.58E-02	2.93E-01	104
	5D Total	ng/dscm 7%O2	1.88E-01	3.60E+00	123
	5F 12378	ng/dscm 7%O2	8.76E-02	3.05E+00	104
	5F 23478	ng/dscm 7%O2	1.12E-01	4.94E+00	104
	5F Total	ng/dscm 7%O2	1.35E+00	7.50E+01	123
	6D 123478	ng/dscm 7%O2	3.35E-02	3.77E-01	90
	6D 123678	ng/dscm 7%O2	4.08E-02	5.43E-01	94
	6D 123789	ng/dscm 7%O2	3.91E-02	6.15E-01	94
	6D Total	ng/dscm 7%O2	2.97E-01	5.31E+00	123
	6F 123478	ng/dscm 7%O2	2.73E-01	1.52E+01	95
	6F 123678	ng/dscm 7%O2	1.59E-01	7.07E+00	95
	6F 123789	ng/dscm 7%O2	3.49E-02	6.03E-01	99
	6F 234678	ng/dscm 7%O2	1.42E-01	6.03E+00	99
	6F Total	ng/dscm 7%O2	1.05E+00	5.92E+01	123
	7D 1234678	ng/dscm 7%O2	1.44E-01	2.26E+00	109
	7D Total	ng/dscm 7%O2	3.07E-01	5.13E+00	122
	7F 1234678	ng/dscm 7%O2	5.04E-01	2.82E+01	99
	7F 1234789	ng/dscm 7%O2	1.02E-01	2.96E+00	99
	7F Total	ng/dscm 7%O2	8.95E-01	3.72E+01	123
	8D	ng/dscm 7%O2	4.60E-01	4.56E+00	127
	8F	ng/dscm 7%O2	4.29E-01	1.25E+01	125
	TEQ	ng/dscm 7%O2	2.47E-01	5.20E+00	124
	Total PCDD/PCDF	ng/dscm 7%O2	1.12E+01	3.14E+02	135
	Antimony	ug/dscm 7%O2	1.45E+01	5.83E+02	172
	Arsenic	ug/dscm 7%O2	5.02E+00	5.79E+01	261
	Barium	ug/dscm 7%O2	2.45E+01	2.32E+02	163
	Beryllium	ug/dscm 7%O2	4.06E-01	4.56E+00	221
	Cadmium	ug/dscm 7%O2	1.03E+01	1.58E+02	264
	Chromium	ug/dscm 7%O2	2.15E+01	1.71E+02	280
	Chromium (Hex)	ug/dscm 7%O2	3.07E+00	5.41E+01	60
	Lead	ug/dscm 7%O2	9.07E+01	1.80E+03	249
	Mercury	ug/dscm 7%O2	9.85E+00	1.85E+02	185
	Nickel	ug/dscm 7%O2	3.15E+01	2.96E+02	107
	Selenium	ug/dscm 7%O2	2.51E+00	1.85E+01	75
	Silver	ug/dscm 7%O2	2.94E+00	2.70E+01	145
	Thallium	ug/dscm 7%O2	3.86E+00	3.37E+01	137
	Chlorine	ppmv 7%O2	1.15E+00	2.44E+01	154
	HCl	ppmv 7%O2	5.78E+00	9.78E+01	480

TABLE 3-3. PERCENTAGE OF COST OF EACH CONTROL DEVICE ATTRIBUTED TO CONTROLLED HAPS FOR THE 6 PERCENT FLOOR

% Emissions Reduction Required to meet Final Recommended MACT Floor

Source Type	EER ID No.	Size Category	Current APCD	APCD Temp	Model Group No.	Model No.	Required Add-on Flue Gas	Hg % Reduction	Hg Logical	Hg Model % Reduction	Hg Model Fraction	PM % Reduction	PM Logical	PM Model % Reduction	PM Model Fraction	SVM % Reduction	SVM Logical	SVM Model % Reduction	SVM Model Fraction	LVM % Reduction	LVM Logical	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 % Reduction	HCl/Cl2 Logical	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC % Reduction	HC Logical	HC Model % Reduction	HC Model Fraction	CO % Reduction	CO Logical	CO Model % Reduction	CO Model Fraction	HC-Byp % Reduction	HC-Byp Logical	HC-Byp Model % Reduction	HC-Byp Model Fraction	TEQ % Reduction	TEQ Logical	TEQ Model % Reduction	TEQ Model Fraction
CK	200	S	FF	550	3	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	45	1	45.18	0.36	82	1	81.74	0.64	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	201	S	FF	550	18	2M	Add Q,	0	0	0.00	0.00	58	0	0.00	0.00	96	0	0.00	0.00	87	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	75	1	75.00	1.00
CK	201	S	FF	550	18	4M	Add FF	0	0	0.00	0.00	58	1	57.88	0.24	96	1	96.32	0.40	87	1	87.12	0.36	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	75	0	0.00	0.00
CK	202	L	FF	440	7	4E	Moderate DOM on Existing FF	0	0	0.00	0.00	0	0	0.00	0.00	69	1	68.83	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	203	L	ESP	500	18	2M	Add Q,	0	0	0.00	0.00	0	0	0.00	0.00	94	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	7	1	7.16	1.00
CK	203	L	ESP	500	18	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	94	1	93.56	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	7	0	0.00	0.00
CK	204	L	ESP	600	3	4M	Add FF	0	0	0.00	0.00	47	1	47.36	0.34	93	1	93.27	0.66	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	205	L	ESP	500	3	4M	Add FF	0	0	0.00	0.00	70	1	69.87	0.42	97	1	97.09	0.58	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	206	L	ESP	500	3	4M	Add FF	0	0	0.00	0.00	34	1	33.77	0.28	88	1	87.54	0.72	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	207	S	MC / ESP	400	3	4M	Add FF	0	0	0.00	0.00	35	1	35.20	0.28	91	1	91.11	0.72	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	208	L	ESP	420	2	3M	Moderate DOM on Exisiting ESP	0	0	0.00	0.00	0	0	0.00	0.00	63	1	63.23	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	228	S	ESP	500	3	4M	Add FF	0	0	0.00	0.00	50	1	50.00	0.40	75	1	75.00	0.60	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	300	S	ESP	600	18	2M	Add Q,	0	0	0.00	0.00	79	0	0.00	0.00	99	0	0.00	0.00	35	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	57	1	57.17	1.00
CK	300	S	ESP	600	18	4M	Add FF	0	0	0.00	0.00	79	1	78.80	0.37	99	1	98.55	0.46	35	1	34.60	0.16	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	57	0	0.00	0.00
CK	301	S	FF	400	28	14E	Moderate DOM on Combustor,	6	0	0.00	0.00	57	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	76	1	75.67	1.00	0	0	0.00	0.00
CK	301	S	FF	400	28	9M	Add CI	6	1	5.69	1.00	57	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	76	0	0.00	0.00	0	0	0.00	0.00
CK	301	S	FF	400	28	4M	Add FF	6	1	5.69	0.09	57	1	57.13	0.91	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	76	0	0.00	0.00	0	0	0.00	0.00
CK	302	S	ESP	420	3	4M	Add FF	0	0	0.00	0.00	55	1	55.33	0.36	98	1	97.78	0.64	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	303	L	QC/FF	250	7	4E	Moderate DOM on Existing FF	0	0	0.00	0.00	36	1	36.17	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00
CK	304	L	ESP	460	3	4M	Add FF	0	0	0.00	0.00	74	1	73.72	0.44	94	1	94.33	0.56	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	305	S	ESP	730	18	2M	Add Q,	0	0	0.00	0.00	79	0	0.00	0.00	97	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	90	1	90.50	1.00
CK	305	S	ESP	730	18	4M	Add FF	0	0	0.00	0.00	79	1	79.30	0.45	97	1	96.94	0.55	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	90	0	0.00	0.00
CK	306	L	MC/FF	550	34	3E	Small DOM on Existing FF,	96	0	0.00	0.00	8	1	7.65	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	306	L	MC/FF	550	34	2M	Add Q	96	1	96.32	1.00	8	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	306	L	MC/FF	550	34	6M	Add CB	96	1	96.32	1.00	8	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	308	S	ESP	440	2	3M	Moderate DOM on Exisiting ESP	0	0	0.00	0.00	27	1	27.42	0.30	64	1	63.52	0.70	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	309	L	MC / ESP	640	18	2M	Add Q,	0	0	0.00	0.00	39	0	0.00	0.00	94	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	91	1	90.57	1.00
CK	309	L	MC / ESP	640	18	4M	Add FF	0	0	0.00	0.00	39	1	38.61	0.29	94	1	93.74	0.71	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	91	0	0.00	0.00
CK	315	S	FF	450	1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00
CK	316	L	FF	500	35	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	15	1	15.00	1.00	25	0	0.00	0.00
CK	316	L	FF	500	35	2M	Add Q	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	15	0	0.00	0.00	25	1	25.00	1.00
CK	317	L	FF	500	1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	318	S	ESP	420	3	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	76	1	75.73	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	319	L	ESP	540	18	2M	Add Q,	0	0	0.00	0.00	60	0	0.00	0.00	95	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	19	1	18.64	1.00
CK	319	L	ESP	540	18	4M	Add FF	0	0	0.00	0.00	60	1	59.86	0.39	95	1	94.98	0.61	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	19	0	0.00	0.00
CK	320	L	FF	480	1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	321	S	ESP	240	3	4M	Add FF	0	0	0.00	0.00	93	1	92.86	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	nr	na	0.00	0.00	0	0	0.00	0.00
CK	322	S	ESP	550	3	4M	Add FF	0	0	0.00	0.00	21	1	21.05	0.21	77	1	77.46	0.79	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	323	S	ESP	500	5	2M	Add Q,	75	1	75.00	0.89	32	0	0.00	0.00	97	0	0.00	0.00	46	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	9	1	9.25	0.11
CK	323	S	ESP	500	5	9M	Add CI	75	1	75.00	0.89	32	0	0.00	0.00	97	0	0.00	0.00	46	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	9	1	9.25	0.11
CK	323	S	ESP	500	5	4M	Add FF	75	1	75.00	0.29	32	1	31.82	0.12	97	1	96.50	0.37	46	1	45.65	0.18	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	9	1	9.25	0.04
CK	335	S	ESP	718	18	2M	Add Q,	0	0	0.00	0.00	36	0	0.00	0.00	95	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	86	1	85.50	1.00
CK	335	S	ESP	718	18	4M	Add FF	0	0	0.00	0.00	36	1	35.53	0.27	95	1	95.48	0.73	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	86	0	0.00	0.00
CK	401	S	ESP	400	3	4M	Add FF	0	0	0.00	0.00	72	1	72.00	0.36	97	1	97.10	0.48	33	1	32.89	0.16	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	402	S	ESP	450	36	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	74	0	0.00	0.00	99	0	0.00	0.00	37	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	7	1	7.44	1.00	0	0	0.00	0.00
CK	402	S	ESP	450	36	4M	Add FF	0	0	0.00	0.00	74	1	74.39	0.35	99	1	99.01	0.47	37	1	36.66	0.17	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	7	0	0.00	0.00	0	0	0.00	0.00
CK	403	S	ESP	500	5	2M	Add Q,	89	1	89.15	1.00	55	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	403	S	ESP	500	5	9M	Add CI	89	1	89.15	1.00	55	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	403	S	ESP	500	5	4M	Add FF	89	1	89.15	0.62	55	1	55.11	0.38	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	404	L	ESP	500	2	3M	Moderate DOM on Exisiting ESP	0	0	0.00	0.00	0	0	0.00	0.00	41	1	40.82	0.46	49	1	48.64	0.54	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	405	S	ESP	250	3	4M	Add FF	0	0	0.00	0.00	58	1	57.61	0.25	97	1	97.09	0.42	78	1	77.98	0.34	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
CK	406	S	ESP	250	3	4M	Add FF	0	0	0.00	0.00	21	1	20.61	0.12	95	1	94.86	0.53	64	1	63.65	0.36	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	223	M (Hi HCl)	FF		5	12M	Add ST	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	33	1	32.68	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	224	M (Lo HCl)	FF		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	225	M (Lo HCl)	FF		18	14E	Moderate DOM on Combustor	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	226	M (Lo HCl)	FF		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	227	M (Hi HCl)	FF		17	17M	Add AB,	0	0	0.00	0.00	0	0	0.00	0.00	76	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	49	1	48.80	0.34	96	1	96.25	0.66	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	227	M (Hi HCl)	FF		17	2M	Add Q	0	0	0.00	0.00	0	0	0.00	0.00	76	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	49	0	0.00	0.00	96	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	227	M (Hi HCl)	FF		17	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	76	1	76.09	1.00	0	0	0.00	0.00	0	0	0.00	0.00	49	0	0.00	0.00	96	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	307	M (Lo HCl)	FF/VS		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	310	M (Lo HCl)	FF		16	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	99	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	42	1	42.26	1.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	310	M (Lo HCl)	FF		16	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	99	1	98.51	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	42	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	311	M (Lo HCl)	FF		16	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	99	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.15	1.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	311	M (Lo HCl)	FF		16	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	99	1	98.57	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	312	M (Lo HCl)	FF		16	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	98	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	42	1	42.26	1.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	312	M (Lo HCl)	FF		16	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	98	1	98.16	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	42	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	313	M (Hi HCl)	FF		6	15M	Add IWS	0	0	0.00	0.00	0	0	0.00	0.00	99	1	98.88	0.78	21	1	20.55	0.16	7	1	7.22	0.06	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	314	M (Lo HCl)	FF		2	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	100	1	99.56	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	336	M (Lo HCl)	FF		16	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.15	1.00	na	na	0.00	0.00	0	0	0.00	0.00
LWAK	336	M (Lo HCl)	FF		16	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00

TABLE 3-3. PERCENTAGE OF COST OF EACH CONTROL DEVICE ATTRIBUTED TO CONTROLLED HAPS FOR THE 6 PERCENT FLOOR

Source Type	EER ID No.	Size Category	Current APCD	APCD Temp	Model Group No.	Model No.	Required Add-on Flue Gas	% Emissions Reduction Required to meet Final Recommended MACT Floor																																	
								Hg % Reduction	Hg Logical	Hg Model % Reduction	Hg Model Fraction	PM % Reduction	PM Logical	PM Model % Reduction	PM Model Fraction	SVM % Reduction	SVM Logical	SVM Model % Reduction	SVM Model Fraction	LVM % Reduction	LVM Logical	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 % Reduction	HCl/Cl2 Logical	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC % Reduction	HC Logical	HC Model % Reduction	HC Model Fraction	CO % Reduction	CO Logical	CO Model % Reduction	CO Model Fraction	HC-Byp % Reduction	HC-Byp Logical	HC-Byp Model % Reduction	HC-Byp Model Fraction	TEQ % Reduction	TEQ Logical	TEQ Model % Reduction	TEQ Model Fraction
INC	209	M	WHB, FF/VQ/PT/DM		81	17M	Add AB	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	0.23	82	1	81.58	0.77	na	na	0.00	0.00	0	0	0.00	0.00
INC	210	L	FF/S		9	18M	Add RH,	75	1	75.00	1.00	0	0	0.00	0.00	50	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	210	L	FF/S		9	9M	Add CI	75	1	75.00	1.00	0	0	0.00	0.00	50	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	210	L	FF/S		9	4M	Add FF	75	1	75.00	0.38	0	0	0.00	0.00	50	1	50.00	0.25	75	1	75.00	0.38	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	211	L	SS/PT/VS		6	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.50	75	1	75.00	0.50	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	212	L	FF/S		7	4E	Moderate DOM on Existing FF	0	0	0.00	0.00	33	1	33.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	28	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	212	L	FF/S		7	12E	Moderate DOM on Existing WS	0	0	0.00	0.00	33	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	28	1	28.30	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	214	M	IWS		9	18M	Add RH,	72	1	71.72	1.00	30	0	0.00	0.00	81	0	0.00	0.00	24	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	214	M	IWS		9	9M	Add CI	72	1	71.72	1.00	30	0	0.00	0.00	81	0	0.00	0.00	24	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	214	M	IWS		9	4M	Add FF	72	1	71.72	0.35	30	1	29.52	0.14	81	1	80.95	0.39	24	1	23.57	0.11	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	216	L	HES / WS		9	18M	Add RH,	31	1	30.92	1.00	51	0	0.00	0.00	84	0	0.00	0.00	10	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	216	L	HES / WS		9	9M	Add CI	31	1	30.92	1.00	51	0	0.00	0.00	84	0	0.00	0.00	10	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	216	L	HES / WS		9	4M	Add FF	31	1	30.92	0.18	51	1	50.74	0.29	84	1	83.97	0.48	10	1	9.64	0.05	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	221	L	PT		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	222	L	WHB/SD/ESP/Q/PBS	383	8	9M	Add CI	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	229	S	WHB/ACS/HCS/CS		78	12E	Moderate DOM on Existing WS,	0	0	0.00	0.00	21	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	10	1	9.52	1.00	0	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	229	S	WHB/ACS/HCS/CS		78	17M	Add AB	0	0	0.00	0.00	21	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	10	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	229	S	WHB/ACS/HCS/CS		78	4M	Add FF	0	0	0.00	0.00	21	1	21.35	1.00	0	0	0.00	0.00	0	0	0.00	0.00	10	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	324	M	?		4	15M	Add IWS	0	0	0.00	0.00	28	1	28.15	0.15	96	1	96.21	0.51	15	1	15.14	0.08	50	1	50.24	0.26	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	325	M	SD/FF/WS/ IWS		8	9M	Add CI	15	1	14.94	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	327	L	SD/FF/WS/ ESP		8	9M	Add CI	94	1	94.47	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	329	L	PT/IWS		9	18M	Add RH,	75	1	75.00	1.00	52	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	329	L	PT/IWS		9	9M	Add CI	75	1	75.00	1.00	52	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	329	L	PT/IWS		9	4M	Add FF	75	1	75.00	0.27	52	1	51.77	0.19	75	1	75.00	0.27	75	1	75.00	0.27	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	330	M	QT/WS/DM		9	18M	Add RH,	0	0	0.00	0.00	63	0	0.00	0.00	64	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	44	1	44.45	1.00
INC	330	M	QT/WS/DM		9	9M	Add CI	0	0	0.00	0.00	63	0	0.00	0.00	64	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	44	1	44.45	1.00
INC	330	M	QT/WS/DM		9	4M	Add FF	0	0	0.00	0.00	63	1	63.42	0.37	64	1	63.75	0.37	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	44	1	44.45	0.26
INC	331	L	PT/IWS		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	97	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	331	L	PT/IWS		55	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	97	1	96.54	1.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	332	M	WS		21	17M	Add AB,	0	0	0.00	0.00	87	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	90	1	90.00	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	332	M	WS		21	4M	Add FF	0	0	0.00	0.00	87	1	86.80	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	90	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	333	L	SD/FF		66	4E	Moderate DOM on Existing FF	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	334	L	WS/ESP/PT		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	75	0	0.00	0.00	98	0	0.00	0.00	83	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	33	1	32.52	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	334	L	WS/ESP/PT		55	4M	Add FF	0	0	0.00	0.00	75	1	74.98	0.29	98	1	97.52	0.38	83	1	82.69	0.32	0	0	0.00	0.00	0	0	0.00	0.00	33	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	337	M	WHB/DA/DI/FF	413	67	4E	Moderate DOM on Existing FF,	72	1	71.83	0.55	0	0	0.00	0.00	0	0	0.00	0.00	58	1	57.90	0.45	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	337	M	WHB/DA/DI/FF	413	67	9M	Add CI	72	1	71.83	1.00	0	0	0.00	0.00	0	0	0.00	0.00	58	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	338	L	QC/FF/SS/C/HES/DM	415	8	9M	Add CI	10	1	9.60	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	339	S	AT/PT/RJS/ESP		61	18M	Add RH,	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	339	S	AT/PT/RJS/ESP		61	6M	Add CB	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	340	M	WHB/ESP/WS	444	1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	341	M	DA/DI/FF/HEPA/CA		94	14E	Moderate DOM on Combustor	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	0.65	13	1	13.27	0.35	na	na	0.00	0.00	0	0	0.00	0.00
INC	342	S	WHB/QC/S/VS/DM		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	344	M	QC/VS/PT/DM		9	18M	Add RH,	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	344	M	QC/VS/PT/DM		9	9M	Add CI	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	344	M	QC/VS/PT/DM		9	4M	Add FF	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	346	M	C/QC/VS/PT/DM		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	347	M	C/QC/VS/S/DM		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	348	S	QC/AS/IWS		61	18M	Add RH,	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	348	S	QC/AS/IWS		61	6M	Add CB	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	349	S	QC/FF/QC/PT	350	6	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	350	M	WHB/HE/FF		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	350	M	WHB/HE/FF		55	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.50	75	1	75.00	0.50	0	0	0.00	0.00	50	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	351	S	GC/C/ FF	290	53	14E	Moderate DOM on Combustor,	25	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	0.44	32	1	32.39	0.56	na	na	0.00	0.00	0	0	0.00	0.00
INC	351	S	GC/C/ FF	290	53	6M	Add CB	25	1	25.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	0	0.00	0.00	32	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	353	M	QC/VS/DM/ ESP		22	3M	Moderate DOM on Existing ESP,	0	0	0.00	0.00	32	1	31.94	0.43	0	0	0.00	0.00	42	1	42.40	0.57	50	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	353	M	QC/VS/DM/ ESP		22	16M	Add PT	0	0	0.00	0.00	32	0	0.00	0.00	0	0	0.00	0.00	42	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	354	M	QC/AS/VS/DM/IWS		1	0	None	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	356	S	QC/AS/FN/DM		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	54	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	356	S	QC/AS/FN/DM		55	4M	Add FF	0	0	0.00	0.00	54	1	53.61	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	357	M	QC/VS/PT/IWS		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	40	1	39.84	0.44	50	1	50.00	0.56	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	358	M	QC/VS/C/CT/S/DM		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	53	1	53.38	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	359	M	WHB/ FF/S	375	54	14E	Moderate DOM on Combustor,	50	0	0.00	0.00	39	0	0.00	0.00	77	0	0.00	0.00	100	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	49.71	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	359	M	WHB/ FF/S	375	54	18M	Add RH	50	1	50.00	1.00	39	0	0.00	0.00	77	0	0.00	0.00	100	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	359	M	WHB/ FF/S	375	54	9M	Add CI	50	1	50.00	1.00	39	0	0.00	0.00	77	0	0.00	0.00	100	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	359	M	WHB/ FF/S	375	54	4M	Add FF	50	1	50.00	0.19	39	1	39.36	0.15	77	1	76.80	0.29	100	1	99.77	0.38	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	400	L	SD/FF	400	6	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	82	1	81.72	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	500	L	QC/VS/KOV/ DM		94	14E	Moderate DOM on Combustor	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	502	S	WHB /QC/ PBC/ VS/ES		9	18M	Add RH,	50	1	50.00	1.00	58	0	0.00	0.00	92	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	502	S	WHB /QC/ PBC/ VS/ES		9	6M	Add CB	50	1	50.00	1.00	58	0	0.00	0.00	92	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	502	S	WHB /QC/ PBC/ VS/ES		9	4M	Add FF	50	0	0.00	0.00	58	1	58.33	0.39	92	1	92.05	0.61	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	503	S	HTHE/LTHE/FF	285	71	17M	Add AB,	0	0	0.00	0.00	47	0	0.00	0.00	85	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	0.40	75	1	75.00	0.60	na	na	0.00	0.00	0	0	0.00	0.00
INC	503	S	HTHE/LTHE/FF	285	71	4M	Add FF	0	0	0.00	0.00	47	1	46.75	0.23	85	1	85.29	0.41	75	1	75.01	0.36	0	0	0.00	0.00	50	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	504	M	VS/C		63	7E	Moderate DOM on Existing VS,	96	0	0.00	0.00	28	1	28.24	0.49	0	0	0.00	0.00	30	1	29.85	0.51	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	504	M	VS/C		63	18M	Add RH	96	1	95.99	1.00	28	0	0.00	0.00	0	0	0.00	0.00	30	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	504	M	VS/C		63	6M	Add CB	96	1	95.99	1.00	28	0	0.00	0.00	0	0	0.00	0.00	30	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	600	L	WHB/QC/PT/IWS		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	600	L	WHB/QC/PT/IWS		55	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	700	M	SD/RJS/VS/WS		6	4M	Add FF	0	0	0.00	0.00	66	1	65.62	0.26	100	1	99.59	0.40	85	1	84.74	0.34	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	701	M	VS/PT		6	4M	Add FF	0	0	0.00	0.00	65	1	65.04	0.46	0	0	0.00	0.00	75	1	75.00	0.54	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	702	M	QT/S/C		6	4M	Add FF	0	0	0.00	0.00	82	1	81.57	0.52	75	1	75.00	0.48	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	703	S	WHB		20	2M	Add Q,	25	1	25.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	73	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	703	S	WHB		20	6M	Add CB	25	1	25.00	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	73	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	703	S	WHB		20	16M	Add PT	25	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	73	1	72.71	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	704	S	NONE		4	15M	Add IWS	0	0	0.00	0.00	20	1	19.64	0.29	0	0	0.00	0.00	0	0	0.00	0.00	49	1	49.20	0.71	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	705	M	QT/VS/ESP/PT		82	14E	Moderate DOM on Combustor	0	0	0.00	0.00	63	0	0.00	0.00	43	0	0.00	0.00	33	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	705	M	QT/VS/ESP/PT		82	3M	Moderate DOM on Existing ESP	0	0	0.00	0.00	63	1	63.24	0.46	43	1	42.51	0.31	33	1	33.21	0.24	0	0	0.00	0.00	25	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	706	M	QT/HS/C		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	65	1	64.88	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	707	L	QT/WS		21	17M	Add AB,	0	0	0.00	0.00	94	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	99	1	99.28	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	707	L	QT/WS		21	4M	Add FF	0	0	0.00	0.00	94	1	93.80	0.38	75	1	75.00	0.31	75	1	75.00	0.31	0	0	0.00	0.00	0	0	0.00	0.00	99	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	708	S	WS/ESP		17	3M	Moderate DOM on Existing ESP	0	0	0.00	0.00	43	1	42.93	0.46	0	0	0.00	0.00	50	1	50.00	0.54	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	709	S	NONE		42	15M	Add IWS,	50	0	0.00	0.00	70	1	70.30	0.74	0	0	0.00	0.00	0	0	0.00	0.00	25	1	25.00	0.26	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	709	S	NONE		42	18M	Add RH	50	1	50.00	1.00	70	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	709	S	NONE		42	6M	Add CB	50	1	50.00	1.00	70	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	25	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	710	M	QT/OS/C/S		33	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	44	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	63	1	63.39	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	710	M	QT/OS/C/S		33	15M	Add IWS	0	0	0.00	0.00	44	1	44.03	0.23	75	1	75.00	0.39	0	0	0.00	0.00	75	1	74.78	0.39	63	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	711	L	C/VS/AS		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	53	1	53.13	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	712	L	NONE		6	4M	Add FF	0	0	0.00	0.00	50	1	49.83	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00

Source Type	EER ID No.	Size Category	Current APCD	APCD Temp	Model Group No.	Model No.	Required Add-on Flue Gas	% Emissions Reduction Required to meet Final Recommended MACT Floor																																			
								Hg % Reduction	Hg Logical	Hg Model % Reduction	Hg Model Fraction	PM % Reduction	PM Logical	PM Model % Reduction	PM Model Fraction	SVM % Reduction	SVM Logical	SVM Model % Reduction	SVM Model Fraction	LVM % Reduction	LVM Logical	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 % Reduction	HCl/Cl2 Logical	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC % Reduction	HC Logical	HC Model % Reduction	HC Model Fraction	CO % Reduction	CO Logical	CO Model % Reduction	CO Model Fraction	HC-Byp % Reduction	HC-Byp Logical	HC-Byp Model % Reduction	HC-Byp Model Fraction	TEQ % Reduction	TEQ Logical	TEQ Model % Reduction	TEQ Model Fraction
INC	713	S	VS/PT		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	1	50.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	713	S	VS/PT		55	4M	Add FF	0	0	0.00	0.00	77	1	76.90	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	50	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	714	M	WS		6	4M	Add FF	0	0	0.00	0.00	18	1	17.58	0.19	75	1	75.00	0.81	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	725	S	WS/QT		12	12E	Moderate DOM on Existing WS,	0	0	0.00	0.00	30	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	20	1	19.97	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	725	S	WS/QT		12	4M	Add FF	0	0	0.00	0.00	30	1	30.34	1.00	0	0	0.00	0.00	0	0	0.00	0.00	20	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	726	S	QC/CS/DM/VS		54	14E	Moderate DOM on Combustor,	50	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	48	1	48.25	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	726	S	QC/CS/DM/VS		54	18M	Add RH	50	1	50.00	1.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	48	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	726	S	QC/CS/DM/VS		54	6M	Add CB	50	1	50.00	1.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	48	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	726	S	QC/CS/DM/VS		54	4M	Add FF	50	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.50	75	1	75.00	0.50	0	0	0.00	0.00	48	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	727	S	GC/C/FF		71	17M	Add AB,	0	0	0.00	0.00	82	0	0.00	0.00	75	0	0.00	0.00	50	0	0.00	0.00	0	0	0.00	0.00	96	1	96.23	0.50	98	1	97.74	0.50	na	na	0.00	0.00	0	0	0.00	0.00
INC	727	S	GC/C/FF		71	4M	Add FF	0	0	0.00	0.00	82	1	82.04	0.40	75	1	75.00	0.36	50	1	50.00	0.24	0	0	0.00	0.00	96	0	0.00	0.00	98	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	728	S	QT/PT/VS		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	66	1	65.57	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	784	S	NONE		4	15M	Add IWS	0	0	0.00	0.00	63	1	63.12	0.23	75	1	75.00	0.27	50	1	50.00	0.18	91	1	90.77	0.33	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	805	M	QT/QS/VS/ES/PBS		83	7E	Moderate DOM on Existing VS,	0	0	0.00	0.00	72	1	72.43	1.00	0	0	0.00	0.00	0	0	0.00	0.00	10	0	0.00	0.00	20	0	0.00	0.00	85	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	805	M	QT/QS/VS/ES/PBS		83	5E	Small DOM on Existing WS	0	0	0.00	0.00	72	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	10	1	9.86	1.00	20	0	0.00	0.00	85	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	805	M	QT/QS/VS/ES/PBS		83	17M	Add AB	0	0	0.00	0.00	72	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	10	0	0.00	0.00	20	1	20.49	0.19	85	1	85.39	0.81	na	na	0.00	0.00	0	0	0.00	0.00
INC	806	M	C/VS		25	17M	Add AB,	63	0	0.00	0.00	65	0	0.00	0.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	74	1	73.68	0.50	75	1	74.58	0.50	na	na	0.00	0.00	0	0	0.00	0.00
INC	806	M	C/VS		25	18M	Add RH	63	1	63.50	1.00	65	0	0.00	0.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	74	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	806	M	C/VS		25	9M	Add CI	63	1	63.50	1.00	65	0	0.00	0.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	74	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	806	M	C/VS		25	4M	Add FF	63	1	63.50	0.31	65	1	65.37	0.32	77	1	77.17	0.37	0	0	0.00	0.00	0	0	0.00	0.00	74	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	807	M	C/WHB/VQ/PT/HS/DM		96	14E	Moderate DOM on Combustor	0	0	0.00	0.00	47	0	0.00	0.00	43	0	0.00	0.00	24	0	0.00	0.00	0	0	0.00	0.00	15	1	14.80	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	807	M	C/WHB/VQ/PT/HS/DM		96	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	47	1	46.54	0.41	43	1	42.82	0.38	24	1	23.57	0.21	0	0	0.00	0.00	15	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	808	M	QT/PBS/ESP		55	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	22	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	2	1	1.62	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	808	M	QT/PBS/ESP		55	4M	Add FF	0	0	0.00	0.00	22	1	21.54	0.13	75	1	75.00	0.44	75	1	75.00	0.44	0	0	0.00	0.00	0	0	0.00	0.00	2	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	809	L	VS		71	17M	Add AB,	0	0	0.00	0.00	0	0	0.00	0.00	99	0	0.00	0.00	97	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	96	1	95.94	1.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	809	L	VS		71	4M	Add FF	0	0	0.00	0.00	0	0	0.00	0.00	99	1	98.84	0.50	97	1	97.11	0.50	0	0	0.00	0.00	0	0	0.00	0.00	96	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	810	M	Q/VS/PBS		6	4M	Add FF	0	0	0.00	0.00	75	1	75.00	0.30	91	1	90.97	0.37	81	1	81.01	0.33	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	824	S	QT/VS/PT/DM		95	6E	Small DOM on Existing VS	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	11	1	10.57	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	825	M	CC/SQC/ESP		25	17M	Add AB,	25	0	0.00	0.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.50	75	1	75.00	0.50	na	na	0.00	0.00	0	0	0.00	0.00
INC	825	M	CC/SQC/ESP		25	18M	Add RH	25	1	25.00	1.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	825	M	CC/SQC/ESP		25	9M	Add CI	25	1	25.00	1.00	77	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	825	M	CC/SQC/ESP		25	4M	Add FF	25	1	25.00	0.25	77	1	76.92	0.75	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	75	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	902	M	QT/VS/PT		19	7E	Moderate DOM on Existing VS	0	0	0.00	0.00	30	1	29.80	1.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	904	S	?		33	14E	Moderate DOM on Combustor,	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	17	1	17.37	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	904	S	?		33	15M	Add IWS	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.50	0	0	0.00	0.00	75	1	75.00	0.50	17	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	905	S	QT/VS/AS/CS		6	4M	Add FF	0	0	0.00	0.00	50	1	50.00	0.27	100	1	99.60	0.53	38	1	38.50	0.20	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	906	S	QT/PT		12	12E	Moderate DOM on Existing WS,	0	0	0.00	0.00	79	0	0.00	0.00	50	0	0.00	0.00	75	0	0.00	0.00	38	1	38.36	1.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	906	S	QT/PT		12	4M	Add FF	0	0	0.00	0.00	79	1	78.61	0.39	50	1	50.00	0.25	75	1	75.00	0.37	38	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	914	M	?		5	17M	Add AB,	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	0	0.00	0.00	58	0	0.00	0.00	75	1	75.00	1.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	914	M	?		5	15M	Add IWS	0	0	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	75	1	75.00	0.57	58	1	57.73	0.43	75	0	0.00	0.00	0	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	915	M	QC/VS/C		25	17M	Add AB,	50	0	0.00	0.00	74	0	0.00	0.00	91	0	0.00	0.00	83	0	0.00	0.00	0	0	0.00	0.00	66	1	66.43	0.42	92	1	92.24	0.58	na	na	0.00	0.00	0	0	0.00	0.00
INC	915	M	QC/VS/C		25	18M	Add RH	50	1	50.00	1.00	74	0	0.00	0.00	91	0	0.00	0.00	83	0	0.00	0.00	0	0	0.00	0.00	66	0	0.00	0.00	92	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	915	M	QC/VS/C		25	9M	Add CI	50	1	50.00	1.00	74	0	0.00	0.00	91	0	0.00	0.00	83	0	0.00	0.00	0	0	0.00	0.00	66	0	0.00	0.00	92	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00
INC	915	M	QC/VS/C		25	4M	Add FF	50	1	50.00	0.17	74	1	73.76	0.25	91	1	90.65	0.30	83	1	83.16	0.28	0	0	0.00	0.00	66	0	0.00	0.00	92	0	0.00	0.00	na	na	0.00	0.00	0	0	0.00	0.00

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Frac tion	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
CK	200	S	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
CK	200	S	18	4M	Add FF	0.00	0.00	0.00	0.00	45.18	0.36	81.74	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	201	S	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
CK	201	S	18	4M	Add FF	0.00	0.00	57.88	0.24	96.32	0.40	87.12	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	202	L	5		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
CK	202	L	5	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
CK	202	L	5	4M	Add FF	0.00	0.00	0.00	0.00	68.83	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.52
CK	203	L	5		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.05	1.00
CK	203	L	5	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.05	1.00
CK	203	L	5	4M	Add FF	0.00	0.00	0.00	0.00	93.56	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.05	0.51
CK	204	L	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.48	1.00
CK	204	L	18	4M	Add FF	0.00	0.00	47.36	0.34	93.27	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	205	L	3	4M	Add FF	0.00	0.00	69.87	0.42	97.09	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	206	L	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.60	1.00
CK	206	L	18	4M	Add FF	0.00	0.00	33.77	0.28	87.54	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	207	S	3	4M	Add FF	0.00	0.00	35.20	0.28	91.11	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	208	L	2	3M	Moderate DOM on Exisiting ESP	0.00	0.00	0.00	0.00	63.23	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	228	S	5		Add Q,	50.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.32	0.27
CK	228	S	5	9M	Add CI	50.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.32	0.27
CK	228	S	5	4M	Add FF	50.00	0.26	50.00	0.26	75.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.32	0.09
CK	300	S	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.18	1.00
CK	300	S	18	4M	Add FF	0.00	0.00	78.80	0.25	98.55	0.32	34.60	0.11	0.00	0.00	0.00	0.00	0.00	0.00	98.18	0.32
CK	301	S	28	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	301	S	28	9M	Add CI	74.28	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40
CK	301	S	28	4M	Add FF	74.28	0.41	57.13	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.28
CK	302	S	4	9M	Add CI,	50.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.60
CK	302	S	4	4M	Add FF	50.00	0.18	55.33	0.20	97.78	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.27
CK	303	L	4	9M	Add CI,	36.82	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	303	L	4	4M	Add FF	36.82	0.50	36.17	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	304	L	5		Add Q,	28.49	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.35	0.76
CK	304	L	5	9M	Add CI	28.49	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.35	0.76
CK	304	L	5	4M	Add FF	28.49	0.10	73.72	0.26	94.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.35	0.31
CK	305	S	5		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	1.00
CK	305	S	5	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	1.00
CK	305	S	5	4M	Add FF	0.00	0.00	79.30	0.29	96.94	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	0.36
CK	306	L	34	3E	Small DOM on Existing FF,	0.00	0.00	7.65	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	306	L	34		Add Q	99.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	306	L	34	6M	Add CB	99.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	308	S	5		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
CK	308	S	5	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
CK	308	S	5	4M	Add FF	0.00	0.00	27.42	0.17	63.52	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.45
CK	309	L	5		Add Q,	29.60	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	0.77
CK	309	L	5	9M	Add CI	29.60	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	0.77
CK	309	L	5	4M	Add FF	29.60	0.11	38.61	0.15	93.74	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	0.38
CK	315	S	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	316	L	37	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	316	L	37		Add Q	50.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.33
CK	316	L	37	9M	Add CI	50.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.33
CK	316	L	37	4M	Add FF	50.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.33
CK	317	L	17		Add Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.64	1.00
CK	318	S	3	4M	Add FF	0.00	0.00	0.00	0.00	75.73	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	319	L	5		Add Q,	46.31	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54	0.68
CK	319	L	5	9M	Add CI	46.31	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54	0.68
CK	319	L	5	4M	Add FF	46.31	0.16	59.86	0.20	94.98	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54	0.32
CK	320	L	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Frac tion	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
CK	321	S	4	9M	Add CI	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	321	S	4	4M	Add FF	50.00	0.35	92.86	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	322	S	18		Add Q,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.63	1.00
CK	322	S	18	4M	Add FF	0.00	0.00	21.05	0.21	77.46	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	323	S	5		Add Q,	75.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.14	0.56
CK	323	S	5	9M	Add CI	75.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.14	0.56
CK	323	S	5	4M	Add FF	75.00	0.22	31.82	0.09	96.50	0.28	45.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	96.14	0.28
CK	335	S	5		Add Q	49.78	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.38	0.67
CK	335	S	5	9M	Add CI	49.78	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.38	0.67
CK	335	S	5	4M	Add FF	49.78	0.18	35.53	0.13	95.48	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.38	0.35
CK	401	S	4	9M	Add CI	67.46	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.67	0.46
CK	401	S	4	4M	Add FF	67.46	0.21	72.00	0.22	97.10	0.30	32.89	0.10	0.00	0.00	0.00	0.00	0.00	0.00	57.67	0.18
CK	402	S	37	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	402	S	37		Add Q	15.41	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.54	0.76
CK	402	S	37	9M	Add CI	15.41	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.54	0.76
CK	402	S	37	4M	Add FF	15.41	0.06	74.39	0.27	99.01	0.36	36.66	0.13	0.00	0.00	0.00	0.00	0.00	0.00	49.54	0.18
CK	403	S	33	3M	Moderate DOM on Existing ESP,	0.00	0.00	55.11	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	403	S	33		Add Q	97.04	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.76	0.49
CK	403	S	33	6M	Add CB	97.04	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.76	0.49
CK	404	L	20	3M	Moderate DOM on Existing ESP,	0.00	0.00	0.00	0.00	40.82	0.46	48.64	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	404	L	20		Add Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.34	1.00
CK	405	S	3	4M	Add FF	0.00	0.00	57.61	0.25	97.09	0.42	77.98	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CK	406	S	4	9M	Add CI,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.27	1.00
CK	406	S	4	4M	Add FF	0.00	0.00	20.61	0.09	94.86	0.40	63.65	0.27	0.00	0.00	0.00	0.00	0.00	0.00	60.27	0.25

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Fraction	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
LWAK	223	M (Hi HCl	4	9M	Add CI,	533%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	223	M (Hi HCl	4	4M	Add FF	533%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	223	M (Hi HCl	4	12M	Add ST	0%	0%	0%	0%	0%	0%	0%	0%	8990%	100%	0%	0%	0%	0%	0%	0%
LWAK	224	M (Lo HCl	1	0%	None	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	225	M (Lo HCl	19	14E	Moderate DOM on Combustor,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5000%	100%	0%	0%	0%	0%
LWAK	225	M (Lo HCl	19	12M	Add ST	0%	0%	0%	0%	0%	0%	0%	0%	6724%	100%	0%	0%	0%	0%	0%	0%
LWAK	226	M (Lo HCl	5	12M	Add ST	0%	0%	0%	0%	0%	0%	0%	0%	7500%	100%	0%	0%	0%	0%	0%	0%
LWAK	227	M (Hi HCl	13	17M	Add AB,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4880%	34%	9625%	66%	0%	0%
LWAK	227	M (Hi HCl	13		Add Q	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	227	M (Hi HCl	13	15M	Add IWS	0%	0%	0%	0%	7609%	47%	0%	0%	8441%	53%	0%	0%	0%	0%	0%	0%
LWAK	307	M (Lo HCl	3	9M	Add CI,	9384%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	307	M (Lo HCl	3	4M	Add FF	9384%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LWAK	310	M (Lo HCl	20	14E	Moderate DOM on Combustor,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4226%	100%	0%	0%
LWAK	310	M (Lo HCl	20	15M	Add IWS	0%	0%	0%	0%	9851%	54%	0%	0%	8249%	46%	0%	0%	0%	0%	0%	0%
LWAK	311	M (Hi HCl	20	14E	Moderate DOM on Combustor,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2515%	100%	0%	0%
LWAK	311	M (Hi HCl	20	15M	Add IWS	0%	0%	0%	0%	9857%	54%	0%	0%	8331%	46%	0%	0%	0%	0%	0%	0%
LWAK	312	M (Hi HCl	20	14E	Moderate DOM on Combustor,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4226%	100%	0%	0%
LWAK	312	M (Hi HCl	20	15M	Add IWS	0%	0%	0%	0%	9816%	54%	0%	0%	8308%	46%	0%	0%	0%	0%	0%	0%
LWAK	313	M (Hi HCl	600%	15M	Add IWS	0%	0%	0%	0%	9888%	48%	2055%	10%	8608%	42%	0%	0%	0%	0%	0%	0%
LWAK	314	M (Lo HCl	6	15M	Add IWS	0%	0%	0%	0%	9956%	57%	0%	0%	7539%	43%	0%	0%	0%	0%	0%	0%
LWAK	336	M (Lo HCl	20	14E	Moderate DOM on Combustor,	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2515%	100%	0%	0%
LWAK	336	M (Lo HCl	20	15M	Add IWS	0%	0%	0%	0%	7500%	50%	0%	0%	7500%	50%	0%	0%	0%	0%	0%	0%

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Frac tion	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
INC	209	M	44	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.23	81.58	0.77	0.00	0.00
INC	209	M	44	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	210	L	9	18M	Add RH,	75.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40
INC	210	L	9	9M	Add CI	75.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40
INC	210	L	9	4M	Add FF	75.00	0.30	0.00	0.00	50.00	0.20	75.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.20
INC	211	L	6	4M	Add FF	0.00	0.00	0.00	0.00	75.00	0.50	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	212	L	7	4E	Moderate DOM on Existing FF	0.00	0.00	33.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	212	L	7	12E	Moderate DOM on Existing WS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.30	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	214	M	9	18M	Add RH,	83.99	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	214	M	9	9M	Add CI	83.99	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	214	M	9	4M	Add FF	83.99	0.39	29.52	0.14	80.95	0.37	23.57	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	216	L	9	18M	Add RH,	60.90	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	216	L	9	9M	Add CI	60.90	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	216	L	9	4M	Add FF	60.90	0.30	50.74	0.25	83.97	0.41	9.64	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	221	L	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.33	1.00
INC	221	L	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.33	1.00
INC	221	L	9	4M	Add FF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.33	1.00
INC	222	L	8	9M	Add CI	50.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.17	0.62
INC	229	S	70	12E	Moderate DOM on Existing WS,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	229	S	70	17M	Add AB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00	0.00	0.00
INC	229	S	70	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.81	1.00
INC	229	S	70	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.81	1.00
INC	229	S	70	4M	Add FF	0.00	0.00	21.35	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	324	M	13	16M	Add PT,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.24	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	324	M	13	18M	Add RH	25.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.75
INC	324	M	13	9M	Add CI	25.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.75
INC	324	M	13	4M	Add FF	25.00	0.10	28.15	0.12	96.21	0.40	15.14	0.06	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.31
INC	325	M	8	9M	Add CI	51.85	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.98	0.64
INC	327	L	61	18M	Add RH,	96.87	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.97	0.50
INC	327	L	61	6M	Add CB	96.87	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.97	0.50
INC	329	L	9	18M	Add RH,	75.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40
INC	329	L	9	9M	Add CI	75.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40
INC	329	L	9	4M	Add FF	75.00	0.23	51.77	0.16	75.00	0.23	75.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.15
INC	330	M	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.44	1.00
INC	330	M	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.44	1.00
INC	330	M	9	4M	Add FF	0.00	0.00	63.42	0.28	63.75	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.44	0.44
INC	331	L	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00	0.00	0.00
INC	331	L	54	18M	Add RH	22.62	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	331	L	54	9M	Add CI	22.62	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	331	L	54	4M	Add FF	22.62	0.19	0.00	0.00	96.54	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	332	M	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	1.00	0.00	0.00
INC	332	M	25	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	332	M	25	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	332	M	25	4M	Add FF	0.00	0.00	86.80	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.46
INC	333	L	67	4E	Moderate DOM on Existing FF,	50.00	0.50	0.00	0.00	0.00	0.00	50.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	333	L	67	9M	Add CI	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	334	L	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.52	1.00	0.00	0.00
INC	334	L	54	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.40	1.00
INC	334	L	54	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.40	1.00
INC	334	L	54	4M	Add FF	0.00	0.00	74.98	0.22	97.52	0.28	82.69	0.24	0.00	0.00	0.00	0.00	0.00	0.00	90.40	0.26
INC	337	M	67	4E	Moderate DOM on Existing FF,	84.05	0.59	0.00	0.00	0.00	0.00	57.90	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	337	M	67	9M	Add CI	84.05	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	338	L	8	9M	Add CI	48.83	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	339	S	61	18M	Add RH,	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	339	S	61	6M	Add CB	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Fraction	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
INC	340	M	8	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	341	M	53	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.65	13.27	0.35	0.00	0.00
INC	341	M	53	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	342	S	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	344	M	9	18M	Add RH,	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	344	M	9	9M	Add CI	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	344	M	9	4M	Add FF	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	346	M	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	347	M	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	348	S	61	18M	Add RH,	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.50
INC	348	S	61	6M	Add CB	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.50
INC	349	S	6	4M	Add FF	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	350	M	55	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00	0.00	0.00
INC	350	M	55	4M	Add FF	0.00	0.00	0.00	0.00	75.00	0.50	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	351	S	53	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.44	32.39	0.56	0.00	0.00
INC	351	S	53	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	353	M	22	3M	Moderate DOM on Existing ESP,	0.00	0.00	31.94	0.43	0.00	0.00	42.40	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	353	M	22	16M	Add PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	354	M	1	0	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	356	S	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00	0.00	0.00
INC	356	S	54	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	356	S	54	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	356	S	54	4M	Add FF	0.00	0.00	53.61	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	357	M	19	7E	Moderate DOM on Existing VS	0.00	0.00	39.84	0.44	50.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	358	M	9	18M	Add RH,	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	358	M	9	9M	Add CI	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	358	M	9	4M	Add FF	50.00	0.48	53.38	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	359	M	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.71	1.00	0.00	0.00
INC	359	M	54	18M	Add RH	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	359	M	54	9M	Add CI	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	359	M	54	4M	Add FF	75.00	0.26	39.36	0.14	76.80	0.26	99.77	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	400	L	49	9M	Add CI,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	400	L	49	4M	Add FF	0.00	0.00	0.00	0.00	81.72	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.38
INC	500	L	94	14E	Moderate DOM on Combustor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	1.00	0.00	0.00	0.00	0.00
INC	502	S	9	18M	Add RH,	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	502	S	9	6M	Add CB	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	502	S	9	4M	Add FF	0.00	0.00	58.33	0.39	92.05	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	503	S	97	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.40	75.00	0.60	0.00	0.00
INC	503	S	97	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	503	S	97	4M	Add FF	0.00	0.00	46.75	0.23	85.29	0.41	75.01	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	504	M	63	7E	Moderate DOM on Existing VS,	0.00	0.00	28.24	0.49	0.00	0.00	29.85	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	504	M	63	18M	Add RH	97.73	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	504	M	63	6M	Add CB	97.73	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	600	L	55	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00
INC	600	L	55	4M	Add FF	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	700	M	6	4M	Add FF	0.00	0.00	65.62	0.26	99.59	0.40	84.74	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	701	M	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	701	M	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	701	M	9	4M	Add FF	0.00	0.00	65.04	0.34	0.00	0.00	75.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.26
INC	702	M	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	702	M	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	702	M	9	4M	Add FF	0.00	0.00	81.57	0.35	75.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.32
INC	703	S	20		Add Q,	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	703	S	20	6M	Add CB	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	703	S	20	16M	Add PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.71	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	704	S	4	15M	Add IWS	0.00	0.00	19.64	0.29	0.00	0.00	0.00	0.00	49.20	0.71	0.00	0.00	0.00	0.00	0.00	0.00

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Fraction	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
INC	705	M	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	1.00	0.00	0.00	0.00	0.00
INC	705	M	54	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	705	M	54	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	705	M	54	4M	Add FF	0.00	0.00	63.24	0.30	42.51	0.20	33.21	0.16	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.35
INC	706	M	19	7E	Moderate DOM on Existing VS	0.00	0.00	64.88	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	707	L	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.28	1.00	0.00	0.00
INC	707	L	25	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	707	L	25	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	707	L	25	4M	Add FF	0.00	0.00	93.80	0.32	75.00	0.26	75.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.17
INC	708	S	28	3M	Moderate DOM on Existing ESP,	0.00	0.00	42.93	0.46	0.00	0.00	50.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	708	S	28	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	708	S	28	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	709	S	42	18M	Add RH,	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	709	S	42	6M	Add CB	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	709	S	42	15M	Add IWS	0.00	0.00	70.30	0.74	0.00	0.00	0.00	0.00	25.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
INC	710	M	33	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.39	1.00	0.00	0.00	0.00	0.00
INC	710	M	33	15M	Add IWS	0.00	0.00	44.03	0.23	75.00	0.39	0.00	0.00	74.78	0.39	0.00	0.00	0.00	0.00	0.00	0.00
INC	711	L	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	711	L	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	711	L	9	4M	Add FF	0.00	0.00	53.13	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.59
INC	712	L	6	4M	Add FF	0.00	0.00	49.83	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	713	S	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00	0.00	0.00	0.00	0.00
INC	713	S	54	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	713	S	54	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	713	S	54	4M	Add FF	0.00	0.00	76.90	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	714	M	9	18M	Add RH,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	714	M	9	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	1.00
INC	714	M	9	4M	Add FF	0.00	0.00	17.58	0.12	75.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.35
INC	725	S	12	12E	Moderate DOM on Existing WS,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.97	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	725	S	12	4M	Add FF	0.00	0.00	30.34	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	726	S	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.25	1.00	0.00	0.00	0.00	0.00
INC	726	S	54	18M	Add RH	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	726	S	54	6M	Add CB	75.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	726	S	54	4M	Add FF	0.00	0.00	0.00	0.00	75.00	0.50	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	727	S	71	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.23	0.50	97.74	0.50	0.00	0.00
INC	727	S	71	4M	Add FF	0.00	0.00	82.04	0.40	75.00	0.36	50.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	728	S	63	7E	Moderate DOM on Existing VS,	0.00	0.00	65.57	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	728	S	63	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	728	S	63	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	784	S	4	15M	Add IWS	0.00	0.00	63.12	0.23	75.00	0.27	50.00	0.18	90.77	0.33	0.00	0.00	0.00	0.00	0.00	0.00
INC	805	M	98	5E	Small DOM on Existing WS,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.86	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	805	M	98	17M	Add AB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.49	0.19	85.39	0.81	0.00	0.00
INC	805	M	98	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	805	M	98	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	805	M	98	4M	Add FF	0.00	0.00	72.43	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.51
INC	806	M	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.68	0.50	74.58	0.50	0.00	0.00
INC	806	M	25	18M	Add RH	79.34	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	806	M	25	9M	Add CI	79.34	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	806	M	25	4M	Add FF	79.34	0.36	65.37	0.29	77.17	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	807	M	54	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.80	1.00	0.00	0.00	0.00	0.00
INC	807	M	54	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.28	1.00
INC	807	M	54	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.28	1.00
INC	807	M	54	4M	Add FF	0.00	0.00	46.54	0.29	42.82	0.26	23.57	0.14	0.00	0.00	0.00	0.00	0.00	0.00	50.28	0.31
INC	808	M	55	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.00	0.00	0.00
INC	808	M	55	4M	Add FF	0.00	0.00	21.54	0.13	75.00	0.44	75.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	809	L	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.94	1.00	0.00	0.00

Source Type	EER ID No.	Size Category	Model Group No.	Cost Model No.	Required Add-on Flue Gas Control	Hg Model % Reduction	Hg Model Fraction	PM Model % Reduction	PM Model Fraction	SVM Model % Reduction	SVM Model Fraction	LVM Model % Reduction	LVM Model Fraction	HCl/Cl2 Model % Reduction	HCl/Cl2 Model Fraction	HC Model % Reduction	HC Model Frac tion	CO Model % Reduction	CO Model Fraction	TEQ Model % Reduction	TEQ Model Fraction
INC	809	L	25	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	809	L	25	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	809	L	25	4M	Add FF	0.00	0.00	0.00	0.00	98.84	0.36	97.11	0.36	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.28
INC	810	M	6	4M	Add FF	0.00	0.00	75.00	0.30	90.97	0.37	81.01	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	824	S	95	6E	Small DOM on Existing VS	0.00	0.00	0.00	0.00	0.00	0.00	10.57	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	825	M	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.50	75.00	0.50	0.00	0.00
INC	825	M	25	18M	Add RH	50.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.50
INC	825	M	25	9M	Add CI	50.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.50
INC	825	M	25	4M	Add FF	50.00	0.28	76.92	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.28
INC	902	M	9	18M	Add RH,	37.10	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	902	M	9	9M	Add CI	37.10	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	902	M	9	4M	Add FF	37.10	0.55	29.80	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	904	S	93	14E	Moderate DOM on Combustor,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.37	1.00	0.00	0.00	0.00	0.00
INC	904	S	93	18M	Add RH	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	904	S	93	6M	Add CB	50.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	904	S	93	15M	Add IWS	0.00	0.00	0.00	0.00	75.00	0.50	0.00	0.00	75.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
INC	905	S	6	4M	Add FF	0.00	0.00	50.00	0.27	99.60	0.53	38.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	906	S	3	12E	Moderate DOM on Existing WS,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.36	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	906	S	3	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	906	S	3	6M	Add CB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00
INC	906	S	3	4M	Add FF	0.00	0.00	78.61	0.39	50.00	0.25	75.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	914	M	39	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	1.00	0.00	0.00	0.00	0.00
INC	914	M	39	18M	Add RH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.44	1.00
INC	914	M	39	9M	Add CI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.44	1.00
INC	914	M	39	4M	Add FF	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	95.44	0.56
INC	914	M	39	16M	Add PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.73	1.00	0.00	0.00	0.00	0.00	0.00	0.00
INC	915	M	25	17M	Add AB,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.43	0.42	92.24	0.58	0.00	0.00
INC	915	M	25	18M	Add RH	75.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.43
INC	915	M	25	9M	Add CI	75.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.43
INC	915	M	25	4M	Add FF	75.00	0.20	73.76	0.19	90.65	0.24	83.16	0.22	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.15

SECTION 4

MACT COMPLIANCE COSTS

In addition to the engineering costs incurred due to the MACT rule, compliance costs, including performance testing and monitoring costs, will also be incurred by HWCs. Periodic performance tests will be required to confirm compliance with the MACT regulation at regularly scheduled times. The proposed rule also requires the use of continuous emission monitors (CEMs) for CO, HC, Hg and PM to ensure continuous compliance with the MACT standards. This chapter presents the compliance costs for the proposed rule.

4.1 COMPLIANCE REQUIREMENTS

This section outlines the compliance requirements in the proposed rule including the CEMS requirements, the Relative Accuracy Test requirements, and the compliance test requirements.

4.1.1 CEMS Requirement

The proposed MACT rule calls for the use of Hg and PM CEMs in addition to the CO and HC CEMs that are currently required on many HWCs. This cost analysis provides cost estimates for both a baseline system that includes only CO and HC CEMS and the proposed CEMS that includes Hg and PM monitors in addition to CO and HC monitors. The cost for the baseline system provides a reference for calculation of the additional cost of requiring Hg and PM CEMs for compliance purposes.

4.1.2 Relative Accuracy Test Requirements

Relative Accuracy Tests (RATAs) will be required for all CEMs. These tests provide a periodic confirmation of CEM accuracy and precision. Nine 1-hour test runs are required for all RATAs. Two contingency test runs are included in all costs. In cases where CO and HC CEMs are currently required, a RATA of the CEMs must be performed once per year. The schedule for Relative Accuracy Testing of the CEMs under the proposed MACT rule is as follows:

- HC CEMs
  - Once per year
- Hg CEMs
  - Every 3 years for CKs, LWAKs, commercial incinerators and large onsite incinerators.
  - Every 5 years for small and medium sized onsite incinerators.
- PM CEMs
  - Every 1.5 years for CKs, LWAKs, commercial incinerators and large

onsite incinerators.
- Every 2.5 years for small and medium onsite incinerators.

The source sizes referenced in this section are the same as those used in the engineering cost analysis and are described in section 2.6.

4.1.3 Compliance Test Requirements

Two levels of compliance performance tests are required in the proposed rule: the comprehensive performance test and the confirmatory performance assessment. A summary of these performance tests is provided below.

- *Comprehensive Performance Test* - Includes manual method stack sampling for Metals, PM, PCDD/PCDF, HCl/Cl_2 and Organics at two worst-case operating conditions.

  - Test performed once every three years for CKs, LWAKs, commercial incinerators and large onsite incinerators
  - Test performed once every five years for small and medium onsite incinerators.

- *Confirmatory Performance Assessment* - Includes manual method sampling for Dioxins only at one normal operating condition.

  - Test performed once every three years for CKs, LWAKs, commercial incinerators and large onsite incinerators. Performed midway between comprehensive performance tests.

  - Test performed once every five years for small and medium onsite incinerators. Performed midway between comprehensive performance tests.

4.2 SUMMARY OF COMPLIANCE COSTS

The MACT compliance cost refers to the incremental cost to comply with the MACT regulation relative to the existing RCRA regulations. This incremental cost is determined by estimating the total absolute cost of complying with the MACT rule and subtracting out the estimated absolute cost of complying with the present RCRA regulations.

For this analysis the absolute cost of complying with the MACT regulation is broken down into the segments listed below.

A. CEMS Installation Costs
B. CEMS Inspections, Calibrations and Equipment Maintenance
C. CEMS Relative Accuracy Tests (RATA) Costs
D. Comprehensive Performance Test
E. Comprehensive Performance Test One-Time Costs
F. Confirmatory Performance Assessment

G. Confirmatory Performance Assessment One-Time Costs

An additional segment H is included for cost savings from the current RCRA regulations (i.e., testing and monitoring costs required under the current regulations which will be eliminated under the new proposed rule).

Table 4-1 presents a summary of the total cost of compliance for the five source/size combinations with the baseline CEMS and baseline CEMS plus Hg and PM CEMs. The letters used in the table correspond to those in the list above.

Table 4-2 provides a detailed line-item breakdown of these costs. The cost for the baseline CEMS (CO and HC) is presented in Option 1 of the table. Incremental costs for the PM and Hg analyzers are presented in Options 2a and 2b of the table, respectively.

Appendix G provides a detailed cost breakdown (in a similar but slightly different format) for some compliance options that are no longer under consideration. These include requirements for HCl and PIC CEMs and a different testing schedule (Comprehensive Performance Testing once every three years and Confirmatory Performance Assessments two out of every three years). These options are included in this document because the cost estimates for these options are referenced in the regulatory impact analysis. Some of the estimates of individual costs used in these earlier cost estimates have changed. These earlier cost estimates are not discussed in the sections that follow. Only the cost estimates that are used in analysis of the proposed compliance options costs are discussed.

The following sections in this report contain a discussion of all of the costs used in estimation of MACT incremental compliance costs. All of the cost segments listed by letter above are discussed.

4.3 CEMS INSTALLATION COSTS

Table 4-3 provides the estimated CEM installation costs and a description of the type of CEMs used in the cost estimates. A complete discussion of the technical aspects of these CEMs is contained in Volume IV. Cost is included for a single CEMs system. No backup CEMs is assumed in the estimated incremental compliance costs. This is a non-conservative estimate since HWCs would have to stop burning hazardous waste during any period that one of the CEMs is not operating and some HWCs may incur a financial loss from this additional downtime.

All sources will be required to have continuous CO and HC monitoring under MACT regulations. Under the current RCRA regulations all facilities presently are required to continuously monitor CO, so a CO CEM will not be installed in any facilities as a result of the MACT rule. Sixty-seven percent of cement kilns and thirty three percent of incinerators are presently required to continuously monitor hydrocarbons (HC). A hydrocarbon CEM will have to be installed in the thirty three percent of cement kilns and sixty seven percent of incinerator that do not currently have HC CEMs. The cost of installing HC CEMs is treated as a weighted average for all facilities. For example, the $25,000 cost from Table 4-3 for installation of a hydrocarbon CEM at an individual cement kiln is multiplied by thirty three percent to obtain the weighted average HC CEM installation cost of $8333 used in Table 4-2.

Additional computer hardware must be installed to integrate all of the CEMS with a data acquisition system. The cost of this computer hardware and software has been estimated at $15,000 and is entered in Table 4-2 as Ancillary CEM Equipment costs of $7500 in incremental Options 2a and 2b.

4.3.1 Discount Rate for Annualizing Capital Investments

The productive life of all of the CEMS hardware was estimated at 10 years. The OAQPS Control Cost Manual, January 1990, recommends that a "10% pre-tax marginal rate of return on private investment" be used to calculate the capital recoveries. For all capital expenditures used for the present analysis, a 10% real rate of return is used to calculated the capital recoveries. The capital recovery factor (CRF) of 16.27% is calculated using the following equation.

$$CRF = \frac{i(1+i)^n}{(1+i)^n - 1}$$

where: $i = 10\%$
$n = 10$ years

4.4 CEMS INSPECTIONS, CALIBRATIONS, AND EQUIPMENT MAINTENANCE

The cost of the CEMS calibration , maintenance, and quarterly audits are shown below. The costs for each of these CEMs are based on a specified number of operator hours per day (incremental to existing requirements) plus an allowance for maintenance materials and calibration gases. The estimate of daily average time required for calibration and maintenance is based on engineering judgement and the complexity of the individual analyzers. Following are the estimated costs for each CEM. The hourly rate is based on the rate presented in the ICR report for the BIF rule.

HC	1/4 hr/day x $42.82/hr x 330 day/yr = $3533 plus 10% of TCI =	$6033
Hg	1/4 hr/day x $42.82/hr x 330 day/yr = $3533 plus 10% of TCI =	$16533
PM	1/4 hr/day x $42.82/hr x 330 day/yr = $3533 plus 10% of TCI =	$6033
Anc Equip	1/8 hr/day x $42.82/hr x 330 day/yr = $1766 plus 10% of TCI =	$3266

Where TCI is the total capital investment ($25,000 for HC, $130,000 for Hg, $25,000 for PM, and $15,000 for ancillary equipment).

4.5 CEMS RELATIVE ACCURACY TEST COSTS

Relative Accuracy Tests (RATAs) will be required for all CEMs. These tests provide a periodic confirmation of CEM accuracy and precision. Nine 1-hour test runs are required for all RATAs. Two contingency test runs are included in all costs. A detailed discussion of the RATA requirements for HC, Hg and PM CEMs is contained in Volume IV.

The CEMS RATA costs are broken down into several line items. The first line item is the cost of the RATA for the baseline CEMS including O2, CO and HC analyzers. Since this compliance cost estimate includes only the incremental costs above the existing regulatory requirements, it is assumed that all sources already have CO monitors which require RATA and that there is a small ($500) incremental cost to certify the HC monitor at the same time. The RATA for HC and CO analyzers is versus a certified calibration span gas. The HC and CO RATAs are performed once per year. This cost applies only to the percentage of facilities that are not currently required to have HC CEMs.

In addition to the RATA of the CO and HC CEMS, a RATA of the Hg and PM CEMs must also be performed. Line items are included in the PM and Hg sections of the detailed cost table (4-2) for the testing and reporting costs due to the Hg and PM RATAs. The RATAs for the Hg and PM CEMs are by manual method stack sampling. The basis for all manual method stack sampling costs used in this analysis is given in Table 4-4. This includes nine required test runs and two contingency test runs.

4.5.1 RATA Schedule

The schedule for Relative Accuracy Testing (RATA) of the Hg and PM CEMS is as follows.

- Hg CEMS
  - Every 3 years for CKs, LWAKs, commercial incinerators and large onsite incinerators.
  - Every 5 years for small and medium onsite incinerators.

- PM CEMs
  - Every 1.5 years for CKs, LWAKs, commercial incinerators and large onsite incinerators.
  - Every 2.5 years for small and medium onsite incinerators.

The Hg RATA and one of two PM RATAs are performed at the same time as the comprehensive performance tests. Since manual method sampling for Hg and PM is required for the comprehensive performance tests, the cost for the Hg and PM RATAs in these years is the incremental cost for additional test runs required for the RATAs plus additional cost for reporting. Eight test runs are assumed for the comprehensive performance tests so three additional test runs are required to complete the eleven test run requirement of the Hg and PM RATAs.

The other PM RATA is performed at the same time as the confirmatory performance assessment. No PM testing is required during the confirmatory performance assessment so the cost estimate is for the full cost of eleven 1 hour manual method test runs.

4.5.2 Annualizing of Costs for RATAs and Performance Tests

The costs for the RATAs and performance tests are annualized using a 10% pre-tax marginal rate of return on private investment". The costs are annualized over the test cycle period

by first, discounting the expenditure to a present value and then recovering that present value over the number of years in the test cycle. No adjustment is made for inflation. The following equations are utilized.

Discounting of the Expenditure

$$\text{Discount Factor} = \frac{1}{(1+i)^n}$$

where: i = 10%
n = year in which the expense was incurred

Recovery of the Expenditure over the Number of Years in the Test Cycle

$$\text{Capital Recovery Factor} = \frac{i(1+i)^n}{(1+i)^n - 1}$$

where: i = 10%
n = number of years in the test cycle

And the annualizing factor is the product of the discount factor and the capital recovery factor. For example, for small and medium onsite incinerators, the cost of the initial PM RATA and comprehensive performance test are incurred at year zero in the five year test cycle for small and medium onsite incinerators. The discount factor is 1, the capital recovery factor is .264, and thus the annualizing factor for these tests is 1*.264 = .264. The total cost of the RATA and performance test is multiplied by .264 to get the annualized cost for the RATA and performance test.

The costs for the confirmatory performance assessment and the second PM RATA are incurred at year 2.5 of the 5 year test cycle. The discount factor is .788, the capital recovery factor is .264, and the annualizing factor for these tests is .788*.264 = .208. The annualized costs for the two RATAs are added together to get a total annualized cost for PM RATAs.

4.6 COMPREHENSIVE PERFORMANCE TEST

Comprehensive performance tests are required on a regularly scheduled basis to establish compliance with the MACT rule. These performance tests are costed assuming metals and POHC (Principal Organic Hazardous Constituents) spiking is performed at two worst-case operating conditions. Manual method stack sampling for metals, organics, HCl/Cl_2, PM, and dioxins is required. Three manual method test runs are required for each condition. An additional contingency test run per condition is added for insurance.

As described above, the costs for the comprehensive performance tests are broken into one-time and periodic costs. A description of the costs included in each of these cost estimates is provided below.

4.6.1 One-Time Comprehensive Performance Test Costs

The cost of the comprehensive performance test is divided into two parts (D & E). It is assumed that the test plan, QA/QC plan, and compliance certifications will be about the same each time a comprehensive test is performed, therefore, the cost of preparing these documents is less each time following the initial preparation. So, the costs in part E are pulled out as a one-time costs which are recovered over 12 years. The basis for the cost estimate is engineering judgement of the cost to prepare the documents and negotiate them with the Agency. It includes the cost incurred by the source owner and the direct costs to the certification testing firm.

4.6.2 Periodic Comprehensive Performance Test Costs

Comprehensive performance tests will be performed on the following schedule:

- Once every three years for CKs, LWAKs, commercial incinerators and large onsite incinerators
- Once every five years for small and medium onsite incinerator

The costs incurred for these performance tests are recovered (or annualized) over the 3 or 5 year period by the same procedure described in Section 4.4 on RATA cost estimates. A breakdown and description of the periodic comprehensive test costs follows.

4.6.2.1 Planning, Reporting and Operating Parameter Monitoring

The first line item in the periodic performance test cost section (D) is the recurring cost to prepare the test plan, QA/QC plan, and negotiate with the agency. These costs are based on engineering judgement. The next category of costs is the evaluation of the operating parameter monitors. The source permits will require that many operating parameters be monitored on a continuous basis. These monitors include temperature sensors, feed rate sensors, flow rate sensor, etc. During the comprehensive performance test, the accuracy of these operating parameter sensors will be evaluated. An independent certification testing company would check all the monitors and verify that they are recording accurate measurements.

4.6.2.2 Test Management

The next section of the comprehensive performance test costs is for conducting the actual performance test. The first line item allows compliance cost for performance test management by both the source and the outside testing contractor. The dollar amount is based on engineering judgement.

4.6.2.3 Metals and POHC Spiking

Metals spiking will be required during comprehensive performance tests under the MACT rule and it is assumed that POHC spiking will be required concurrently under RCRA. For comprehensive performance tests only Hg, Pb (a surrogate for all semi volatile metals (SVM)) and Cr (a surrogate for low volatile metals (LVM)) are assumed to be spiked. Metals partitioning data

from the OSW database is used to estimate the fraction of metal fed to the source that ends up in the stack. The cost per hour for metals spiking is calculated based on a desired emission limit. This total hourly cost is calculated based on an emission of 105 ug/dscm Hg, 60 ug/dscm Pb, and 80 ug/dscm Cr. Note that these target levels correspond to earlier versions of the proposed rule. Table 4-5 shows the partioning factors, metal conpounds costs and calculated spiking costs.

The number of hours required for the spiking test are estimated based on the assumption that 24 hours are required for a CK or LWAK to reach steady state. Once this steady state is reached, an additional 8 hours are required for the test. For the incinerators, the 12 hours to reach steady state is not required. Based on the estimated duration of the spike, the total cost is calculated for each flue gas flow rate for the six source/size categories. A 25% contingency is added to these numbers to get the total cost estimate (TCE) for Hg, Pb, and Cr spiking. This TCE is used as the baseline spiking cost.

Spiking costs are calculated for three conditions applicable to this analysis. First, the spiking cost for a comprehensive performance test with metals and POHC spiking is estimated as 125% of this TCE. The 125% covers the cost of POHC spiking.

The spiking cost for an interim status trial burn (currently required under the RCRA regulation as described later) is estimated as 150% of the TCE. Although no POHC spiking is required for the Interim Status Trial Burn, under existing regulation, sources typically spike more metals because surrogates for LVM and SVM are not typically allowed. Additional cost is incurred since most of the other metals are more expensive that the three metals required during comprehensive performance tests. The spiking cost for a recertification trial burn (required under the current RCRA rule) is estimated as 200% of the TCE. This increased costs covers the cost for POHC spiking and the costs to spike in the extra metals.

4.6.2.4 Testing

The cost for sampling and analysis of all the feeds and effluents of the source is estimated. A line item is included for recording of key operating parameters during the compliance test. This estimate includes both costs incurred by the source and testing contractor costs. The mobilization costs are based on the estimated number of testing contractor personnel required to conduct the performance test.

The emissions measurement section of the comprehensive performance test includes the cost for the testing contractor to monitor and record the source's CEMS measurements as well as the cost of the manual stack measurements. Table 4-4 provides the breakdown of costs for actual manual method stack sampling for each individual HAP or group of HAPs.

4.6.2.5 Data Analysis and Reporting

The data analysis and reporting costs and the cost of preparing the compliance certifications is estimated. These costs are not only those incurred by the source testing contractor, but by the source (i.e., legal fees, etc).

4.7 CONFIRMATORY PERFORMANCE ASSESSMENT

Confirmatory performance assessments are less stringent performance evaluations than the comprehensive performance tests. The requirements for these confirmatory tests are listed below:

- One normal operating test condition with manual method sampling for PCDD/PCDF only (three - 3 hour tests plus one contingency test).
- No metals or POHC spiking
- Test performed according to the following schedule:
  - Once every three years for CKs, LWAKs, commercial incinerators and large onsite incinerators. Tests to be performed midway between comprehensive performance tests.
  - Once every five years for small and medium onsite incinerators. Tests to be performed midway between comprehensive performance tests.

The cost estimate for the confirmatory performance assessments are also divided between one-time costs and recurring or periodic costs. A discussion of both follows.

4.7.1 Confirmatory Performance Assessment One-Time Costs

As with the comprehensive performance tests, the one-time costs include preparation of the test plan, QA/QC plan, and compliance certifications. It is assumed that much of this preparatory work will remain the same each time a confirmatory performance assessment is performed and that a standardized format and procedure will be utilized each time. The one-time costs are shown in part F of Tables 4-1 and 4-2. This estimate includes the cost incurred by the source owner and the direct costs to the certification testing firm. The one-time costs are recovered over a twelve year period.

4.7.2 Confirmatory Performance Assessment Periodic or Recurring Costs

The cost of conducting the actual confirmatory performance tests includes recording key operating parameters, mobilization/travel expenses, and the actual emissions measurements. In this case, only dioxins will be measured by manual method stack sampling for one "typical" condition. The stack testing will include four test runs (including one contingency) and a QA/QC run. The existing CEMs will be utilized to measure emissions of O_2, CO, HC, Hg and PM.

4.8 COMPLIANCE COST SAVINGS

The approach used for estimation of incremental MACT compliance costs is to calculate the compliance cost incurred (A - G) and then subtract the avoided compliance costs that would have been incurred under the existing RCRA rules and practices during the same time period. This section explains the estimate of compliance costs that would be incurred under the current RCRA rule. These costs are included in part H of Tables 4-1 and 4-2. These avoided compliance costs are divided into the following parts.

- RCRA recertification trial burn
- BIF interim status trial burn

4.8.1 RCRA Recertification Trial Burn

The RCRA recertification trial burn is currently required each time a source's Part B permit comes up for renewal. It has been assumed that the average permit is 6 years, so a new trial burn would be required every six years. The trial burn is basically the same as a comprehensive performance test except more metals and POHC spiking is required. The line items in the cost estimate are the same as for the comprehensive performance test. The basis for estimation of the costs of each of these line items was addressed in Section 4.6 on comprehensive performance tests.

4.8.2 BIF Interim Status Trial Burn

The interim status trial burn applies to CKs and LWAKs only. An interim status trial burn is required every three years until a facility receives a RCRA Part B permit. In an interim status trial burn, metals spiking is required, but DRE testing (POHC spiking) is not required.

The procedure for estimation of the number of sources requiring interim status trial burns versus RCRA Part B recertification trial burns is as follows. As of today, very few BIF sources have received their Part B permits. An estimate of the number of Part B permits that will be issued in the next three years is provided in the ICR for the BIF rule. Using this estimate as a basis, the number of years it would take to issue all Part B permits under the existing regulations was estimated. A summary of this estimate is provided in Table 4-6. From the table, there are a total of 156 BIF facilities. By the year 1999, 77 of these facilities will remain in interim status. On a three year test schedule, one-third (25.7) of these facilities would have required an interim status trial burn in that year. Thus, 25.7/156 = 16% of all BIFs will avoid having to conduct an interim status trial burn under the proposed rule. Similarly 12%, 8%, and 4% of the facilities will avoid interim status trial burns in subsequent years. Assuming that these percentages are the same for CKs and LWAKs as for all BIFs, summing, discounting and recovering these percentages, 4.9% of the cost savings for interim status trial burns can be applied annually.

The cost savings from avoided recertification and interim status trial burns is annualized in the same manner as costs for comprehensive and confirmatory performance tests.

4.9 ASSUMPTIONS

The following is a list of major assumptions made in the evaluation of MACT compliance costs:

- A Confirmatory Performance Assessment requires three runs at a single normal operating condition (i.e., all operating parameters for which limits established at 50 - 100% of the average operating level; no spiking required) to certify compliance

- A Comprehensive Performance Test requires three runs at each of two worst case operating conditions (i.e., used to set permit limits; spiking required, DRE test required) to certify compliance

- All sources will require dioxin compliance under MACT; 67% of CKs and 25% of Incinerators presently comply with a dioxin emission

- All CKs and LWAKs require metals (LVM & SVM) compliance under existing regulations and MACT; 90% of Incinerators require metals (LVM & SVM) compliance under existing regulations and MACT

- A single CEM system (i.e., no redundancy) will be required for each source and the cost of lost time due to CEM downtime has not been included

- Metals spiking times for comprehensive performance tests and recertification and interim status trial burns are underestimated. An additional 12 hours of spiking time should be added to each estimate. This error provides a conservative estimation of incremental compliance costs since the spiking costs per hour are higher for the trial burns than for the comprehensive performance tests.

TABLE 4-1. SUMMARY OF INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*CK-S Annualized Cost*	*CK-L Annualized Cost*	*LWAK Annualized Cost*	*INC-S &M (Onsite) Annualized Cost*	*INC (L Onsite & Alt Commercial) Annualized Cost*
Option 1: Baseline CEM System (CO & HC Only)					
A. CEMS Installation	$1,108	$1,108	$3,325	$2,218	$2,218
B. Inspections, Calibrations, and Equipment Maintenance	$2,553	$2,553	$7,668	$5,113	$5,113
C. CEMS RATA	$167	$167	$500	$334	$334
D. Comprehensive Performance Test	$97,577	$132,804	$81,564	$47,619	$77,890
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)	$4,655	$4,655	$4,655	$4,655	$4,655
F. Confirmatory Performance Assessment	$17,375	$17,375	$17,375	$10,752	$17,375
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)	$3,025	$3,025	$3,025	$3,025	$3,025
H. Compliance Cost Savings	($73,190)	($106,492)	($53,592)	($38,375)	($42,361)
TOTAL ANNUALIZED COST - OPTION 1	**$53,269**	**$56,195**	**$64,518**	**$35,320**	**$68,248**
Option 2: Baseline CEM System with PM and Hg CEMs					
A. CEMS Installation	$23,718	$23,718	$25,935	$24,828	$24,828
B. Inspections, Calibrations, and Equipment Maintenance	$28,385	$28,385	$38,499	$30,946	$30,946
C. CEMS RATA	$11,151	$11,151	$11,485	$7,784	$11,318
D. Comprehensive Performance Test	$97,577	$132,804	$81,564	$47,619	$77,890
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)	$4,655	$4,655	$4,655	$4,655	$4,655
F. Confirmatory Performance Assessment	$17,375	$17,375	$17,375	$10,752	$17,375
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)	$3,025	$3,025	$3,025	$3,025	$3,025
H. Compliance Cost Savings	($73,190)	($106,492)	($53,592)	($38,375)	($42,361)
TOTAL ANNUALIZED COST - OPTION 2	**$113,696**	**$115,622**	**$123,945**	**$91,213**	**$127,675**

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*Total Cost*	*Fraction of CK-S Sources*	*CK-S Cost*	*Fraction of CK-L Sources*	*CK-L Cost*	*Fraction of LWAK Sources*	*LWAK Cost*
OPTION 1: BASELINE CEMS SYSTEM (HC, CO Only)							
A. CEMS Installation							
CEMS Monitor Costs							
HC CEM	$25,000	33.3%	$8,333	33.3%	$8,333	100.0%	$25,000
Total Cost (A)			$8,333		$8,333		$25,000
Total Annualized Cost (A)		33.3%	$1,105	33.3%	$1,105	33.3%	$3,315
B. Inspections, Calibrations, and Equipment Maintenance							
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits							
HC CEM	$7,666	33.3%	$2,553	33.3%	$2,553	100.0%	$7,666
Total Cost (B)			$2,553		$2,553		$7,666
Total Annualized Cost (B)		100.0%	$2,553	100.0%	$2,553	100.0%	$7,666
C. CEMS Relative Accuracy Test (RATA)							
CO CEM	$0	100.0%	$0	100.0%	$0	100.0%	$0
HC CEM	$500	33.3%	$167	33.3%	$167	100.0%	$500
Total Cost (C)			$167		$167		$500
Total Annualized Cost (C)		100.0%	$167	100.0%	$167	100.0%	$500
D. Comprehensive Performance Test							
Prepare Test Plan, QA/QC Plan, & Negotiations	$7,500	100.0%	$7,500	100.0%	$7,500	100.0%	$7,500
Continuous Monitoring System Performance Evaluation							
Operating Parameter Monitor Evaluation	$2,500	100.0%	$2,500	100.0%	$2,500	100.0%	$2,500
Conduct Performance Test							
Performance Test Management	$15,000	100.0%	$15,000	100.0%	$15,000	100.0%	$15,000
Metals and PCDF Spiking		100.0%	$66,250	100.0%	$162,500	100.0%	$22,500
Sample/Analysis of all Feeds and Effluents	$12,000	100.0%	$12,000	100.0%	$12,000	100.0%	$12,000
Record Key Operating Parameters	$10,000	100.0%	$10,000	100.0%	$10,000	100.0%	$10,000
Mobilization/Travel Expense	$18,000	100.0%	$18,000	100.0%	$18,000	100.0%	$18,000
Emissions Measurements (2 condition)							
Monitor Source's CEMS	$5,000	100.0%	$5,000	100.0%	$5,000	100.0%	$5,000
Manual Stack Measurements (3 runs (+2 QA/QC), each 3 hours)							
Metals (incl. Hg) - Method 29	$32,900	100.0%	$32,900	100.0%	$32,900	100.0%	$32,900
Dioxins - Method 23	$33,200	100.0%	$33,200	100.0%	$33,200	100.0%	$33,200
PM - Method 5	$11,000	100.0%	$11,000	100.0%	$11,000	100.0%	$11,000
HCl/Cl2 - Method 26	$12,100	100.0%	$12,100	100.0%	$12,100	100.0%	$12,100
PICs - Method 0030	$22,900	100.0%	$22,900	100.0%	$22,900	100.0%	$22,900
Data Analysis and Reporting	$12,500	100.0%	$12,500	100.0%	$12,500	100.0%	$12,500
Prepare Compliance Certifications	$5,753	100.0%	$5,753	100.0%	$5,753	100.0%	$5,753
Total Cost (D)			$269,003		$365,353		$223,853
Total Annualized Cost (D)		36.6%	$97,577	36.6%	$132,504	36.6%	$81,564

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	Total Cost	Fraction of CK-S Sources	CK-S Cost	Fraction of CK-L Sources	CK-L Cost	Fraction of LWAK Sources	LWAK Cost
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Prepare Test Plan, QA/QC Plan, & Negotiations	$22,500	100.0%	$22,500	100.0%	$22,500	100.0%	$22,500
Data Analysis and Reporting	$12,500	100.0%	$12,500	100.0%	$12,500	100.0%	$12,500
Total Cost (E)			$35,000		$35,000		$35,000
Total Annualized Cost (E)		13.3%	$4,655	13.3%	$4,655	13.3%	$4,655
F. Confirmatory Performance Assessment							
Prepare Test Plan, QA/QC Plan, & Negotiations	$5,000	100.0%	$5,000	100.0%	$5,000	100.0%	$5,000
Continuous Monitoring System Performance Evaluation							
CEMS Audit	[illegible]	100.0%	$0	100.0%	$0	100.0%	$0
Operating Parameter Monitor Evaluation	$4,000	100.0%	$4,000	100.0%	$4,000	100.0%	$4,000
Conduct Performance Test							
Record Key Operating Parameters	$2,500	100.0%	$2,500	100.0%	$2,500	100.0%	$2,500
Mobilization/Travel Expense	$3,000	100.0%	$3,000	100.0%	$3,000	100.0%	$3,000
Emissions Measurements (1 condition)							
Monitor Source's CEMS	$2,500	100.0%	$2,500	100.0%	$2,500	100.0%	$2,500
Manual Stack Measurements (4 runs (+1 QA/QC), each 3 hours)							
Dioxins - Method 23	$21,350	100.0%	$21,350	100.0%	$21,350	100.0%	$21,350
Data Analysis and Reporting	$5,000	100.0%	$5,000	100.0%	$5,000	100.0%	$5,000
Prepare Compliance Certifications	$5,753	100.0%	$5,753	100.0%	$5,753	100.0%	$5,753
Total Cost (F)			$51,103		$51,103		$51,103
Total Annualized Cost (F)		34.0%	$17,375	34.0%	$17,375	34.0%	$17,375
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Prepare Test Plan, QA/QC Plan, & Negotiations	$15,000	100.0%	$15,000	100.0%	$15,000	100.0%	$15,000
Data Analysis and Reporting	$10,000	100.0%	$10,000	100.0%	$10,000	100.0%	$10,000
Total Cost (G)			$25,000		$25,000		$25,000
Total Annualized Cost (G)		12.1%	$3,025	12.1%	$3,025	12.1%	$3,025
H. Compliance Cost Savings							
H-1. Avoided Recertification Trial Burns							
Prepare Test Plan, QA/QC Plan, & Negotiations	$35,000	100.0%	$35,000	100.0%	$35,000	100.0%	$35,000
Conduct Compliance Test							
Trial Burn Management	$15,000	100.0%	$15,000	100.0%	$15,000	100.0%	$15,000
Metals and POHCs Spiking	$36,000	100.0%	$105,000	100.0%	$260,000	100.0%	$36,000
Sample/Analysis of all Feeds and Effluents	$20,000	100.0%	$20,000	100.0%	$20,000	100.0%	$20,000
Record Key Operating Parameters	$10,000	100.0%	$10,000	100.0%	$10,000	100.0%	$10,000
Mobilization/Travel Expense	$21,000	100.0%	$21,000	100.0%	$21,000	100.0%	$21,000
Emissions Measurements (2 conditions)							
Continuous Emission Monitoring (3, three hour HRA periods per cond. 6 total)	$4,000	100.0%	$4,000	100.0%	$4,000	100.0%	$4,000
Manual Stack Measurements (4 runs (+1 QA/QC) per cond. 10 runs total, each 3 hours)							
PM - Method 5	$11,000	100.0%	$11,000	100.0%	$11,000	100.0%	$11,000
HCl & Cl2 - Method 26A	$12,100	100.0%	$12,100	100.0%	$12,100	100.0%	$12,100
Metals (incl. Hg) - Method 29	$32,900	100.0%	$32,900	100.0%	$32,900	100.0%	$32,900
Dioxins - Method 23	$33,200	66.7%	$22,144	66.7%	$22,144	0.0%	$0
Organics, SW846 Method 0030	$22,900	100.0%	$22,900	100.0%	$22,900	100.0%	$22,900
Data Analysis and Reporting	$25,000	100.0%	$25,000	100.0%	$25,000	100.0%	$25,000
Prepare Compliance Certifications	$5,753	100.0%	$5,753	100.0%	$5,753	100.0%	$5,753

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*Total Cost*	*Fraction of CE-S Sources*	*CE-S Cost*	*Fraction of CE-L Sources*	*CE-L Cost*	*Fraction of LWAE Sources*	*LWAE Cost*
Total Cost (H-1)			$342,597		$496,397		$260,653
Total Annualized Cost (H-1)		17.3%	($59,344)	17.3%	($85,946)	17.3%	($45,363)
H-2. Avoided Interim Status Trial Burns							
Prepare Test Plan, QA/QC Plan, & Negotiations	$30,000	100.0%	$30,000	100.0%	$30,000	100.0%	$30,000
Confirm Compliance Test							
Trial Burn Management	$15,000	100.0%	$15,000	100.0%	$15,000	100.0%	$15,000
Metals Spiking	$27,000	100.0%	$27,000	100.0%	$195,000	100.0%	$27,000
Sample/Analysis of all Feeds and Effluents	$20,000	100.0%	$20,000	100.0%	$20,000	100.0%	$20,000
Record Key Operating Parameters	$10,000	100.0%	$10,000	100.0%	$10,000	100.0%	$10,000
Mobilization/Travel Expense	$21,000	100.0%	$21,000	100.0%	$21,000	100.0%	$21,000
Emissions Measurements (3 conditions)							
Continuous Emission Monitoring (3, three hour TRA periods per cond. 9 total)	$4,000	100.0%	$4,000	100.0%	$4,000	100.0%	$4,000
Manual Stack Measurements (4 runs (+1 QA/QC) per cond, 10 runs total, each 3 hours)							
PM - Method 5	$11,000	100.0%	$11,000	100.0%	$11,000	100.0%	$11,000
HCl & Cl2 - Method 26A	$12,100	100.0%	$12,100	100.0%	$12,100	100.0%	$12,100
Metals (excl. Hg) - Method 29	$32,900	100.0%	$32,900	100.0%	$32,900	100.0%	$32,900
Dioxins - Method 23	$33,200	66.7%	$22,144	66.7%	$22,144	0.0%	$0
Data Analysis and Reporting	$20,000	100.0%	$20,000	100.0%	$20,000	100.0%	$20,000
Prepare Compliance Certifications	$5,753	100.0%	$5,753	100.0%	$5,753	100.0%	$5,753
Total Cost (H-2)			$283,397		$399,897		$208,753
Total Annualized Cost (H-2)		4.9%	($13,866)	4.9%	($19,546)	4.9%	($10,239)
H-3. Avoided Inspections, Calibrations, Equipment Maintenance							
Total Cost (H-3)			$0		$0		$0
Total Annualized Cost (H-3)		100.0%	$0	100.0%	$0	100.0%	$0
Total Annualized Cost (H)		100.0%	($73,190)	100.0%	($105,492)	100.0%	($55,602)
TOTAL ANNUALIZED COST - OPTION 1			$53,102		$56,028		$44,018

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*Total Cost*	*Fraction of CK-S Sources*	*CK-S Cost*	*Fraction of CF-L Sources*	*CE-L Cost*	*Fraction of LWAK Sources*	*LWAK Cost*
OPTION 2a: PM CEM INCREMENTAL COST							
A. CEMS Installation							
CEMS Monitor Costs							
PM In-situ CEM	$25,000	100.0%	$25,000	100.0%	$25,000	100.0%	$25,000
Ancillary CEM Equipment Costs							
DAC, Data Acquisition, and Reporting Hardware and Software	$7,500	100.0%	$7,500	100.0%	$7,500	100.0%	$7,500
Total Cost (A)	$32,500		$32,500		$32,500		$32,500
Total Annualized Cost (A)	Capital Cost	13.3%	$4,323	13.3%	$4,323	13.3%	$4,323
B. Inspections, Calibrations, and Equipment Maintenance							
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits							
PM In-Situ CEM	$6,033	100.0%	$6,033	100.0%	$6,033	100.0%	$6,033
Ancillary Equipment	$1,633	100.0%	$1,633	100.0%	$1,633	100.0%	$1,633
Total Cost (B)			$7,666		$7,666		$7,666
Total Annualized Cost (B)		100.0%	$7,666	100.0%	$7,666	100.0%	$7,666
C. CEMS Relative Accuracy Test (RATA)							
CEMS Relative Accuracy Test (RATA) for PM CEM							
Years in which RATA is performed with the Comprehensive Performance Test							
PM - By Manual Method 5 (Requires two additional 1 hour runs)	$3,900	100.0%	$3,900	100.0%	$3,900	100.0%	$3,900
Years in which RATA is performed with the Confirmatory Performance Assessment							
PM - By Manual Method 5 (Requires Eleven - 1 hour runs)	$13,900	100.0%	$13,900	100.0%	$13,900	100.0%	$13,900
Total Cost (C)							
Total Annualized Cost (C)		34.6%	$6,153	34.6%	$6,153	34.6%	$6,153
D. Comprehensive Performance Test							
No Charge							
Total Annualized Cost (D)			$0		$0		$0
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Total Cost (E)			$0		$0		$0
Total Annualized Cost (E)		13.3%	$0	13.3%	$0	13.3%	$0
F. Confirmatory Performance Assessment							
No Charge							
Total Annualized Cost (F)			$0		$0		$0
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Total Annualized Cost (G)			$0		$0		$0
H. Compliance Cost Savings							
Total Annualized Cost (H)		100.0%	$0	100.0%	$0	100.0%	$0
TOTAL ANNUALIZED COST - OPTION 2a			$18,142		$18,142		$18,142

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*Total Cost*	*Fraction of CE-S Sources*	*CE-S Cost*	*Fraction of CE-L Sources*	*CE-L Cost*	*Fraction of EWAK Sources*	*EWAK Cost*
OPTION 2b: Hg CEM INCREMENTAL COST							
A. CEMS Installation							
CEMS Monitor Costs							
Hg (total) Extractive CEM	$130,000	100.0%	$130,000	100.0%	$130,000	100.0%	$130,000
Ancillary CEM Equipment Costs							
PDC, Data Acquisition, and Reporting Hardware and Software	$7,500	100.0%	$7,500	100.0%	$7,500	100.0%	$7,500
Total Cost (A)			$137,500		$137,500		$137,500
Total Annualized Cost (A)		13.3%	$18,288	13.3%	$18,288	13.3%	$18,288
B. Inspections, Calibrations, and Equipment Maintenance							
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits							
Hg (total) CEM	$16,533	100.0%	$16,533	100.0%	$16,533	100.0%	$16,533
Ancillary Equipment	$1,633	100.0%	$1,633	100.0%	$1,633	100.0%	$1,633
Total Cost (B)			$18,166		$18,166		$18,166
Total Annualized Cost (B)		100.0%	$18,166	100.0%	$18,166	100.0%	$18,166
C. CEMS Relative Accuracy Test (RATA)							
CEMS Relative Accuracy Test (RATA) for Hg CEM							
RATA performed in conjunction with comprehensive performance test							
Hg - By Manual Method 5 (Requires two additional 3 hour runs)	$13,200	100.0%	$13,200	100.0%	$13,200	100.0%	$13,200
Total Cost (C)							
Total Annualized Cost (C)		36.6%	$4,831	36.6%	$4,831	36.6%	$4,831
D. Comprehensive Performance Test							
No Change							
Total Cost (D)			$0		$0		$0
Total Annualized Cost (D)		36.6%	$0	36.6%	$0	36.6%	$0
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Total Cost (E)			$0		$0		$0
Total Annualized Cost (E)		13.3%	$0	13.3%	$0	13.3%	$0
F. Confirmatory Performance Assessment							
No Change							
Total Annualized Cost (F)		34.0%	$0	34.0%	$0	34.0%	$0
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)							
Total Annualized Cost (G)		12.1%	$0	12.1%	$0	12.1%	$0
H. Compliance Cost Savings							
Total Annualized Cost (H)		100.0%	$0	100.0%	$0	100.0%	$0
TOTAL ANNUALIZED COST - OPTION 2b			$41,285		$41,285		$41,285

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	IHC (S&M Onsite) Fraction of Sources	IHC (S&M Onsite) Cost	IHC (S&M Onsite and All Comm.) Fraction of Sources	IHC (S&M Onsite and All Comm.) Cost
OPTION 1: BASELINE CEM SYSTEM (HC, CO Only)				
A. CEMS Installation				
CEMS Monitor Costs				
HC CEM	66.7%	$16,675	66.7%	$16,675
Total Cost (A)		$16,675		$16,675
Total Annualized Cost (A)	13.9%	$2,316	13.9%	$2,316
B. Inspections, Calibrations, and Equipment Maintenance				
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits				
HC CEM	66.7%	$5,113	66.7%	$5,113
Total Cost (B)		$5,113		$5,113
Total Annualized Cost (B)	100.0%	$5,113	100.0%	$5,113
C. CEMS Relative Accuracy Test (RATA)				
CO CEM	100.0%	$0	100.0%	$0
HC CEM	66.7%	$334	66.7%	$334
Total Cost (C)		$334		$334
Total Annualized Cost (C)	100.0%	$334	100.0%	$334
D. Comprehensive Performance Test				
Prepare Test Plan, QA/QC Plan, & Notification	100.0%	$7,500	100.0%	$7,500
Continuous Monitoring System Performance Evaluation				
Operating Parameter Monitor Evaluation	100.0%	$2,500	100.0%	$2,500
Conduct Performance Test				
Performance Test Management	100.0%	$15,000	100.0%	$15,000
Metals and PCDD/F Spiking	90.0%	$1,350	90.0%	$15,750
Sample/Analysis of all Feeds and Effluents	100.0%	$12,000	100.0%	$12,000
Record Key Operating Parameters	100.0%	$10,000	100.0%	$10,000
Mobilization/Travel Expense	100.0%	$18,000	100.0%	$18,000
Emissions Measurements (2 condition)				
Monitor Source's CEMS	100.0%	$5,000	100.0%	$5,000
Manual Stack Measurements (3 runs (+2 QA/QC), each 3 hours)				
Metals (incl. Hg) - Method 29	90.0%	$29,610	90.0%	$29,610
Dioxins - Method 23	100.0%	$33,200	100.0%	$33,200
PM - Method 5	100.0%	$11,000	100.0%	$11,000
HCl/Cl2 - Method 26	100.0%	$12,100	100.0%	$12,100
SO2 - Method 6C	100.0%	$32,900	100.0%	$32,900
Data Analysis and Reporting	100.0%	$12,500	100.0%	$12,500
Prepare Compliance Certifications	100.0%	$5,753	100.0%	$5,753
Total Cost (D)		$198,413		$211,913
Total Annualized Cost (D)	24.0%	$47,619	36.6%	$77,509

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	INC (Solid Onsite) Fraction of Sources	Cost	INC (L Onsite and All Comm.) Fraction of Sources	Cost
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Prepare Test Plan, QA/QC Plan, & Negotiations	100.0%	$22,500	100.0%	$22,500
Data Analysis and Reporting	100.0%	$12,500	100.0%	$12,500
Total Cost (E)		$35,000		$35,000
Total Annualized Cost (E)	13.1%	$4,655	13.1%	$4,655
F. Confirmatory Performance Assessment				
Prepare Test Plan, QA/QC Plan, & Negotiations	100.0%	$5,000	100.0%	$5,000
Continuous Monitoring System Performance Evaluation				
CEMS Audit	100.0%	$0	100.0%	$0
Operating Parameter Monitor Evaluation	100.0%	$4,000	100.0%	$4,000
Conduct Performance Test				
Record Key Operating Parameters	100.0%	$2,500	100.0%	$2,500
Mobilization/Travel Expense	100.0%	$5,000	100.0%	$5,000
Emissions Measurements (1 condition)				
Monitor Source's CEMS	100.0%	$2,500	100.0%	$2,500
Manual Stack Measurements (4 runs (+1 QA/QC), each 3 hours)				
Dioxins - Method 23	100.0%	$21,350	100.0%	$21,350
Data Analysis and Reporting	100.0%	$5,000	100.0%	$5,000
Prepare Compliance Certificates	100.0%	$5,753	100.0%	$5,753
Total Cost (F)		$61,103		$61,103
Total Annualized Cost (F)	24.0%	$10,735	24.0%	$17,376
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Prepare Test Plan, QA/QC Plan, & Negotiations	100.0%	$15,000	100.0%	$15,000
Data Analysis and Reporting	100.0%	$10,000	100.0%	$10,000
Total Cost (G)		$25,000		$25,000
Total Annualized Cost (G)	12.1%	$3,025	12.1%	$3,025
H. Compliance Cost Savings				
H-1. Avoided Recertification Trial Burns				
Prepare Test Plan, QA/QC Plan, & Negotiations	100.0%	$35,000	100.0%	$35,000
Conduct Compliance Test				
Trial Burn Management	100.0%	$15,000	100.0%	$15,000
Metals and PCDCs Staffing	90.0%	$2,160	90.0%	$25,200
Sample/Analysis of all Feeds and Effluents	100.0%	$20,000	100.0%	$20,000
Record Key Operating Parameters	100.0%	$10,000	100.0%	$10,000
Mobilization/Travel Expense	100.0%	$21,000	100.0%	$21,000
Emissions Measurements (2 conditions)				
Continuous Emission Monitoring (3, three hour HRA periods per cond, 6 total)	100.0%	$4,000	100.0%	$4,000
Manual Stack Measurements (4 runs (+1 QA/QC) per cond, 10 runs total, each 3 h				
PM - Method 5	100.0%	$11,000	100.0%	$11,000
HCl & Cl2 - Method 26A	100.0%	$12,100	100.0%	$12,100
Metals (incl. Hg) - Method 29	90.0%	$29,610	90.0%	$29,610
Dioxins - Method 23	25.0%	$8,300	25.0%	$8,300
Organics, SW846 Method 0030	100.0%	$22,900	100.0%	$22,900
Data Analysis and Reporting	100.0%	$25,000	100.0%	$25,000
Prepare Compliance Certificates	100.0%	$5,753	100.0%	$5,753

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	IHC (S&M Onsite) Fraction of Sources	IHC (S&M Onsite) Cost	INC (L-Onsite and All Comm.) Fraction of Sources	INC (L-Onsite and All Comm.) Cost
Total Cost (H-1)		$221,873		$244,265
Total Annualized Cost (H-1)	17.3%	($38,375)	17.3%	($42,361)
H-2. Avoided Interim Status Trial Burns				
Prepare Test Plan, QA/QC Plan, & Negotiations	0.0%	$0	0.0%	$0
Conduct Compliance Test				
Trial Burn Management	0.0%	$0	0.0%	$0
Metals Spiking	0.0%	$0	0.0%	$0
Sample/Analysis of all Feeds and Effluents	0.0%	$0	0.0%	$0
Record Key Operating Parameters	0.0%	$0	0.0%	$0
Mobilization/Travel Expense	0.0%	$0	0.0%	$0
Emissions Measurements (3 conditions)				
Continuous Emission Monitoring (3, three hour RRA (=6hrs per cond, 6 total)	0.0%	$0	0.0%	$0
Manual Stack Measurements (4 runs (+1 QA/QC) per cond, 10 runs total, each 3 hr				
PM - Method 5	0.0%	$0	0.0%	$0
HCl & Cl2 - Method 26A	0.0%	$0	0.0%	$0
Metals (incl. Hg) - Method 29	0.0%	$0	0.0%	$0
Dioxins - Method 23	0.0%	$0	0.0%	$0
Data Analysis and Reporting	0.0%	$0	0.0%	$0
Prepare Compliance Certifications	0.0%	$0	0.0%	$0
Total Cost (H-2)		$0		$0
Total Annualized Cost (H-2)	0.0%	$0	0.0%	$0
H-3. Avoided Inspections, Calibrations, Equipment Maintenance				
Total Cost (G-3)		$0		$0
Total Annualized Cost (H-3)	100.0%	$0	100.0%	$0
Total Annualized Cost (H)	100.0%	($38,375)	100.0%	($42,361)
TOTAL ANNUALIZED COST - OPTION 1		$34,905		$47,914

TABLE 4-2. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*IHC (S&M Onsite) Fraction of Sources*	*Cost*	*IHC (L Onsite and All Comm.) Fraction of Sources*	*Cost*
OPTION 2a: PM CEM INCREMENTAL COST				
A. CEMS Installation				
CEMS Monitor Costs				
PM In-stip CEM	100.0%	$25,000	100.0%	$25,000
Ancillary CEM Equipment Costs				
PLC, Data Acquisition, and Reporting Hardware and Software	100.0%	$7,500	100.0%	$7,500
Total Cost (A)		$32,500		$32,500
Total Annualized Cost (A)	13.3%	$4,333	13.3%	$4,333
B. Inspections, Calibrations, and Equipment Maintenance				
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits				
PM In-Situ CEM	100.0%	$6,033	100.0%	$6,033
Ancillary Equipment	100.0%	$1,633	100.0%	$1,633
Total Cost (B)		$7,666		$7,666
Total Annualized Cost (B)	100.0%	$7,666	100.0%	$7,666
C. CEMS Relative Accuracy Test (RATA)				
CEMS Relative Accuracy Test (RATA) for PM CEM				
Years in which RATA is performed with the Comprehensive Performance Test				
PM - By Manual Method 5 (Requires two additional 1 hour runs)	100.0%	$3,900	100.0%	$3,900
Years in which RATA is performed with the Confirmatory Performance Assessment				
PM - By Manual Method 5 (Requires Eleven - 1 hour runs)	100.0%	$13,900	100.0%	$13,900
Total Cost (C)				
Total Annualized Cost (C)	22.2%	$3,953	34.6%	$6,153
D. Comprehensive Performance Test				
No Charge				
Total Annualized Cost (D)		$0		$0
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Total Cost (E)		$0		$0
Total Annualized Cost (E)	13.3%	$0	13.3%	$0
F. Confirmatory Performance Assessment				
No Charge				
Total Annualized Cost (F)		$0		$0
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Total Annualized Cost (G)		$0		$0
H. Compliance Cost Savings				
Total Annualized Cost (H)	100.0%	$0	100.0%	$0
TOTAL ANNUALIZED COST - OPTION 2a		$15,941		$18,142

TABLE 4-3. DETAILED INCREMENTAL COMPLIANCE COSTS OF THE MACT REGULATION

Line Item Description	*INC (Sskf Option) Fraction of Sources*	*Cost*	*INC (5 Option and All Comm.) Fraction of Sources*	*Cost*
OPTION 2b: Hg CEM INCREMENTAL COST				
A. CEMS Installation				
CEMS Monitor Costs				
Hg (total) Extractive CEM	100.0%	$130,000	100.0%	$130,000
Ancillary CEM Equipment Costs				
DAS, Data Acquisition, and Reporting Hardware and Software	100.0%	$7,500	100.0%	$7,500
Total Cost (A)		$137,500		$137,500
Total Annualized Cost (A)	13.3%	$18,288	13.3%	$18,288
B. Inspections, Calibrations, and Equipment Maintenance				
CEMS Calibration, Maintenance, and Quarterly Accuracy Audits				
Hg (total) CEM	100.0%	$16,533	100.0%	$16,533
Ancillary Equipment	100.0%	$1,633	100.0%	$1,633
Total Cost (B)		$18,166		$18,166
Total Annualized Cost (B)	100.0%	$18,166	100.0%	$18,166
C. CEMS Relative Accuracy Test (RATA)				
CEMS Relative Accuracy Test (RATA) for Hg CEM				
RATA performed in conjunction with comprehensive performance test				
Hg - By Manual Method 5 (Requires two additional 1 hour runs)	100.0%	$13,200	100.0%	$13,200
Total Cost (C)				
Total Annualized Cost (C)	26.5%	$3,498	36.6%	$4,831
D. Comprehensive Performance Test				
No Change				
Total Cost (D)		$0		$0
Total Annualized Cost (D)	26.5%	$0	36.6%	$0
E. Comp Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Total Cost (E)		$0		$0
Total Annualized Cost (E)	13.3%	$0	13.3%	$0
F. Confirmatory Performance Assessment				
No Change				
Total Annualized Cost (F)	21.0%	$0	34.0%	$0
G. Conf Perf Test (One-time Test Plan, QA/QC Plan, Reporting Development)				
Total Annualized Cost (G)	12.1%	$0	12.1%	$0
H. Compliance Cost Savings				
Total Annualized Cost (H)	100.0%	$0	100.0%	$0
TOTAL ANNUALIZED COST - OPTION 2b		$39,952		$41,285

TABLE 4-3. CEMS DESCRIPTION AND INSTALLATION COST ESTIMATE

CEMs Type	Estimated Installed Cost	Description
HC	$25,000	Mass Spec Extractive System
Hg (Total)	$130,000	Verewa Extractive System
PM	$25,000	Avg. Cost of the Following In-situ Systems - Time-Dependent Transmissions - Light Scattering - Beta Gauge

TABLE 4-4. COST ESTIMATES FOR COMPLIANCE TEST AND RATA MANUAL METHODS

Description	**Cost**
Offsite Setup/Data Analysis	$3,600
Cost per run (0030)	$480
Cost per run (M5, M26A)	$600
Cost per run (M23, M29, 0010, 0011)	$840
Each additional hour of sample duration	$110
Analytial Laboratory Costs	
PM - Method 5	$50
HCl/Cl2 - Method 26A	$110
Dioxins - Method 23	$1,400
Multiple Metals - Method 29	$1,500
Hg - Method 29	$130
PAH - SW846 0010	$1,250
Volatile Organics - SW846 0030	$950

Costs of running the actual manual methods and laboratory analysis including off-site setup and reducing the manual method data. Does not include planning, travel, data analysis, or reporting

	Compliance Tests - 1 Condition (4, 3 hour runs)	Compliance Costs - 2 Conditions (8, 3 hour runs)	Manual Method RATA Costs (11, 1 hour conditions)
PM		$11,000	$11,900
HCl/Cl2		$12,100	
Multi Metals		$32,900	
Hg			
Dioxins	$21,350	$33,200	
PICs		$22,900	

TABLE 4-5. METALS SPIKING COST ESTIMATE

					Source Category:	**CK**	**CK**	**LWAK**	**INC**	**INC**	**INC**
					Size Category:	**S**	**L**	**M**	**S**	**M**	**L**
					Flue Gas Flow Rate (acfm):	**147,000**	**370,000**	**40,500**	**3,900**	**22,100**	**60,800**
					Flue gas flow rate (dscfm):	**73,700**	**179,000**	**24,600**	**2,910**	**12,700**	**34,300**
	Partitioning			**Emission**							
Metal	**Clinker (%)**	**Ash (%)**	**Stack (%)**	**Limit (ug/dscm)**	**Cost ($/lb)**	**Cost ($/hr)**	**Cost ($/hr)**	**Cost ($/hr)**	**Cost ($/hr)**	**Cost ($/hr)**	**Cost ($/hr)**
Hg	34.46	29.83	35.71	105	$73.84	$5.99	$14.56	$2.00	$0.24	$1.03	$2.79
Tl	37.91	58.84	3.24	50	$186.14	$79.21	$192.37	$26.44	$3.13	$13.65	$36.86
Pb	11.50	88.06	0.44	60	$22.86	$86.62	$210.37	$28.91	$3.42	$14.93	$40.31
Ag	82.48	16.49	1.04	50	$321.69	$428.00	$1,039.52	$142.86	$16.90	$73.75	$199.19
Sb	69.13	29.59	1.28	50	$21.74	$23.46	$56.97	$7.83	$0.93	$4.04	$10.92
As	78.30	21.64	0.06	50	$55.14	$1,317.71	$3,200.41	$439.83	$52.03	$227.07	$613.26
Cd	10.38	89.18	0.44	50	$50.85	$161.03	$391.10	$53.75	$6.36	$27.75	$74.94
Cr	83.57	16.38	0.05	80	$26.54	$1,239.80	$3,011.18	$413.83	$48.95	$213.64	$577.00
Be	69.08	30.69	0.23	50	$626.52	$3,722.79	$9,041.79	$1,242.61	$146.99	$641.51	$1,732.59
Ba	87.91	11.96	0.12	50	$8.80	$97.74	$237.38	$32.62	$3.86	$16.84	$45.49
					Sum of all 10 compounds	$7,162	$17,396	$2,391	$283	$1,234	$3,333
					Sum of Pb, Cr, and Hg Only ($/hr)	$1,332	$3,236	$445	$53	$230	$620
					Number of Hours	32.00	32.00	32.00	18.00	18.00	18.00
					Total Cost	$42,637	$103,555	$14,232	$947	$4,133	$11,162
					Total Cost with 25% Contingency	$53,296	$129,444	$17,790	$1,184	$5,166	$13,952
					TOTAL COST ESTIMATE	$53,000	$130,000	$18,000	$1,200	$5,200	$14,000
					Comprehensive Perf Test Metal and POHC Spiking Cost	$66,250	$162,500	$22,500	$1,500	$6,500	$17,500
					Interim Status Trial Burn Metal Spiking Cost	$79,500	$195,000	$27,000	$1,800	$7,800	$21,000
					Recertification Trial Burn Metal and POHC Spiking Cost	$106,000	$260,000	$36,000	$2,400	$10,400	$28,000

TABLE 4-6. ESTIMATION OF THE NUMBER OF BIF INTERIM STATUS TRIAL BURNS AVOIDED

	Year	No. of Part B Permits Issued	Cumulative Part B Permits Issued	No. of Interim Status Facilities	No. of Interim Status Trial Burns Avoided
	94	3	3	156	None
	95	8	11	148	None
	96	14	25	134	None
MACT effective 1/97	97	19	44	115	None
	98	19	63	96	None
	99	19	82	77	None
MACT Compliance 1/2000	00	19	101	58	77/3=25.7 = 16%
	01	19	120	39	58/3=19.3 = 12%
	02	19	139	20	39/3=13 = 8%
	03	20	159	0	20/3=6.7 = 4%

SECTION 5

FACILITY SHUTDOWN TIME REQUIREMENTS

In addition to engineering and compliance costs, one of the cost elements which must be accounted for in consideration of a proposed rule is the lost revenues due to shutdowns required to retrofit facilities to meet the proposed standards. This chapter summarizes the shutdown time requirements provided as inputs to the regulatory impact analysis for the proposed rule.

5.1 SHUTDOWN TIME ESTIMATES

A analysis of shutdown times required for a retrofit of existing facilities with the MACT technologies was performed . Tables 5-1, 5-2 and 5-3 outline the estimated shutdown times required for each of the model plant retrofits included in the model plant cost estimates for cement kilns, LWA kilns, and incinerators, respectively. Both the total shutdown time and the incremental shutdown time are given in the tables. The incremental shutdown is the amount of time a facility would have to be down beyond its normal maintenance shutdown.

Each retrofit included in the model plant cost estimates requires shutdown time ranging from to 1 to 11 weeks. However, it is estimated that all of the retrofits (except 3M-Moderate DOM on existing ESP, i.e., adding an ESP field) could be coordinated with existing facility shutdowns necessary for normal, routine maintenance. Therefore, no incremental shutdown time above existing shutdown requirements would be associated with these retrofits. In the case of adding an ESP field, the incremental shutdown time required is estimated to be 8, 5, and 3 weeks for cement kilns, LWA kilns, and incinerators, respectively.

5.2 BASIS OF ESTIMATES

This analysis is based on a vendor survey of shutdown times required for installation of various APCDs, a review of the OAQPS cost models by the Portland Cement Association (PCA), and engineering judgement. The vendor survey, in which APCD vendors were contacted and asked about typical shutdown times, was conducted by EER in 1994. Information was obtained for the following APCDs: 1) install carbon injection, 2) install water quench cooler, 3) install spray dryer, 4) re-bag fabric filter, 5) install wet scrubber, and 6) install wet ESP. Although information was not obtained for all MACT technologies, this survey provided typical shutdown times which are representative of a range of technologies. In addition, since shutdown time requirements are so site specific, the vendor survey resulted in a range of shutdown times for each technology. The shutdown times reported in the attached tables fall within these ranges.

The review of the OAQPS cost models for cement kilns performed by the PCA (Penta Engineering Report, December, 1994) included the cement kiln industry's perspective on the incremental shutdown times required for the MACT technology retrofits. The following retrofits

were reviewed: 1) install carbon injection, 2) install water quench cooler, 3) install spray dryer, 4) re-bag fabric filter, 5) install wet scrubber, 6) install ESP, and 7) install ESP field upgrade. The PCA review estimated facility downtime to be approximately 10% for cement kilns, and in all cases, except the installation of an ESP field upgrade, no incremental shutdown time was estimated for the retrofit. For the ESP field upgrade, 60 days shutdown time was recommended.

5.3 ASSUMPTIONS

For the purposes of calculating a facility's shutdown time, it has been assumed that all retrofits could occur simultaneously (i.e., in parallel) during a single facility shutdown. It has been assumed that a typical incinerator and LWA kiln schedules at least a three week outage during which most retrofits could be installed based on the PCA Review's estimate of 10% facility downtime throughout the year for cement kilns.

TABLE 5-1. RETROFIT SHUTDOWN REQUIREMENTS FOR CEMENT KILNS

Model	Retrofit Description	Shutdown Requirements	Cement Kilns			
			Total Shutdown Time	Basis	Incremental Shutdown Time	Basis
2M	Add WQ	Tie-in Ductwork @ WQ inlet and outlet	3 weeks	Vendor Survey	none	PCA Review
2M	Small DOM on existing ESP	Tie-in Ductwork @ WQ inlet and outlet	3 weeks	Vendor Survey	none	PCA Review
3M	Moderate DOM on existing ESP	Add ESP field	11 weeks	PCA Review	8 weeks	PCA Review
4M	Add FF	Tie-in Ductwork @ FF inlet and outlet	3 weeks	Eng Judgement	none	PCA Review
6M	Add CB	Tie-in Ductwork @ CB inlet and outlet	3 weeks	Eng Judgement	none	Eng Judgement
9M	Add CI	Install Port Openings & Flow Straighteners	2 weeks	Vendor Survey	none	PCA Review
12M	Add ST	Tie-in Ductwork @ ST inlet and outlet	n/a	n/a	n/a	n/a
15M	Add IWS	Tie-in Ductwork @ IWS inlet and outlet	4 weeks	Eng Judgement	none	Eng Judgement
16M	Add PT	Tie-in Ductwork @ PT inlet and outlet	4 weeks	Vendor Survey	none	PCA Review
17M	Add AB	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
18M	Add RH	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
3E	Small DOM on existing FF	Minimize leaks	2 weeks	Eng Judgement	none	Eng Judgement
4E	Moderate DOM on existing FF	Install new bags	3 weeks	Vendor Survey	none	PCA Review
5E	Small DOM on existing WS	Replace nozzles	1-2 weeks	Eng Judgement	none	Eng Judgement
5E	Small DOM on exisitng IWS	Replace nozzles	1-2 weeks	Eng Judgement	none	Eng Judgement
7E	Moderate DOM on existing VS	Replace Venturi Throat & Upgrade Fan	3 weeks	Eng Judgement	none	Eng Judgement
12E	Moderate DOM on existing WS	Replace nozzles, Replace Packing	2 weeks	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing SD	Modify Port Openings & Flow Straighteners	2 weeks	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing DI	Modify Port Openings & Flow Straighteners	2 weeks	Eng Judgement	none	Eng Judgement
14E	DOM on existing Combustor	Modify Burner Design	n/a	n/a	n/a	n/a

Notes: Vendor Survey: Vendor survey of shutdown time requirements conducted by EER in 1994.
PCA Review: Portland Cement Association Review of OAQPS cost models conducted by Penta Engineering, December, 1994.
Eng Judgement: Sound engineering judgement.
n/a: Not applicable

TABLE 5-2. RETROFIT SHUTDOWN TIME REQUIREMENTS FOR LWA KILNS

Model	Retrofit Description	Shutdown Requirements	LWA Kilns			
			Total Shutdown Time	Basis	Incremental Shutdown Time	Basis
2M	Add WQ	Tie-in Ductwork @ WQ inlet and outlet	2-3 weeks	Vendor Survey	none	Eng Judgement
2M	Small DOM on existing ESP	Tie-in Ductwork @ WQ inlet and outlet	2-3 weeks	Vendor Survey	none	Eng Judgement
3M	Moderate DOM on existing ESP	Add ESP field	8 weeks	Eng Judgement	5 weeks	Eng Judgement
4M	Add FF	Tie-in Ductwork @ FF inlet and outlet	2-3 weeks	Eng Judgement	none	Eng Judgement
6M	Add CB	Tie-in Ductwork @ CB inlet and outlet	2-3 weeks	Eng Judgement	none	Eng Judgement
9M	Add CI	Install Port Openings & Flow Straighteners	2 weeks	Vendor Survey	none	Eng Judgement
12M	Add ST	Tie-in Ductwork @ ST inlet and outlet	2-3 weeks	Vendor Survey	none	Eng Judgement
15M	Add IWS	Tie-in Ductwork @ IWS inlet and outlet	2-3 weeks	Eng Judgement	none	Eng Judgement
16M	Add PT	Tie-in Ductwork @ PT inlet and outlet	n/a	n/a	n/a	n/a
17M	Add AB	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
18M	Add RH	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
3E	Small DOM on existing FF	Minimize leaks	1-2 weeks	Eng Judgement	none	Eng Judgement
4E	Moderate DOM on existing FF	Install new bags	2 weeks	Vendor Survey	none	Eng Judgement
5E	Small DOM on existing WS	Replace nozzles	1 week	Eng Judgement	none	Eng Judgement
5E	Small DOM on exisitng IWS	Replace nozzles	1 week	Eng Judgement	none	Eng Judgement
7E	Moderate DOM on existing VS	Replace Venturi Throat & Upgrade Fan	2-3 weeks	Eng Judgement	none	Eng Judgement
12E	Moderate DOM on existing WS	Replace nozzles, Replace Packing	1-2 weeks	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing SD	Modify Port Openings & Flow Straighteners	2 weeks	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing DI	Modify Port Openings & Flow Straighteners	2 weeks	Eng Judgement	none	Eng Judgement
14E	DOM on existing Combustor	Modify Burner Design	n/a	n/a	n/a	n/a

Notes: Vendor Survey: Vendor survey of shutdown time requirements conducted by EER in 1994.
PCA Review: Portland Cement Association Review of OAQPS cost models conducted by Penta Engineering, December, 1994.
Eng Judgement: Sound engineering judgement.
n/a: Not applicable

TABLE 5-3. RETROFIT SHUTDOWN TIME REQUIREMENTS FOR INCINERATORS

			Incinerators			
Model	**Retrofit Description**	**Shutdown Requirements**	**Total Shutdown Time**	**Basis**	**Incremental Shutdown Time**	**Basis**
2M	Add WQ	Tie-in Ductwork @ WQ inlet and outlet	2 weeks	Vendor Survey	none	Eng Judgement
2M	Small DOM on existing ESP	Tie-in Ductwork @ WQ inlet and outlet	2 weeks	Vendor Survey	none	Eng Judgement
3M	Moderate DOM on existing ESP	Add ESP field	6 weeks	Eng Judgement	3 weeks	Eng Judgement
4M	Add FF	Tie-in Ductwork @ FF inlet and outlet	2 weeks	Eng Judgement	none	Eng Judgement
6M	Add CB	Tie-in Ductwork @ CB inlet and outlet	2 weeks	Eng Judgement	none	Eng Judgement
9M	Add CI	Install Port Openings & Flow Straighteners	1-2 weeks	Vendor Survey	none	Eng Judgement
12M	Add ST	Tie-in Ductwork @ ST inlet and outlet	n/a	n/a	n/a	n/a
15M	Add IWS	Tie-in Ductwork @ IWS inlet and outlet	2 weeks	Eng Judgement	none	Eng Judgement
16M	Add PT	Tie-in Ductwork @ PT inlet and outlet	2 weeks	Vendor Survey	none	Eng Judgement
17M	Add AB	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
18M	Add RH	Install Burner and Ducting	3 weeks	Eng Judgement	none	Eng Judgement
3E	Small DOM on existing FF	Minimize leaks	1 week	Eng Judgement	none	Eng Judgement
4E	Moderate DOM on existing FF	Install new bags	1 week	Vendor Survey	none	Eng Judgement
5E	Small DOM on existing WS	Replace nozzles	1 week	Eng Judgement	none	Eng Judgement
5E	Small DOM on exisitng IWS	Replace nozzles	1 week	Eng Judgement	none	Eng Judgement
7E	Moderate DOM on existing VS	Replace Venturi Throat & Upgrade Fan	2 weeks	Eng Judgement	none	Eng Judgement
12E	Moderate DOM on existing WS	Replace nozzles, Replace Packing	1 week	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing SD	Modify Port Openings & Flow Straighteners	1-2 weeks	Eng Judgement	none	Eng Judgement
13E	Moderate DOM on existing DI	Modify Port Openings & Flow Straighteners	1-2 weeks	Eng Judgement	none	Eng Judgement
14E	DOM on existing Combustor	Modify Burner Design	2 weeks	Eng Judgement	none	Eng Judgement

Notes: Vendor Survey: Vendor survey of shutdown time requirements conducted by EER in 1994.

PCA Review: Portland Cement Association Review of OAQPS cost models conducted by Penta Engineering, December, 1994.

Eng Judgement: Sound engineering judgement.

n/a: Not applicable

SECTION 6

ENGINEERING COST FOR NEW SOURCES

MACT standards are also proposed for new sources. A new source can be a newly constructed HWC or an existing combustion facility which begins burning hazardous waste. Costs were determined for new sources to meet current emissions standards (i.e., current RCRA incinerator and BIF standards and guidelines), the new source floor standards, and the new source beyond-the-floor standards.

The Floor standards and design levels for some HAPs have changed since this evaluation of engineering costs for new sources was performed. The evaluated new source floor design levels used in this analysis are shown in Table 6-1 along with the current proposed new source standards and design levels. The standards that have changed are presented in bold italics. No changes to the assigned floor APCS are required with this change in standards. The new source BTF standards have not changed since this analysis.

6.1 APPROACH

The following procedure is used to calculate costs for new sources:

- Determine the air pollution control system (APCS) that is necessary to simultaneously meet the proposed MACT standard options for all HAPs. Technology decisions are based on a combination of engineering judgement and demonstrated performance of existing sources.

- Determine the "baseline" APCS that is necessary to meet the current regulatory standards.

- Determine the cost of the MACT option standards as the difference between the APCS necessary to meet present regulatory standards (baseline) and the system that is required to meet the proposed MACT option standards. The cost models used to cost the APCDs for new sources are the same models that were utilized in the engineering cost analysis for existing sources. A complete description of these cost models is given in Appendix E.

The air pollution control system costs are not intended to be "complete system costs" since the costs of ancillary equipment (e.g., fans, stack) which are required by both the baseline the MACT systems are not included.

Each piece of control equipment in the system has been costed as a stand-alone device; this may be a conservative estimate since there would most likely be a certain "economy of purchase and installation" when building a completely new facility.

The required APCS and assumption made in the analysis are presented in sections 6.2, 6.3, and 6.4 for the current baseline, new source floor and new source BTF standards, respectively.

The cost tables for new sources follow these sections. Table 6-2 summarizes the annualized costs to meet the current baseline standard as well as the new source floor and BTF standards. In Table 6-3, the differential costs between the baseline costs and the costs for the floor and BTF options are given. Tables 6-4, 6-5 and 6-6 present a breakdown of the capital, annual operating and total annualized cost for each of the options and baseline components for cement kilns, LWA Kilns and incinerators, respectively.

6.2 NEW SOURCE BASELINE SYSTEMS

The required APCS and assumptions made in assigning the APCS are listed below for the new source current baseline standards.

- Required APCS:

Incinerator	WQ + VS + WS
Cement Kilns	FF
LWA Kilns	FF

  where: FF : fabric filter
  WS : wet scrubber for acid gas control
  WQ : water quench cooling tower
  VS: venturi scrubber

- Assumptions:
  1) Required APCSs are the most cost effective alternative to meet currently operating facility median emissions levels for HAPs and source categories; these facilities are meeting current regulatory standards.
  2) A medium energy VS (50 in. H_2O pressure drop) is required to meet current standards for incinerators.

6.3 NEW SOURCE FLOOR

The required APCS and assumptions made in assigning the APCS are listed below for the new source floor standards.

- Required APCS:

Incinerators	WQ + VS + WS
Cement Kilns	WQ + FF
LWA Kilns	WQ + FF+ WS

- Assumptions:

  1) LVM and SVM limits are achievable through a combination of feed and well operated and designed particulate control devices.

  2) A well designed and operated venturi scrubber can achieve a PM level of 0.015 gr/dscf.

6.4 NEW SOURCE BTF

The required APCS and assumptions made in assigning the APCS are listed below for the new source BTF standards.

- Required APCS:

Incinerators	WQ + (DI + CI +FF) + WS (for medium and large facilities)
	WQ + FF + WS + RH + CB (for small facilities)
Cement Kilns	WQ + FF + (CI + FF) + WS
LWA Kilns	WQ + FF + (DI + CI + FF) + WS

where:
CI: Carbon injection for Hg and PCDD/PCDF control
DI: Dry sorbent injection for acid gas control
RH: Reheat (to raise flue gas temp. above saturation level)

- Assumptions:

1) CI (or CB based on cost effectiveness) is needed for all source categories to control PCDD/PCDF to 0.2 ng/dscm TEQ and Hg to 30 _g/dscm.
2) For large and medium sized incinerators and LWAKs, dry sorbent injection for acid gas control is used in combination with carbon injection. Carbon injection is not typically used when high acid gas levels are present since acid gases are adsorbed on the carbon, leading to premature saturation and loss of carbon capture effectiveness. A wet scrubber is used downstream for final acid gas cleanup.

3) For small sized incinerators, carbon beds are more cost effective than carbon injection. Similar to carbon injection, carbon beds are not used when high acid gas levels are present. Thus the carbon bed is positioned downstream of acid gas removing wet scrubber; flue gas reheat is required since the carbon bed cannot operate effectively when the flue gas temperature is below the saturation level.

4) The LVM common limit of 30 _g/dscm is achievable with a well operated and designed FF with high performance fabric such as Nomex or Goretex.

5) The cement kiln HCl/Cl_2 limit of 25 ppmv requires add-on wet scrubbing (over 50% of hazardous waste burning CK condition medians are less than 25 ppmv).

TABLE 6-1. NEW SOURCE FLOOR AND BTF STANDARDS

System Type	Substance	Evaluated New Source Floor		Evaluated New Source BTF		Proposed New Source Floor		Proposed New Source BTF		Limit Units
		Standard	"Design" Level	Standard	"Design" Level	Standard	"Design" Level	Standard	"Design" Level	
Cement Kiln	Particulate	0.03	0.015	0.03	0.015	0.03	0.015	0.03	0.015	gr/dscf @ 7%O2
Cement Kiln	LVM	44	26	54	26	44	26	44	26	ug/dscm @ 7%O2
Cement Kiln	SVM	54	34	44	35	55	34	55	34	ug/dscm @ 7%O2
Cement Kiln	Mercury	140	110	50	30	130	***81***	50	30	ug/dscm @ 7%O2
Cement Kiln	TEQ	8	4.7	0.2	N/A	***.2 or 418°F***	N/A	0.2	N/A	ng/dscm @ 7%O2
Cement Kiln	Total Cl	630	270	67	25	630	270	67	25	ppmv @ 7%O2
Cement Kiln	CO	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	CO(MHRA)	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	THC	20	10	20	10	20	10	20	10	ppmv @ 7%O2
Cement Kiln	THC(MHRA)	20	10	20	10	20	10	20	10	ppmv @ 7%O2
Incinerator	Particulate	0.03	0.015	0.03	0.015	0.039	***0.017***	0.03	0.015	gr/dscf @ 7%O2
Incinerator	LVM	260	110	60	35	260	110	60	35	ug/dscm @ 7%O2
Incinerator	SVM	240	120	62	35	240	120	62	35	ug/dscm @ 7%O2
Incinerator	Mercury	115	55	50	30	115	55	50	30	ug/dscm @ 7%O2
Incinerator	TEQ	40	20	0.2	N/A	***.2 or 400°F***	N/A	0.2	N/A	ng/dscm @ 7%O2
Incinerator	Total Cl	280	97	67	25	280	96	67	25	ppmv @ 7%O2
Incinerator	CO	100	50	100	50	100	50	100	50	ppmv @ 7%O2
Incinerator	CO(MHRA)	100	50	100	50	100	50	100	50	ppmv @ 7%O2
Incinerator	THC	12	6.1	12	6.1	12	6.1	12	6.1	ppmv @ 7%O2
Incinerator	THC(MHRA)	12	6.1	12	6.1	12	6.1	12	6.1	ppmv @ 7%O2
LWA Kiln	Particulate	0.03	0.015	0.03	0.015	0.054	***0.025***	0.03	0.015	gr/dscf @ 7%O2
LWA Kiln	LVM	55	36	55	35	55	36	55	36	ug/dscm @ 7%O2
LWA Kiln	SVM	5.2	4	5.2	35	5.2	4	5.2	4	ug/dscm @ 7%O2
LWA Kiln	Mercury	1800	910	50	30	72	***36***	50	30	ug/dscm @ 7%O2
LWA Kiln	TEQ	8	4.7	0.2	N/A	***.2 or 400°F***	N/A	0.2	N/A	ng/dscm @ 7%O2
LWA Kiln	Total Cl	62	36	67	25	62	***26***	62	26	ppmv @ 7%O2
LWA Kiln	CO	100	50	100	50	100	50	100	50	ppmv @ 7%O2
LWA Kiln	CO(MHRA)	100	50	100	50	100	50	100	50	ppmv @ 7%O2
LWA Kiln	THC	14	6.4	14	6.4	14	6.5	14	6.5	ppmv @ 7%O2

TABLE 6-2. ANUALIZED COST FOR THE CURRENT BASELINE STANDARD, THE NEW SOURCE FLOOR AND NEW SOURCE BTF STANDARDS

Category	Option (annualized costs shown)		
	Baseline	Floor	BTF
Cement Kilns			
Small	$571 K	$712 K	$2,174 K
Large	$1,264 K	$1,511 K	$4,581 K
Light Wt. Agg. Kilns			
Medium	$228 K	$314 K	$1,530 K
Incinerators			
Small	$321 K	$321 K	$530 K
Medium	$537 K	$537 K	$923 K
Large	$985 K	$985 K	$1,626 K

TABLE 6-3. DIFFERENTIAL COST BETWEEN THE BASELINE COST AND THE COST FOR THE FLOOR AND BTF OPTIONS

Category	Option (differential annualized costs shown)		
		Floor	BTF
Cement Kilns			
Small		$141 K	$1,603 K
Large		$247 K	$3,317 K
Light Wt. Agg. Kilns			
Medium		$86 K	$1,302 K
Incinerators			
Small		$0 K	$209 K
Medium		$0 K	$386 K
Large		$0 K	$641 K

TABLE 6-4. BREAKDOWN OF THE COST FOR EACH OF THE OPTION AND BASELINE APCS COMPONENTS FOR CEMENT KILNS

TABLE 6-4. BREAKDOWN OF THE COST FOR EACH OF THE OPTION AND BASELINE APCS COMPONENTS FOR CEMENT KILNS

Source Group	Model Plant	Size Category	Description of Model Plant	Cost Model Used	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	Baseline	S	Add FF	4M	$1,977K	$348K	$571K
		L	Add FF	4M	$4,683K	$739K	$1,264K
	Floor	S	Add WQ	2M	$444K	$83K	$141K
			Add FF	4M	$1,977K	$348K	$571K
			TOTAL		$2,420K	$431K	$712K
		L	Add WQ	2M	$760K	$147K	$247K
			Add FF	4M	$4,683K	$739K	$1,264K
			TOTAL		$5,443K	$885K	$1,511K
	BTF	S	Add WQ	2M	$444K	$83K	$141K
			Add FF	4M	$1,977K	$348K	$571K
			Add CI	9M	$409K	$359K	$412K
			Add FF	4M	$1,977K	$348K	$571K
			Add PT	16M	$840K	$342K	$479K
			TOTAL		$5,646K	$1,480K	$2,174K
		L	Add WQ	2M	$760K	$147K	$247K
			Add FF	4M	$4,683K	$739K	$1,264K
			Add CI	9M	$510K	$730K	$797K
			Add FF	4M	$4,683K	$739K	$1,264K
			Add PT	16M	$1,802K	$715K	$1,009K
			TOTAL		$12,439K	$3,069K	$4,581K

TABLE 6-5. BREAKDOWN OF THE COST FOR EACH OF THE OPTION AND BASELINE APCS COMPONENTS FOR LWA KILNS

TABLE 6-5. BREAKDOWN OF THE COST FOR EACH OF THE OPTION AND BASELINE APCS COMPONENTS FOR LWA Kilns

Source Group	Model Plant	Size Category	Description of Model Plant	Cost Model Used	Capital Cost	Annualized O&M Cost	Annualized Total Cost
LWAK	Baseline		Add FF	4M	$610K	$159K	$228K
	Floor		Add WQ	2M	$269K	$51K	$86K
			Add FF	4M	$610K	$159K	$228K
			TOTAL		$879K	$210K	$314K
	BTF		Add WQ	2M	$269K	$51K	$86K
			Add FF	4M	$610K	$159K	$228K
			Add DI	13M	$624K	$428K	$510K
			Add CI	8M	$208K	$173K	$200K
			Add FF	4M	$610K	$159K	$228K
			Add PT	16M	$302K	$229K	$278K
			TOTAL		$2,624K	$1,198K	$1,530K

TABLE 6-6. BREAKDOWN OF THE COST FOR EACH OF THE OPTION AND BASELINE APCS COMPONENTS FOR INCINERATORS

Source Group	Model Plant	Size Category	Description of Model Plant	Cost Model Used	Capital Cost	Annualized O&M Cost	Annualized Total Cost
INC	Baseline	S	Add WQ	2M	$184K	$39K	$63K
			Add VS	11M	$84K	$146K	$159K
			Add PT	16M	$54K	$90K	$99K
			TOTAL		$321K	$274K	$321K
		M	Add WQ	2M	$232K	$45K	$76K
			Add VS	11M	$154K	$281K	$306K
			Add PT	16M	$191K	$125K	$156K
			TOTAL		$576K	$451K	$537K
		L	Add WQ	2M	$306K	$58K	$98K
			Add VS	11M	$308K	$573K	$623K
			Add PT	16M	$415K	$197K	$265K
			TOTAL		$1,029K	$827K	$985K
	Floor	S	Add WQ	2M	$184K	$39K	$63K
			Add VS	11M	$84K	$146K	$159K
			Add PT	16M	$54K	$90K	$99K
			TOTAL		$321K	$274K	$321K
		M	Add WQ	2M	$232K	$45K	$76K
			Add VS	11M	$154K	$281K	$306K
			Add PT	16M	$191K	$125K	$156K
			TOTAL		$576K	$451K	$537K
		L	Add WQ	2M	$306K	$58K	$98K
			Add VS	11M	$308K	$573K	$623K
			Add PT	16M	$415K	$197K	$265K
			TOTAL		$1,029K	$827K	$985K
	BTF	S	Add WQ	2M	$184K	$39K	$63K
			Add FF	4M	$76K	$89K	$97K
			Add PT	16M	$54K	$145K	$154K
			Add RH	18M	$146K	$60K	$79K
			Add CB	6M	$340K	$91K	$136K
			TOTAL		$799K	$424K	$530K
		M	Add WQ	2M	$232K	$45K	$76K
			Add DI	13M	$574K	$274K	$349K
			Add CI	8M	$198K	$131K	$157K
			Add FF	4M	$273K	$120K	$151K
			Add PT	16M	$191K	$160K	$191K
			TOTAL		$1,466K	$729K	$923K
		L	Add WQ	2M	$306K	$58K	$98K
			Add DI	13M	$667K	$554K	$641K
			Add CI	8M	$217K	$207K	$235K
			Add FF	4M	$871K	$195K	$293K
			Add PT	16M	$415K	$290K	$358K
			TOTAL		$2,476K	$1,304K	$1,626K

SECTION 7

SENSITIVITY ANALYSIS

The estimates of the cost of complying with the proposed rule (and its various options) depends to a large extent on the assumptions that have been made in the development of the cost models. In this section, a sensitivity analysis is conducted to determine which assumptions have the greatest impact on total costs, and thus warrant further scrutiny. In addition, average enigineering and compliance costs are presented for the various source categories and sizes.

For this analysis the total national annualized costs were evaluated in two ways; by national engineering cost per HAP controlled and by national engineering cost per control technology. The control technology categories are based on the most common control technologies assigned for the control of each HAP in the engineering cost analysis. The costs presented in this analysis may vary from the costs presented in the Regulatory Impact Analysis which considers additional ecomonic factors such as the number of facilities which will shut down as a result of the proposed rule.

7.1 National Engineering Cost Per Controlled HAP

Figure 7-1 shows the breakdown of national engineering costs by controlled HAP for the 6 Percent Floor and 6 Percent BTF proposal. A discussion of the procedure for calculating the engineering cost per HAP is provided in Section 3.4. The proposed emission limits for the 6 Percent Floor and BTF Proposal are shown in Table 2-2.

From Figure 7-1 it can be seen that the engineering costs for control of SVM and Hg are the largest contributors to the total national engineering costs for the 6 Percent Floor. Control of these two HAPs accounts for 50 percent of the total engineering cost estimate. Cement Kilns contribute the largest share of the SVM costs while incinerators account for 78 percent of the total cost for Hg control.

The engineering cost breakdown for the 6 Percent BTF Proposal shows that control of dioxins contributes the largest portion of the engineering cost when the BTF standards are considered. The cost for dioxin control increases from less than 3.5 millon dollars for the 6 Percent Floor to above 54 million dollars for the 6 Percent BTF proposal.

7.2 National Engineering Cost Per Control Technology Category

For this analysis, the national engineering cost was divided into the four control technology categories that follow:

- Carbon for Hg and Dioxin Control - Carbon injection or carbon bed

along with ancillary control devices such as fabric filter, water quench and flue gas reheater.

- PM Control - Primarily installation of FF; Applies to control of PM, LVM and SVM

- Acid Gas Control - Primarily installation of packed bed or ionizing wet scrubber on incinerators and CKs and spray tower on LWAKs. (Applies to control of both HCl and Cl_2)

- PICs Control - Moderate DOM on combustor and afterburner are applied for control of CO and THC

These four categories were determined by listing the most common technology assigned to control emissions of each HAP. The HAPs that required the same or similar technologies were grouped together. The engineering costs associated with controlling each HAP were accordingly grouped together. These control technology groups were formed to determine which technologies accounted for the majority of the engineering costs estimated in the engineering cost analysis. The sensitivity of the estimated engineering costs to the assumptions made in assignment of these control devices and development of the costs models for each device was then evaluated.

As seen in Figure 7-2, two technologies dominated the cost for the 6 percent Floor and 6 percent BTF Proposal. Particulate control devices for the control of PM, LVM and SVM accounted for 47 percent of the estimated engineering cost for the 6 percent Floor. Control of Hg and dioxin emissions accounted for 55 percent of the engineering cost for the 6 Percent BTF Proposal. The bulk of this cost is for installation of carbon injection or carbon beds along with the ancillary equipment which must be installed with the carbon bed or carbon injection. The exact devices included in these broad control technology categories and the assumptions made concerning their use and costs is included in the discussion that follows.

7.2.1 PM Control

Assumptions in Assignment of PM Control Devices

As described in detail in Section 2.4.1, the following assumptions were made concerning the application of PM control devices. A Fabric Filter is added in all cases where a new device is required for PM, LVM, and SVM control because it has been found to be less expensive than a comparably performing ESP. Ionizing Wet Scrubbers, ESPs, and high energy wet scrubbers (WS_{HE}) are also capable of controlling these HAPs. It is assumed that a Fabric Filter can be placed in series directly behind any existing PM control device within a "dry" system. It is assumed that a Fabric Filter can be retrofitted directly into an existing “wet” system, upstream of the wet scrubbing system. Depending on site-specific factors (such as flue gas temperature leaving the combustor and the existing flue gas cooling system, equipment, and physical layout), additional flue gas cooling equipment (e.g., water quench or air dilution) may be required in order to integrate the new fabric filter upstream of the existing wet scrubber system. It is recognized that, for existing wet systems that require additional LVM, SVM, and PM control, a wet ESP or IWS may be easier to incorporate since they can be added directly onto the back end of the existing wet scrubbing system. In such a case, the FF assumption overestimates the cost by the differential

between a fabric filter plus the appropriate cooling device and a wet ESP or IWS. For the analysis, it was assumed that this cost differential is negligible.

Fabric Filter Cost Model

The fabric filter cost model is based on algorithms presented in the *OAQPS Control Cost Manual* with only minor modification as necessary for the present analysis. The following discussion covers the items that account for the largest percentage of the total annual cost.

- Capital Recovery

  Capital recovery accounts for 10 to 43 percent of the total annual cost of a FF. Capital costs are based on the OAQPS algorithms.

- Electricity

  Electricity costs account for 3 to 17 percent of the annual costs. The electrical rate used is the nine month average industrial retail rate as quoted by the Energy Information Administration. A pressure drop of 10 inches (water column) was assumed for calculation of electrical use. This is a conservative estimate. The average pressure drop for FFs is around 5 inches. .

- Bag Replacement

  Initial bag purchase and future bag replacement account for between 3 and 10 percent of the total annualized cost of a fabric filter. In the present analysis, it has been assumed that fiberglass bags would be installed with a bag material cost of $0.76 per square foot. Furthermore, it has been assumed that a Gas-to-Cloth Ratio of 2.0 would be utilized. Alternately, the use of teflon coated fiberglass or Goretex bags (at $3.70 per sq. ft.) was considered but not adopted for the cost model. It was assumed that the these alternate materials, although more expensive, could be used at higher gas-to-cloth ratios and have double the life of fiberglass bags. Therefore, the values used in the present analysis are representative of a range of bag material alternatives. If the net cost of bags is doubled then the FF cost would increase by 3 to 10 percent.

7.2.2 Carbon Injection or Carbon Bed for Hg and Dioxin Control

Assumptions in Assignment of Carbon Bed or Carbon Injection

Carbon injection or carbon bed is added in any instance where Hg control is required. Although many wet scrubbers have demonstrated high (greater than 90%) control, many others have not shown any control. Additionally, the capture of Hg in a wet scrubber may not be desirable, since it would complicate the treatment and disposal of scrubber blowdown (transferring Hg flue gas emissions to soluble blowdown).

For dioxins, as discussed in section 2.4.4, field demonstrations on cement kilns and technology transfer from municipal and medical waste combustors have demonstrated that a reduction in operating temperature of a dry PM control device can reduce the PCDD/PCDF

emissions level. Figure 2-1 shows the percentage of PCDD/PCDF control as a function of the temperature reduction. This is based on the assumption of a factor of 10 reduction in PCDD/PCDF for every 150_F reduction in temperature, and is assumed to be valid in the temperature range of 350-750_F. If the required temperature is not available then carbon must be utilized for control.

For effective carbon injection applications, the flue gas temperature must be below 400_F. If it is above 400_F, addition of a water quench system is required. Additionally:

- Incinerators: A dry PM control device (FF or ESP) is required to collect the injected carbon. Additionally, it is assumed that carbon injection cannot be performed immediately upstream of a wet PM control system (i.e., the carbon must be captured in a dry PM control device), and that the application of carbon injection or carbon beds downstream of a wet system requires flue gas reheat to a temperature above the dew point. Since the majority of incinerators have existing wet systems, installation of a reheat burner was applied to the majority of the units requiring the use of carbon. This is a conservative assumption. In most cases carbon injection and a FF could be installed upstream of an existing wet system. Installation of CI upstream of a wet system would potentially require the installation of quench. The annual cost of water quench is lower than the annual cost of flue gas reheat.

- CKs: Based on industry comments, a new dry PM control device (assumed to be a Fabric Filter), dedicated to capturing carbon, is required downstream of the existing PM control device. Cement kiln dust from the existing PM control device is typically mixed with raw materials and recycled to the kiln. If captured carbon were recycled along with the kiln dust, it would release virtually all of its mercury, rendering it useless.

  As discussed in Section 2, the installation of a new FF on all CKs requiring carbon injection ia a conservative assumption since some CKs do not currently recycle CKD and other cement kilns may determine it is cheaper to treat and partially recycle CKD from an existing PM control device rather than install a dedicated FF for carbon capture.

- LWAKs: Like CKs, a new dry PM control device is required (assumed to be a Fabric Filter), dedicated to capturing carbon. LWAK aggregate product is thus not affected.

Carbon injection is usually chosen compared with carbon beds due to economics. Carbon beds are only economical on small sources. It is assumed that CI will reduce Hg emission by up to 96%. If Hg reduction of 96% or above is required, a carbon bed is installed.

Carbon Injection and Carbon Bed Cost Models

The cost algorithm for carbon bed costs was developed by EER based on vendor supplied cost information. EER received budgetary installed capital cost estimates from a carbon bed manufacturer as a function of flue gas flow rate. The number of carbon exchanges per year was estimated to be 2. The cost of this model is dominated by capital costs.

The algorithms used in the carbon injection cost models are based on those presented in the OAQPS Activated Carbon Injection Cost Model documentation. Only minor modifications to the

algorithms are required for the present analysis. The carbon injection cost model is dominated by the annual operating costs which account for greater than 75% of the total annual cost. The major contributor to the total annual cost is the cost of carbon which accounts for approximately 50% of the total cost. Therefore, changes in the assumed value of the carbon cost or carbon injection rate will significantly affect the total annual cost.

The cost of carbon is estimated at $0.50 per pound based on discussions with activated carbon vendors. The carbon injection rate is assumed to be constant at 200 mg/dscm regardless of the HAP emission concentration for which control is desired. This assumption allows a single cost model to be used to control a wide range of PCDD/PCDF and Hg emissions concentrations. This carbon injection rate is lower than that assumed by the OAQPS Cost Model for cement kiln applications.

The 400 mg/dscm of carbon injected is a worst case assumption for Hg control. Hg removal efficiencies of 80 to 99 percent have been achieved with carbon injection rates of 50 - 100 mg/dscm with fabric filters. The average Hg reduction required across all devices types is 55 percent. Retention of the carbon in the FF aids in Hg capture and decreases the amount of carbon required to achieve the required Hg or dioxin reduction. Injection rates of up 400 mg/dscm can be required on systems with ESPs. For dioxin control, a carbon injection rate of 50 to 100 mg/dscm is adequate to routinely achieve reductions of 95+ percent with ESPs or FFs.

Reheat Burner Cost Model

Other ancillary equipment such as fabric filters for collection of the carbon and reheat for increasing the temperature of the saturated flue gas downstream of a wet APCD system are required with carbon injection. As discussed above, for incinerators, the majority of the carbon injection assignments include the assignment of a reheat burner. The total annual cost for installation of reheat on an incineration unit is about the same as the annual cost for installation of carbon injection, so the cost of reheat comprises a significant portion of the total engineering cost for Hg and dioxin control on incinerators.

The reheat cost model is based on algorithms presented in the EPA Handbook *Control Technologies for Hazardous Air Pollutants.* The model assumes that a natural gas fired burner will be placed downstream of a wet air pollution control device and will heat the flue gas to avoid condensation in a dry APCD.

In the Reheat Cost Model, the assumed desired temperature increase is 100_F which is enough to prevent condensation of moisture from the flue gas. The fuel cost which is used for the reheat cost model is $3.50/1,000 ft^3. In combination with the assumed heating value of natural gas of 990 Btu/ft^3, the cost is $3.54/MMBtu which is the same as that used for incinerator afterburner cost model. As with the afterburner cost models, the reheat model is dominated by this fuel cost. Therefore, the cost of the technology could change significantly if the basic assumptions for calculating fuel usage and cost change.

7.3 Total Annualized Engineering and Compliance Costs per Incineration Unit

The total annualized cost per incineration unit including both engineering cost and

compliance cost is shown in Figure 7-3 for the 6 Percent Floor. The units are broken into the following categories based on combustor type and size.

- Cement Kiln - Small
- Cement Kiln - Large
- LWAK
- Incinerator - Small (all are onsite incinerators)
- Incinerator - Medium (onsite)
- Incinerator - Medium (commercial)
- Incinerator - Large (onsite and commercial)

The engineering costs for the medium incinerators are not broken down by onsite or commercial designation. The average engineering cost for all medium incinerators is added to the compliance costs for the onsite and commercial incinerators to arrive at the total cost for each respectively. As discussed in section 4.1, the compliance costs for onsite and commercial incinerators are different due to different requirements for the frequency of compliance testing. More frequent compliance tests are required for commercial incinerators than for onsite incinerators.

The total annualized costs for the 6 Percent BTF Proposal are shown in Figure 7-4. The increase in costs relative to the 6 Percent Floor to comply with the BTF standards varies from a low of 26 percent for small incinerators to a high of 90 percent for LWAKs. The average cost increase across all source/size categories is 47 percent. The increase in total cost is lower for small incinerators since compliance costs are a larger percentage of their total annualized cost and the compliance costs do not change in going from the floor to the BTF standards. .

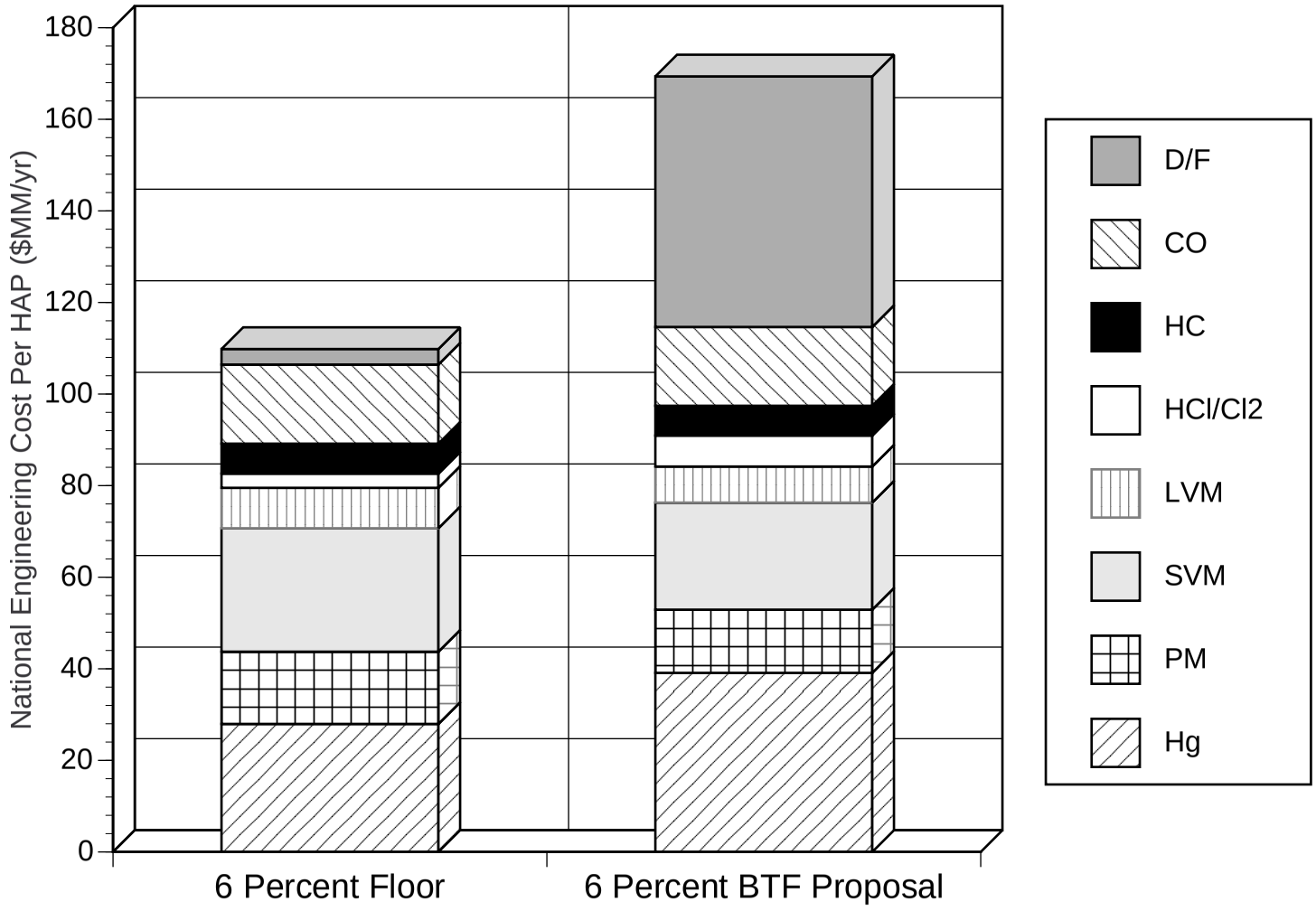


Figure 7-1. National annual engineering cost breakdown by HAP for the 6 Percent Floor and 6 Percent BTF Proposal

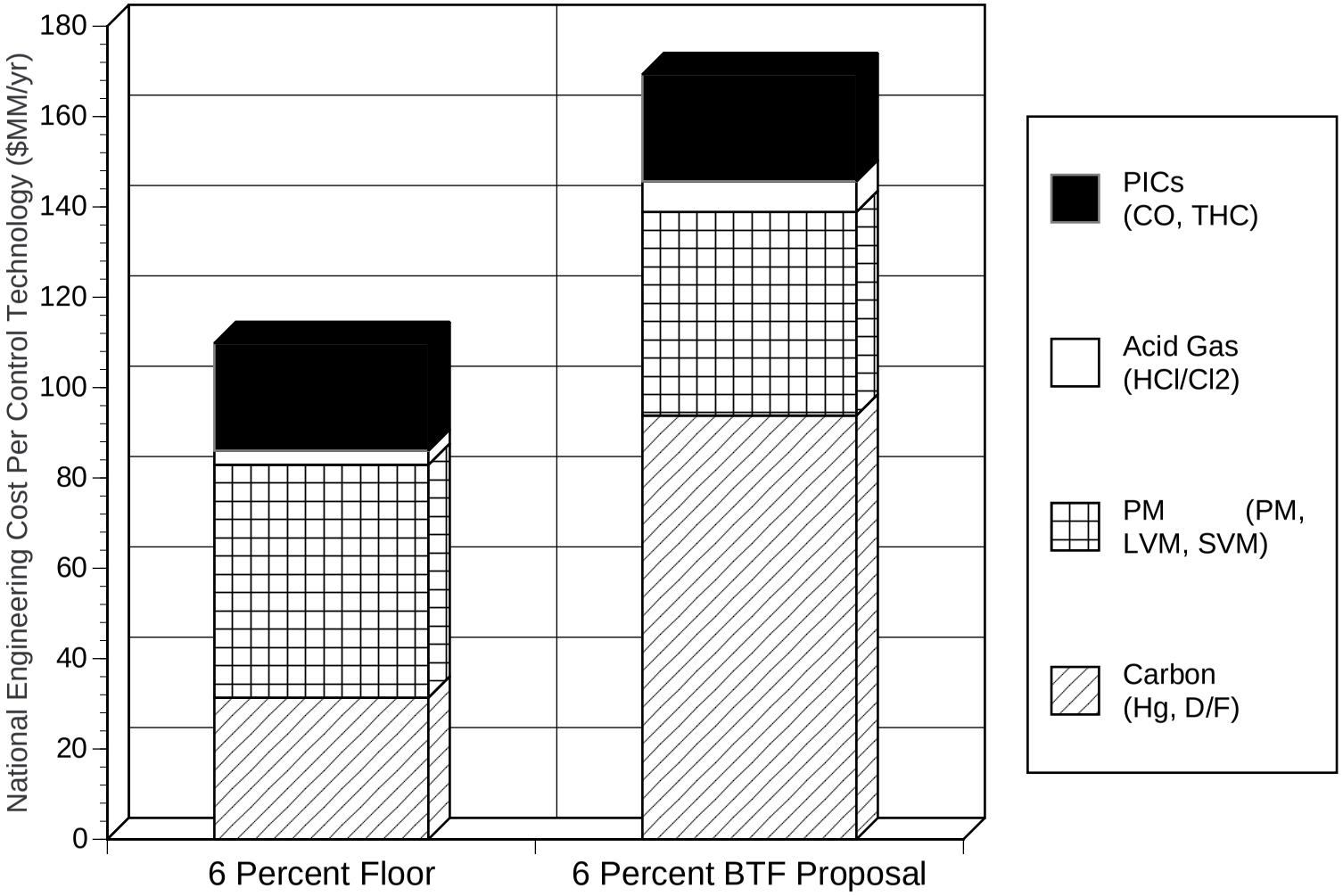


Figure 7-2. National annual engineering cost breakdown by control technology for the 6 Percent Floor and 6 Percent BTF Proposal

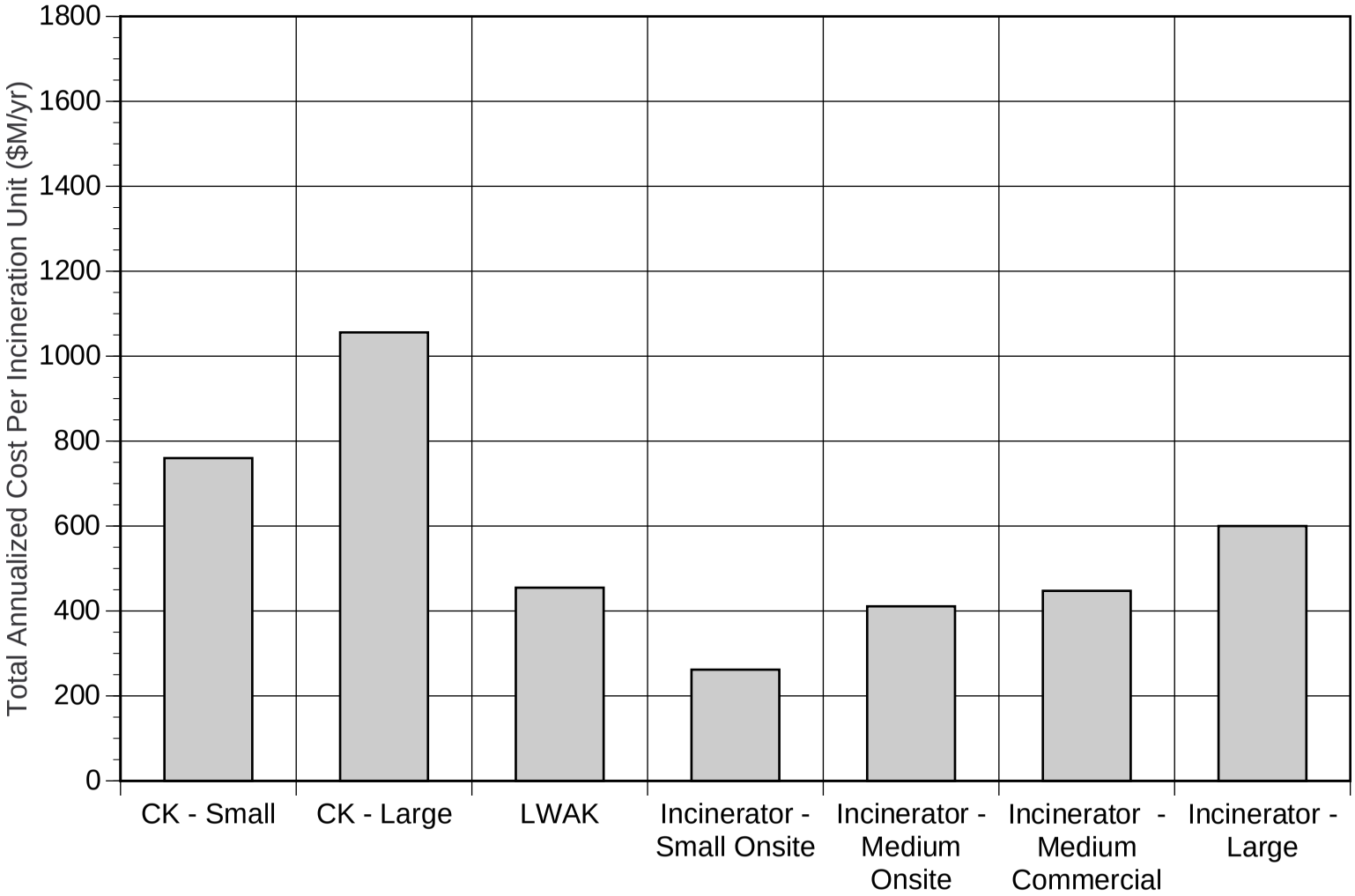


Figure 7-3. Total annual cost (engineering + compliance) per incineration unit for the 6 Percent Floor

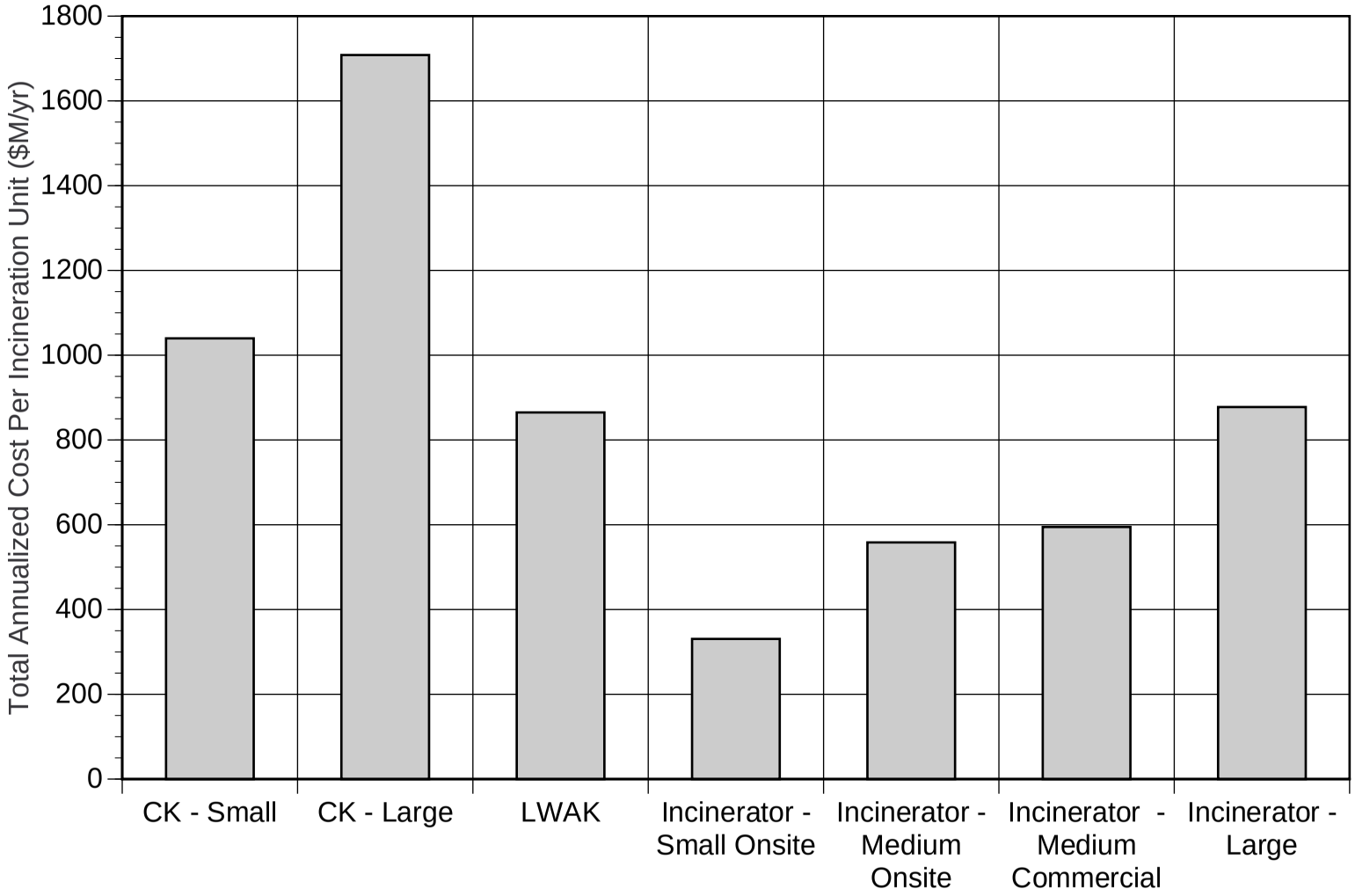


Figure 7-4. Total annual cost (engineering + compliance) per incineration unit for the 6 Percent BTF Proposal

TABLE OF CONTENTS FOR APPENDICES

Section Page

LIST OF TABLES IN APPENDICES

LIST OF ACRONYMS

AB	Afterburner
ACS	Acid Scrubber
APCD	Air Pollution Control Device
APCS	Air Pollution Control System
AS	Absorber
AT	Ash Trap
BIF	Boiler and Industrial Furnace
C	Cyclone
CA	Carbon Absorber
CB	Carbon Bed
CEM	Continuous Emissions Monitor
CEMs	Continuous Emissions Monitor System
CI	Carbon Injection
CK	Cement Kiln
Cl2	Chlorine
CCS	Counter Current Scrubber
CO	Carbon Monoxide
CS	Caustic Scrubber
CT	Chimney Tray
DA	Dilution Air
DI	Dry Injection
DM	Demister
D/O/M	Design, Operation and Maintenance
DS	Dry Scrubber
dscf	Dry Standard Cubic Foot
dscm	Dry Standard Cubic Meter
EER	Energy and Environmental Research Corp.
EPA	Environmental Protection Agency
ES	Entrainment Separator
ESP	Electrostatic Precipitator
FF	Fabric Filter
FN	Fog Nozzel
GC	Gas Cooler
H	Humidifier
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
HCA	Hydrogen Chloride Absorber
HCl	Hydrogen Chloride
HCS	Hydrogen Chloride Scrubber
HE	Heat Exchanger
HEPA	High Efficiency Particulate Air Filter
HES	High Energy Scrubber
Hg	Mercury
HS	Hydrosonic Edctor Scrubber
HTHE	High Temperature Heat Exchanger
HWC	Hazardous Waste Combustor
HWI	Hazrdous Waste Incinerator
ID	Identification
INC	Incinerator
INCIN	Incinerator
IWS	Ionizing Wet Scrubber
KOV	Knock Out Vessel
L	Large

LTHE	Low Temperature Heat Exchanger
LVM	Low Volatile Metals
LWAK	Light Weight Aggregate Kiln
MACT	Maximum Achievable Control Technology
MC	Multiple Cyclones
MHRA	Maximum Hourly Rolling Average
na	Not Applicable
nr	Not reported
OS	Orifice Scrubber
PBC	Packed Bed Condenser
PBS	Packed Bed Scrubber
PM	Particulate Matter
ppmv	Part Per Million - Volume
PT	Packed Tower
Q	Quench
QC	Quench Column
QS	Quench Separator
QT	Quench Tower
RH	Reheat
RJS	Reverse Jet Scrubber
S	Small
S	Scrubber
SD	Spray Dryer
SS	Spray Saturator
ST	Spray Tower
SVM	Semi Volatile Metals
TEQ	Toxic Equivalence Quotient
ug	Microgram
VQ	Venturi Quench
VS	Venturi Scrubber
WHB	Waste Heat Boiler
WS	Wet Scrubber

APPENDIX A

Emission Limits for the Various Floor and BTF Options

LIST OF TABLES

TABLE A-1. EMISSION LIMITS FOR THE 6 PERCENT ALTERNATIVE (Hg), and 12 PERCENT FLOOR AND 12 PERCENT BTF

System Type	Substance	6% BTF Alternative (Hg)		12% Floor		12% BTF		Limit Units
		Standard	"Design" Level	Standard	"Design" Level	Standard	"Design" Level	
Cement Kiln	Particulate	0.03	0.015	0.03	0.015	0.03	0.015	gr/dscf @ 7%O2
Cement Kiln	LVM	130	67	46	19	46	19	ug/dscm @ 7%O2
Cement Kiln	SVM	57	34	240	92	240	92	ug/dscm @ 7%O2
Cement Kiln	Mercury		5	64	38		5	ug/dscm @ 7%O2
Cement Kiln	TEQ		0.2	0.23	0.14	0.23	0.14	ng/dscm @ 7%O2
Cement Kiln	Total Cl	630	270	25	11	25	11	ppmv @ 7%O2
Cement Kiln	CO	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	CO(MHRA)	No Floor	No Floor	No Floor	No Floor	No Floor	No Floor	ppmv @ 7%O2
Cement Kiln	THC	20	10	20	10	20	10	ppmv @ 7%O2
Cement Kiln	THC(MHRA)	20	10	20	10	20	10	ppmv @ 7%O2
Incinerator	Particulate	0.03	0.015	0.024	0.012	0.024	0.012	gr/dscf @ 7%O2
Incinerator	LVM	210	110	61	28	61	28	ug/dscm @ 7%O2
Incinerator	SVM	270	120	53	22	53	22	ug/dscm @ 7%O2
Incinerator	Mercury		5	16	5.7	16	5	ug/dscm @ 7%O2
Incinerator	TEQ		0.2	0.25	0.12	0.25	0.12	ng/dscm @ 7%O2
Incinerator	Total Cl	280	96	23	8.6	23	8.6	ppmv @ 7%O2
Incinerator	CO	100	50	100	50	100	50	ppmv @ 7%O2
Incinerator	CO(MHRA)	100	50	100	50	100	50	ppmv @ 7%O2
Incinerator	THC	12	6.1	12	6.1	12	6.1	ppmv @ 7%O2
Incinerator	THC(MHRA)	12	6.1	12	6.1	12	6.1	ppmv @ 7%O2
LWA Kiln	Particulate	0.03	0.015	0.012	0.006	0.012	0.006	gr/dscf @ 7%O2
LWA Kiln	LVM	340	230	57	36	57	36	ug/dscm @ 7%O2
LWA Kiln	SVM	12	7.4	61	29	61	29	ug/dscm @ 7%O2
LWA Kiln	Mercury		5	25	14		5	ug/dscm @ 7%O2
LWA Kiln	TEQ		0.2	0.23	0.14	0.23	0.14	ng/dscm @ 7%O2
LWA Kiln	Total Cl	2100	1400	1800	1300		25	ppmv @ 7%O2
LWA Kiln	CO	100	50	100	50	100	50	ppmv @ 7%O2
LWA Kiln	CO(MHRA)	100	50	100	50	100	50	ppmv @ 7%O2
LWA Kiln	THC	14	6.4	14	6.4	14	6.4	ppmv @ 7%O2
LWA Kiln	THC(MHRA)	14	6.4	14	6.4	14	6.4	ppmv @ 7%O2

TABLE A-2. EMISSIONS LIMITS FOR FLOORS 2, 3, 4 AND OPTION 5

System Type	Substance	Floor 2 (5/9/95)	Option 5 (ATF 5/8/95)	Floor 3 (6/22/95)	Floor 4 (6/22/95)	Limit Units
Cement Kiln	Particulate	0.03	0.03	0.024	0.032	gr/dscf @ 7%O2
Cement Kiln	LVM	80	80	19	73	ug/dscm @ 7%O2
Cement Kiln	SVM	60	60	92	34	ug/dscm @ 7%O2
Cement Kiln	Mercury	40	30	38	110	ug/dscm @ 7%O2
Cement Kiln	TEQ	0.2	0.2	0.14	4.7	ng/dscm @ 7%O2
Cement Kiln	HCl	60	60	9	190	ppmv @ 7%O2
Cement Kiln	CO	No Floor 2	No Option 5	No Floor 3	No Floor 4	ppmv @ 7%O2
Cement Kiln	CO(MHRA)	No Floor 2	No Option 5	No Floor 3	No Floor 4	ppmv @ 7%O2
Cement Kiln	THC	20	20	20	20	ppmv @ 7%O2
Cement Kiln	THC(MHRA)	20	20	20	20	ppmv @ 7%O2
Incinerator	Particulate	0.015	0.015	0.012	0.038	gr/dscf @ 7%O2
Incinerator	LVM	80	80	28	110	ug/dscm @ 7%O2
Incinerator	SVM	60	60	22	120	ug/dscm @ 7%O2
Incinerator	Mercury	30	30	5.7	53	ug/dscm @ 7%O2
Incinerator	TEQ	0.3	0.2	0.17	20	ng/dscm @ 7%O2
Incinerator	HCl	25	25	5.4	22	ppmv @ 7%O2
Incinerator	CO	100	100	100	100	ppmv @ 7%O2
Incinerator	CO(MHRA)	100	100	100	100	ppmv @ 7%O2
Incinerator	THC	6	6	6	6	ppmv @ 7%O2
Incinerator	THC(MHRA)	6	6	6	6	ppmv @ 7%O2
LWA Kiln	Particulate	0.015	0.015	0.006	0.024	gr/dscf @ 7%O2
LWA Kiln	LVM	80	80	36	230	ug/dscm @ 7%O2
LWA Kiln	SVM	60	60	29	7.4	ug/dscm @ 7%O2
LWA Kiln	Mercury	30	30	14	910	ug/dscm @ 7%O2
LWA Kiln	TEQ	0.2	0.2	0.14	4.7	ng/dscm @ 7%O2
LWA Kiln	HCl	1300	60	1300	1400	ppmv @ 7%O2
LWA Kiln	CO	100	100	100	100	ppmv @ 7%O2
LWA Kiln	CO(MHRA)	100	100	100	100	ppmv @ 7%O2
LWA Kiln	THC	6	6	6	6	ppmv @ 7%O2
LWA Kiln	THC(MHRA)	6	6	6	6	ppmv @ 7%O2

APPENDIX B

Engineering Cost Analysis, National Emissions Estimate and Engineering Cost By HAP Tables for the 6 Percent Alternative (Hg), 12 Percent Floor and 12 Percent BTF

LIST OF TABLES

TABLE B-1a. REQUIRED REDUCTION TO MEET THE 6% BTF ALTERNATIVE (Hg)

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		5		0.015		34		67		270		10		na		5.1		50		0.2		
200	CK	55	55	-11	0	45	45	82	82	-1384	0	0	0	na	na	na	na	na	na	nr	550	50
201	CK	8	8	58	58	96	96	87	87	-1242	0	0	0	na	na	na	na	na	na	nr	550	75
202	CK	75	75	nr	0	69	69	-128	0	-1546	0	0	0	na	na	na	na	na	na	nr	440	75
203	CK	17	17	-8	0	94	94	-113	0	-130	0	0	0	na	na	na	na	na	na	96	500	96
204	CK	74	74	47	47	93	93	-979	0	-312181	0	0	0	na	na	na	na	na	na	74	600	74
205	CK	83	83	70	70	97	97	-262	0	-1529	0	0	0	na	na	na	na	na	na	-81	500	0
206	CK	71	71	34	34	88	88	-671	0	-232	0	0	0	na	na	na	na	na	na	83	500	83
207	CK	71	71	35	35	91	91	-19	0	-5411	0	0	0	na	na	na	na	na	na	-1146	400	0
208	CK	74	74	-2	0	63	63	-469	0	-5872	0	0	0	na	na	na	na	na	na	-4481	420	0
228	CK	nr	75	nr	50	nr	75	nr	0	nr	0	0	0	na	na	na	na	na	na	18	500	18
300	CK	nr	50	79	79	99	99	35	35	-699	0	0	0	na	na	na	na	na	na	98	600	98
301	CK	96	96	57	57	-191	0	-299	0	-45257	0	0	0	na	na	76	76	57	57	nr	400	50
302	CK	nr	75	55	55	98	98	-144	0	-2539	0	0	0	na	na	na	na	na	na	nr	420	75
303	CK	89	89	36	36	-50	0	-274	0	-1319	0	0	0	na	na	0	0	12	12	nr	250	0
304	CK	88	88	74	74	94	94	-18	0	-68338	0	0	0	na	na	na	na	na	na	89	460	89
305	CK	53	53	79	79	97	97	-128	0	-191	0	0	0	na	na	na	na	na	na	100	730	100
306	CK	100	100	8	8	-105	0	-404	0	-9347	0	0	0	na	na	na	na	na	na	-275	550	0
308	CK	nr	50	27	27	64	64	-842	0	-4721	0	0	0	na	na	na	na	na	na	nr	440	75
309	CK	88	88	39	39	94	94	-619	0	-482	0	0	0	na	na	na	na	na	na	100	640	100
315	CK	nr	50	-1497	0	-73	0	-582	0	-13048	0	0	0	na	na	-117	0	-113	0	-550	450	0
316	CK	nr	75	-29	0	-479	0	-746	0	-842	0	0	0	na	na	15	15	82	82	36	500	25
317	CK	nr	75	-472	0	-19	0	-188	0	-5848	0	0	0	na	na	na	na	na	na	84	500	84
318	CK	nr	75	-56	0	76	76	-261	0	-430	0	0	0	na	na	na	na	na	na	nr	420	0
319	CK	91	91	60	60	95	95	-11	0	-252	0	0	0	na	na	na	na	na	na	97	540	97
320	CK	nr	50	-350	0	-842	0	-1471	0	-4515	0	0	0	na	na	na	na	na	na	-125	480	0
321	CK	nr	75	93	93	-199	0	-484	0	-2746	0	0	0	na	na	nr	nr	-44	0	nr	240	0
322	CK	nr	25	21	21	77	77	-178	0	-1096	0	0	0	na	na	na	na	na	na	95	550	95
323	CK	nr	75	32	32	97	97	46	46	-276	0	0	0	na	na	na	na	na	na	96	500	96
335	CK	92	92	36	36	95	95	-521	0	-122	0	0	0	na	na	na	na	na	na	99	718	99
401	CK	95	95	72	72	97	97	33	33	-1059	0	0	0	na	na	na	na	na	na	58	400	58
402	CK	86	86	74	74	99	99	37	37	-1140	0	0	0	na	na	7	7	90	90	50	450	50
403	CK	100	100	55	55	-14	0	-100	0	-34288	0	0	0	na	na	na	na	na	na	95	500	95
404	CK	-14	0	-153	0	41	41	49	49	-305	0	0	0	na	na	na	na	na	na	80	500	80
405	CK	76	76	58	58	97	97	78	78	-8372	0	0	0	na	na	na	na	na	na	-20	250	0
406	CK	35	35	21	21	95	95	64	64	-530	0	0	0	na	na	na	na	na	na	60		60

TABLE B-1a. REQUIRED REDUCTION TO MEET THE 6% BTF ALTERNATIVE (Hg)

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		5		0.015		7.4		230		1400		6.4		50		na		na		0.2		
223	LWAK	84	84	-252	0	-43	0	-574	0	33	33	nr	0	-443	0	na	na	na	na	nr		0
224	LWAK	68	68	-218	0	-85	0	-962	0	-4762	0	nr	0	-558	0	na	na	na	na	nr		0
225	LWAK	-9	0	-3054	0	-602	0	-2140	0	-118	0	nr	50	-541	0	na	na	na	na	nr		0
226	LWAK	nr	75	nr	0	nr	0	nr	0	nr	0	nr	0	-144	0	na	na	na	na	nr		0
227	LWAK	71	71	-932	0	76	76	-821	0	-4	0	49	49	96	96	na	na	na	na	nr		0
307	LWAK	99	99	-26	0	-15	0	-70	0	-4903	0	nr	0	-10	0	na	na	na	na	nr		0
310	LWAK	67	67	18	18	99	99	-286	0	-17	0	-83	0	42	42	na	na	na	na	nr		0
311	LWAK	67	67	-165	0	99	99	-456	0	-11	0	-31	0	25	25	na	na	na	na	nr		0
312	LWAK	43	43	-50	0	98	98	-518	0	-13	0	-83	0	42	42	na	na	na	na	nr		0
313	LWAK	-1228	0	-125	0	99	99	21	21	7	7	-49	0	-163	0	na	na	na	na	nr		0
314	LWAK	77	77	33	33	100	100	-1	0	-64	0	-42	0	-1289	0	na	na	na	na	nr		0
336	LWAK	nr	75	nr	0	nr	75	nr	0	nr	0	-31	0	25	25	na	na	na	na	-418		0

TABLE B-1a. REQUIRED REDUCTION TO MEET THE 6% BTF ALTERNATIVE (Hg)

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		5		0.015		120		110		96		6.1		50						0.20		0
209	INC	-76	0	-233	0	-1258	0	-386	0	-325	0	nr	25	82	82	na	na	na	na	nr		75
210	INC	nr	75	-97	0	nr	50	nr	75	-175	0	-55	0	-13643	0	na	na	na	na	nr		50
211	INC	nr	0	-76	0	nr	75	nr	75	-155	0	-115	0	-951	0	na	na	na	na	nr		0
212	INC	nr	25	33	33	nr	0	nr	0	28	28	-47	0	-917	0	na	na	na	na	nr		0
214	INC	97	97	30	30	81	81	24	24	-5379	0	-377	0	-231	0	na	na	na	na	-104		0
216	INC	93	93	51	51	84	84	10	10	-857	0	nr	0	-385	0	na	na	na	na	nr		0
221	INC	51	51	-8	0	-187	0	-45	0	-312	0	-74	0	-226	0	na	na	na	na	52		52
222	INC	nr	75	-563	0	-3668	0	nr	0	-4642	0	-1537	0	-34	0	na	na	na	na	81	383	81
229	INC	nr	0	21	21	-184	0	-76	0	10	10	nr	0	nr	75	na	na	na	na	97		97
324	INC	nr	75	28	28	96	96	15	15	50	50	nr	0	-60	0	na	na	na	na	nr		75
325	INC	92	92	-339	0	-15	0	-207	0	-816	0	-756	0	-384	0	na	na	na	na	91		91
327	INC	99	99	-961	0	-322	0	-307	0	-2304	0	-17	0	-498	0	na	na	na	na	98		98
329	INC	nr	75	52	52	nr	75	nr	75	-1053	0	-140	0	-418	0	na	na	na	na	nr		50
330	INC	4	4	63	63	64	64	-114	0	-72	0	nr	0	nr	0	na	na	na	na	99		99
331	INC	87	87	-80	0	97	97	-120	0	nr	0	nr	50	nr	0	na	na	na	na	-213		0
332	INC	nr	50	87	87	nr	0	nr	0	-48	0	nr	0	90	90	na	na	na	na	nr		75
333	INC	nr	75	-796	0	nr	0	nr	50	-79	0	nr	0	-1018	0	na	na	na	na	nr		0
334	INC	28	28	75	75	98	98	83	83	-452	0	-203	0	33	33	na	na	na	na	90		90
337	INC	97	97	-5052	0	-28	0	58	58	-92	0	-87	0	-6481	0	na	na	na	na	nr	413	0
338	INC	91	91	-1100	0	-308	0	-30	0	-37813	0	-245	0	-2389	0	na	na	na	na	nr	415	0
339	INC	nr	75	-445	0	nr	0	nr	0	-731	0	-365	0	nr	0	na	na	na	na	nr		0
340	INC	50	50	-139	0	-1165	0	-39	0	-427	0	-237	0	-69	0	na	na	na	na	nr	444	75
341	INC	-338	0	-675	0	-767	0	-1075	0	-2118	0	nr	25	13	13	na	na	na	na	nr		50
342	INC	20	20	-297	0	-480	0	-2829	0	-37349	0	nr	0	nr	0	na	na	na	na	nr		0
344	INC	nr	75	-852	0	-398	0	-22	0	-8120	0	-228	0	-210	0	na	na	na	na	nr		0
346	INC	-1289	0	-1089	0	-34	0	-638	0	-10700	0	nr	0	-78	0	na	na	na	na	-60		0
347	INC	17	17	-133	0	-1033	0	-602	0	-5235	0	nr	0	nr	0	na	na	na	na	-933		0
348	INC	nr	75	-782	0	-443	0	-2921	0	-10670	0	nr	0	-502	0	na	na	na	na	nr		75
349	INC	nr	0	-630	0	-202	0	nr	75	nr	0	nr	0	-477	0	na	na	na	na	nr	350	0
350	INC	nr	50	-596	0	nr	75	nr	75	nr	0	nr	50	-1385	0	na	na	na	na	nr		0
351	INC	nr	75	-68	0	nr	0	-965	0	nr	0	nr	25	32	32	na	na	na	na	nr	290	50
353	INC	-11	0	32	32	-8	0	42	42	nr	50	nr	0	-215	0	na	na	na	na	-16		0
354	INC	-253	0	-112	0	-4675	0	-991	0	-3160	0	nr	0	-1591	0	na	na	na	na	-2076		0
356	INC	nr	50	54	54	nr	0	nr	0	nr	0	nr	50	-1251	0	na	na	na	na	nr		75
357	INC	nr	0	40	40	nr	50	nr	0	-1174	0	nr	0	-354	0	na	na	na	na	nr		0
358	INC	nr	75	53	53	nr	0	nr	0	-2595	0	nr	0	-3232	0	na	na	na	na	nr		0
359	INC	nr	75	39	39	77	77	100	100	-1046	0	nr	0	50	50	na	na	na	na	nr	375	0
400	INC	74	74	-141	0	82	82	-8	0	nr	0	nr	0	nr	0	na	na	na	na	nr	400	50
500	INC	-74	0	-763	0	-3257	0	-3021	0	-124	0	nr	25	nr	0	na	na	na	na	-442		0
502	INC	nr	75	58	58	92	92	-67	0	-388	0	nr	0	nr	0	na	na	na	na	-951		0
503	INC	77	77	47	47	85	85	75	75	nr	0	nr	50	nr	75	na	na	na	na	nr	285	75
504	INC	100	100	28	28	-173	0	30	30	-1782	0	nr	0	nr	0	na	na	na	na	nr		0
600	INC	nr	50	-100	0	nr	0	nr	75	-7942	0	nr	0	nr	50	na	na	na	na	nr		0
700	INC	nr	0	66	66	100	100	85	85	-469	0	nr	0	nr	0	na	na	na	na	nr		0
701	INC	nr	50	65	65	nr	0	nr	75	-737	0	-523	0	nr	0	na	na	na	na	nr		50
702	INC	nr	0	82	82	nr	75	nr	0	nr	0	nr	0	nr	0	na	na	na	na	nr		75
703	INC	nr	75	-429	0	nr	0	nr	0	73	73	-1516	0	-4240	0	na	na	na	na	nr		0
704	INC	nr	25	20	20	nr	0	nr	0	49	49	nr	0	-1042	0	na	na	na	na	nr		0
705	INC	55	55	63	63	43	43	33	33	-795	0	nr	25	-1632	0	na	na	na	na	nr		75
706	INC	nr	0	65	65	nr	0	nr	0	-18062	0	-20	0	-26	0	na	na	na	na	-893		0
707	INC	nr	0	94	94	nr	75	nr	75	-1407	0	nr	0	99	99	na	na	na	na	nr		50
708	INC	nr	50	43	43	nr	0	nr	50	-7418	0	nr	0	-474	0	na	na	na	na	nr		75
709	INC	nr	75	70	70	nr	0	nr	0	nr	25	-307	0	-544	0	na	na	na	na	nr		0
710	INC	nr	0	44	44	nr	75	nr	0	75	75	63	63	-70	0	na	na	na	na	nr		0
711	INC	nr	0	53	53	nr	0	nr	0	-10006	0	nr	0	-246	0	na	na	na	na	nr		75
712	INC	nr	50	50	50	-4909	0	-228	0	nr	0	nr	0	nr	0	na	na	na	na	nr		0
713	INC	nr	0	77	77	nr	0	nr	0	-257	0	nr	50	-2399	0	na	na	na	na	nr		75
714	INC	nr	25	18	18	nr	75	nr	0	-53	0	nr	0	-195	0	na	na	na	na	nr		50
725	INC	-202	0	30	30	-221	0	-117	0	20	20	-263	0	-1110	0	na	na	na	na	-17		0

TABLE B-1a. REQUIRED REDUCTION TO MEET THE 6% BTF ALTERNATIVE (Hg)

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
726	INC	nr	75	-500	0	nr	75	nr	75	nr	0	48	48	-147	0	na	na	na	na	nr		0
727	INC	nr	0	82	82	nr	75	nr	50	nr	0	96	96	98	98	na	na	na	na	nr		0
728	INC	nr	50	66	66	nr	0	nr	0	-21876	0	nr	0	nr	0	na	na	na	na	nr		75
784	INC	nr	0	63	63	nr	75	nr	50	91	91	nr	0	-1273	0	na	na	na	na	nr		0
805	INC	nr	50	72	72	nr	0	nr	0	10	10	20	20	85	85	na	na	na	na	nr		75
806	INC	97	97	65	65	77	77	-1300	0	-97	0	74	74	75	75	na	na	na	na	nr		0
807	INC	56	56	47	47	43	43	24	24	-3402	0	15	15	-831	0	na	na	na	na	50		50
808	INC	nr	50	22	22	nr	75	nr	75	-17835	0	nr	0	2	2	na	na	na	na	-30		0
809	INC	nr	0	nr	0	99	99	97	97	nr	0	-41	0	96	96	na	na	na	na	nr		75
810	INC	nr	25	nr	75	91	91	81	81	nr	0	nr	0	-222	0	na	na	na	na	nr		0
824	INC	-556	0	-139	0	-189	0	11	11	-3855	0	nr	0	-487	0	na	na	na	na	nr		0
825	INC	nr	75	77	77	nr	0	nr	0	-2307	0	nr	75	nr	75	na	na	na	na	nr		50
902	INC	90	90	30	30	-403	0	-1054	0	-1995	0	-13	0	-27	0	na	na	na	na	-2877		0
904	INC	nr	75	-37	0	nr	75	nr	0	nr	75	17	17	-9832	0	na	na	na	na	nr		0
905	INC	nr	75	nr	50	100	100	38	38	nr	0	nr	0	-36	0	na	na	na	na	nr		0
906	INC	nr	0	79	79	nr	50	nr	75	38	38	-206	0	-730	0	na	na	na	na	nr		75
914	INC	nr	50	-269	0	nr	0	nr	75	58	58	nr	75	-1289	0	na	na	na	na	95		95
915	INC	nr	75	74	74	91	91	83	83	nr	0	66	66	92	92	na	na	na	na	56		56

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
200	CK	FF	55	0	45	82	0	0	na	na	na	550	50	5	Add Q,CI,FF
201	CK	FF	8	58	96	87	0	0	na	na	na	550	75	5	Add Q,CI,FF
202	CK	FF	75	0	69	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
203	CK	ESP	17	0	94	0	0	0	na	na	na	500	96	5	Add Q,CI,FF
204	CK	ESP	74	47	93	0	0	0	na	na	na	600	74	5	Add Q,CI,FF
205	CK	ESP	83	70	97	0	0	0	na	na	na	500	0	5	Add Q,CI,FF
206	CK	ESP	71	34	88	0	0	0	na	na	na	500	83	5	Add Q,CI,FF
207	CK	MC / ESP	71	35	91	0	0	0	na	na	na	400	0	4	Add CI,FF
208	CK	ESP	74	0	63	0	0	0	na	na	na	420	0	4	Add CI,FF
228	CK	ESP	75	50	75	0	0	0	na	na	na	500	18	5	Add Q,CI,FF
300	CK	ESP	50	79	99	35	0	0	na	na	na	600	98	5	Add Q,CI,FF
301	CK	FF	96	57	0	0	0	0	na	76	57	400	50	38	Moderate DOM on Combustor and FF, Add CB
302	CK	ESP	75	55	98	0	0	0	na	na	na	420	75	4	Add CI,FF
303	CK	QC/FF	89	36	0	0	0	0	na	0	12	250	0	4	Add CI,FF
304	CK	ESP	88	74	94	0	0	0	na	na	na	460	89	5	Add Q,CI,FF
305	CK	ESP	53	79	97	0	0	0	na	na	na	730	100	5	Add Q,CI,FF
306	CK	MC/FF	100	8	0	0	0	0	na	na	na	550	0	34	Small DOM on Existing FF, Add Q, CB
308	CK	ESP	50	27	64	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
309	CK	MC / ESP	88	39	94	0	0	0	na	na	na	640	100	5	Add Q,CI,FF
315	CK	FF	50	0	0	0	0	0	na	0	0	450	0	5	Add Q,CI,FF
316	CK	FF	75	0	0	0	0	0	na	15	82	500	25	37	Moderate DOM on Combustor, Add Q, CI, FF
317	CK	FF	75	0	0	0	0	0	na	na	na	500	84	5	Add Q,CI,FF
318	CK	ESP	75	0	76	0	0	0	na	na	na	420	0	4	Add CI,FF
319	CK	ESP	91	60	95	0	0	0	na	na	na	540	97	5	Add Q,CI,FF
320	CK	FF	50	0	0	0	0	0	na	na	na	480	0	5	Add Q,CI,FF
321	CK	ESP	75	93	0	0	0	0	na	nr	0	240	0	4	Add CI,FF
322	CK	ESP	25	21	77	0	0	0	na	na	na	550	95	5	Add Q,CI,FF
323	CK	ESP	75	32	97	46	0	0	na	na	na	500	96	5	Add Q,CI,FF
335	CK	ESP	92	36	95	0	0	0	na	na	na	718	99	5	Add Q,CI,FF
401	CK	ESP	95	72	97	33	0	0	na	na	na	400	58	4	Add CI,FF
402	CK	ESP	86	74	99	37	0	0	na	7	90	450	50	37	Moderate DOM on Combustor, Add Q, CI, FF
403	CK	ESP	100	55	0	0	0	0	na	na	na	500	95	33	Moderate DOM on Existing ESP, Add Q, CB
404	CK	ESP	0	0	41	49	0	0	na	na	na	500	80	20	Moderate DOM on existing ESP, Add Q
405	CK	ESP	76	58	97	78	0	0	na	na	na	250	0	4	Add CI,FF
406	CK	ESP	35	21	95	64	0	0	na	na	na	270	60	4	Add CI,FF

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4										Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ	
223	LWAK	FF	84	0	0	0	33	0	0	na	na		0	4	Add CI, FF, ST
224	LWAK	FF	68	0	0	0	0	0	0	na	na		0	3	Add CI, FF
225	LWAK	FF	0	0	0	0	0	50	0	na	na		0	18	Moderate DOM on Combustor
226	LWAK	FF	75	0	0	0	0	0	0	na	na		0	3	Add CI, FF
227	LWAK	FF	71	0	76	0	0	49	96	na	na		0	9	Add AB, WQ, CI, FF
307	LWAK	FF/VS	99	0	0	0	0	0	0	na	na		0	24	Add CB
310	LWAK	FF	67	0	99	0	0	0	42	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
311	LWAK	FF	67	0	99	0	0	0	25	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
312	LWAK	FF	43	0	98	0	0	0	42	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
313	LWAK	FF	0	0	99	21	7	0	0	na	na		0	6	Add IWS
314	LWAK	FF	77	0	100	0	0	0	0	na	na		0	3	Add CI, FF
336	LWAK	FF	75	0	75	0	0	0	25	na	na		0	21	Moderate DOM on Combustor, Add CI, FF

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
209	INC	WHB, FF/VQ/PT/DM	0	0	0	0	0	25	82	na	na		75	44	Add AB, CI
210	INC	FF/S	75	0	50	75	0	0	0	na	na		50	9	Add RH, CI, FF
211	INC	SS/PT/VS	0	0	75	75	0	0	0	na	na		0	6	Add FF
212	INC	FF/S	25	33	0	0	28	0	0	na	na		0	99	Moderate DOM on Existing FF and WS, Add Q, CI
214	INC	IWS	97	30	81	24	0	0	0	na	na		0	88	Add RH, FF, CB
216	INC	HES / WS	93	51	84	10	0	0	0	na	na		0	9	Add RH, CI, FF
221	INC	PT	51	0	0	0	0	0	0	na	na		52	9	Add RH, CI, FF
222	INC	WHB/SD/ESP/Q/PBS	75	0	0	0	0	0	0	na	na	383	81	8	Add CI
229	INC	WHB/ACS/HCS/CS	0	21	0	0	10	0	75	na	na		97	70	Moderate DOM on Existing WS, Add AB, RH, CB, FF
324	INC	?	75	28	96	15	50	0	0	na	na		75	13	Add PT, RH, CI, FF
325	INC	SD/FF/WS/ IWS	92	0	0	0	0	0	0	na	na		91	8	Add CI
327	INC	SD/FF/WS/ ESP	99	0	0	0	0	0	0	na	na		98	61	Add RH, CB
329	INC	PT/IWS	75	52	75	75	0	0	0	na	na		50	9	Add RH, CI, FF
330	INC	QT/WS/DM	4	63	64	0	0	0	0	na	na		99	9	Add RH, CI, FF
331	INC	PT/IWS	87	0	97	0	0	50	0	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
332	INC	WS	50	87	0	0	0	0	90	na	na		75	25	Add AB, RH, CI, FF
333	INC	SD/FF	75	0	0	50	0	0	0	na	na		0	67	Moderate DOM on existing FF, Add CI
334	INC	WS/ESP/PT	28	75	98	83	0	0	33	na	na		90	54	Moderate DOM on Combustor, Add RH, CI, FF
337	INC	WHB/DA/DI/FF	97	0	0	58	0	0	0	na	na	413	0	100	Moderate DOM on Existing FF, Add CB
338	INC	QC/FF/SS/C/HES/DM	91	0	0	0	0	0	0	na	na	415	0	8	Add CI
339	INC	AT/PT/RJS/ESP	75	0	0	0	0	0	0	na	na		0	61	Add RH, CB
340	INC	WHB/ESP/WS	50	0	0	0	0	0	0	na	na	444	75	8	Add CI
341	INC	DA/DI/FF/HEPA/CA	0	0	0	0	0	25	13	na	na		50	53	Moderate DOM on Combustor, Add CI
342	INC	WHB/QC/S/VS/DM	20	0	0	0	0	0	0	na	na		0	61	Add RH, CB
344	INC	QC/VS/PT/DM	75	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
346	INC	C/QC/VS/PT/DM	0	0	0	0	0	0	0	na	na		0	1	None
347	INC	C/QC/VS/S/DM	17	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
348	INC	QC/AS/IWS	75	0	0	0	0	0	0	na	na		75	61	Add RH, CB
349	INC	QC/FF/QC/PT	0	0	0	75	0	0	0	na	na	350	0	6	Add FF
350	INC	WHB/HE/FF	50	0	75	75	0	50	0	na	na		0	64	Moderate DOM on Combustor, Add CI, FF
351	INC	GC/C/ FF	75	0	0	0	0	25	32	na	na	290	50	53	Moderate DOM on Combustor, Add CB
353	INC	QC/VS/DM/ ESP	0	32	0	42	50	0	0	na	na		0	22	Moderate DOM on Existing ESP, Add PT
354	INC	QC/AS/VS/DM/IWS	0	0	0	0	0	0	0	na	na		0	1	None
356	INC	QC/AS/FN/DM	50	54	0	0	0	50	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CB, FF
357	INC	QC/VS/PT/IWS	0	40	50	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
358	INC	QC/VS/C/CT/S/DM	75	53	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
359	INC	WHB/ FF/S	75	39	77	100	0	0	50	na	na	375	0	54	Moderate DOM on Combustor, Add RH, CI, FF
400	INC	SD/FF	74	0	82	0	0	0	0	na	na	400	50	49	Add CI, FF
500	INC	QC/VS/KOV/ DM	0	0	0	0	0	25	0	na	na		0	94	Moderate DOM on Combustor
502	INC	WHB /QC/ PBC/ VS/ES	75	58	92	0	0	0	0	na	na		0	9	Add RH, CB, FF
503	INC	HTHE/LTHE/FF	77	47	85	75	0	50	75	na	na	285	75	97	Add AB, CB, FF
504	INC	VS/C	100	28	0	30	0	0	0	na	na		0	63	Moderate DOM on existing VS, Add RH, CB
600	INC	WHB/QC/PT/IWS	50	0	0	75	0	0	50	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
700	INC	SD/RJS/VS/WS	0	66	100	85	0	0	0	na	na		0	6	Add FF
701	INC	VS/PT	50	65	0	75	0	0	0	na	na		50	9	Add RH, CI, FF
702	INC	QT/S/C	0	82	75	0	0	0	0	na	na		75	9	Add RH, CI, FF
703	INC	WHB	75	0	0	0	73	0	0	na	na		0	20	Add Q, CB, PT
704	INC	NONE	25	20	0	0	49	0	0	na	na		0	42	Add RH, CB, IWS

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4										Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ	
705	INC	QT/VS/ESP/PT	55	63	43	33	0	25	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CI, FF
706	INC	QT/HS/C	0	65	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
707	INC	QT/WS	0	94	75	75	0	0	99	na	na		50	25	Add AB, RH, CI, FF
708	INC	WS/ESP	50	43	0	50	0	0	0	na	na		75	28	Moderate DOM on Existing ESP, Add RH, CB
709	INC	NONE	75	70	0	0	25	0	0	na	na		0	42	Add RH, CB, IWS
710	INC	QT/OS/C/S	0	44	75	0	75	63	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
711	INC	C/VS/AS	0	53	0	0	0	0	0	na	na		75	9	Add RH, CI, FF
712	INC	NONE	50	50	0	0	0	0	0	na	na		0	10	Add Q, CI, FF
713	INC	VS/PT	0	77	0	0	0	50	0	na	na		75	54	Moderate DOM on Combustor, Add RH, CB, FF
714	INC	WS	25	18	75	0	0	0	0	na	na		50	9	Add RH, CI, FF
725	INC	WS/QT	0	30	0	0	20	0	0	na	na		0	12	Moderate DOM on Existing WS, Add FF
726	INC	QC/CS/DM/VS	75	0	75	75	0	48	0	na	na		0	54	Moderate DOM on Combustor, Add RH, CB, FF
727	INC	GC/C/FF	0	82	75	50	0	96	98	na	na		0	21	Add AB, FF
728	INC	QT/PT/VS	50	66	0	0	0	0	0	na	na		75	63	Moderate DOM on existing VS, Add RH, CB
784	INC	NONE	0	63	75	50	91	0	0	na	na		0	4	Add IWS
805	INC	QT/QS/VS/ES/PBS	50	72	0	0	10	20	85	na	na		75	98	Small DOM on Existing WS, Add AB, RH, CI, FF
806	INC	C/VS	97	65	77	0	0	74	75	na	na		0	101	Add AB, RH, CB, FF
807	INC	C/WHB/VQ/PT/HS/DM	56	47	43	24	0	15	0	na	na		50	54	Moderate DOM on Combustor, Add RH, CI, FF
808	INC	QT/PBS/ESP	50	22	75	75	0	0	2	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
809	INC	VS	0	0	99	97	0	0	96	na	na		75	25	Add AB, RH, CI, FF
810	INC	Q/VS/PBS	25	75	91	81	0	0	0	na	na		0	9	Add RH, CI, FF
824	INC	QT/VS/PT/DM	0	0	0	11	0	0	0	na	na		0	95	Small DOM on Existing VS
825	INC	CCS/QC/ESP	75	77	0	0	0	75	75	na	na		50	25	Add AB, RH, CI, FF
902	INC	QT/VS/PT	90	30	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
904	INC	?	75	0	75	0	75	17	0	na	na		0	24	Moderate DOM on Combustor, Add PT, RH, CB, FF
905	INC	QT/VS/AS/CS	75	50	100	38	0	0	0	na	na		0	9	Add RH, CB, FF
906	INC	QT/PT	0	79	50	75	38	0	0	na	na		75	3	Moderate DOM on Existing WS, Add RH, CB, FF
914	INC	?	50	0	0	75	58	75	0	na	na		95	39	Add AB, RH, CI, FF, PT
915	INC	QC/VS/C	75	74	91	83	0	66	92	na	na		56	25	Add AB, RH, CI, FF

TABLE B-1c. CHARACTERIZATION OF MODEL PLANTS FOR THE 6 PERCENT BTF ALTERNATIVE (Hg)

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
CK	4	Add CI,FF	1	207	*	S	Keystone	MC/ESP	90,681	147,000	
CK	4	Add CI,FF	2	302	*	S	Lafarge	ESP	130,576	147,000	
CK	4	Add CI,FF	4	318	*	S	Texas Industries	ESP	152,675	147,000	
CK	4	Add CI,FF	1	321	*	S	Lafarge	ESP	59,542	147,000	
CK	4	Add CI,FF	1	401		S	Ash Grove	ESP	172,481	147,000	
CK	4	Add CI,FF	1	405	*	S	Ash Grove	ESP	194,905	147,000	
CK	4	Add CI,FF	1	406		S	Ash Grove	ESP	190,180	147,000	
CK	4	Add CI,FF	1	208	*	L	Keystone	ESP	307,644	370,000	
CK	4	Add CI,FF	1	303		L	Lone Star	MC/FF	408,681	370,000	
CK	5	Add Q,CI,FF	2	200	*	S	Giant	FF	123,584	147,000	
CK	5	Add Q,CI,FF	2	201	*	S	Giant	FF	137,945	147,000	
CK	5	Add Q,CI,FF	1	228	*	S	Ash Grove	ESP	148,537	147,000	
CK	5	Add Q,CI,FF	2	300	*	S	Essroc	ESP	164,692	147,000	
CK	5	Add Q,CI,FF	2	305		S	Medusa	ESP	196,903	147,000	85
CK	5	Add Q,CI,FF	3	308	*	S	North Texas	ESP	162,599	147,000	
CK	5	Add Q,CI,FF	1	315	*	S	Southdown	FF	102,042	147,000	
CK	5	Add Q,CI,FF	1	322	*	S	Lafarge	ESP	112,269	147,000	
CK	5	Add Q,CI,FF	1	323	*	S	Lafarge	FF	185,409	147,000	85
CK	5	Add Q,CI,FF	1	335		S	Medusa	ESP	100,378	147,000	85
CK	5	Add Q,CI,FF	1	202	*	L	Heartland	FF	221,421	370,000	
CK	5	Add Q,CI,FF	1	203		L	Holnam	ESP	291,645	370,000	85
CK	5	Add Q,CI,FF	1	204	*	L	Holnam	ESP	693,613	370,000	
CK	5	Add Q,CI,FF	1	205		L	Holnam	ESP	253,556	370,000	
CK	5	Add Q,CI,FF	1	206		L	Holnam	ESP	348,510	370,000	85
CK	5	Add Q,CI,FF	1	304	*	L	Lone Star	ESP	300,367	370,000	
CK	5	Add Q,CI,FF	1	309		L	River Cement	MC/ESP	665,839	370,000	
CK	5	Add Q,CI,FF	1	317	*	L	Southdown	FF	422,190	370,000	
CK	5	Add Q,CI,FF	1	319		L	Continental	ESP	344,250	370,000	85
CK	5	Add Q,CI,FF	3	320	*	L	Lafarge	FF		370,000	
CK	20	Moderate DOM on existing ESP, Add Q	1	404		L	Ash Grove	ESP	265,721	370,000	85
CK	33	Moderate DOM on Existing ESP, Add Q, CB	1	403		S	Ash Grove	ESP	184,877	147,000	
CK	34	Small DOM on Existing FF, Add Q, CB	1	306	*	L	National	MC/FF	280,868	370,000	
CK	37	Moderate DOM on Combustor, Add Q, CI, FF	1	402	*	S	Ash Grove	ESP	187,605	147,000	
CK	37	Moderate DOM on Combustor, Add Q, CI, FF	1	316	*	L	Southdown	FF		370,000	
CK	38	Moderate DOM on Combustor and FF, Add CB	1	301		S	Essroc	FF	185,409	147,000	
INC	1	None	1	346	*	M	Department of Army	C/QC/VS/PT/DM	21,812	22,100	
INC	1	None	1	354	*	M	Dow Chemical	QC/AS/VS/DM/IWS	27,383	22,100	
INC	3	Moderate DOM on Existing WS, Add RH, CB, FF	1	906	*	S	Monsanto	QT/PT	2,738	3,900	92
INC	4	Add IWS	1	784	*	S	Cook Composites	NONE		3,900	92
INC	6	Add FF	2	349	*	S	Radford Army Ammo Plant	QC/FF/QC/PT	5,653	3,900	
INC	6	Add FF	1	700	*	M	Dupont	SD/RJS/VS/WS	30,185	22,100	
INC	6	Add FF	1	211	*	L	LWD	SS/PT/VS	43,596	60,800	
INC	8	Add CI	1	325	*	M	Aptus	SD/FF/WS/IWS	23,127	22,100	
INC	8	Add CI	1	340	*	M	Miles	WHB/ESP/WS	16,003	22,100	
INC	8	Add CI	1	222	*	L	WTI	WHB/SD/ESP/Q/PBS	93,718	60,800	
INC	8	Add CI	1	338	*	L	Dupont	QC/FF/SS/C/HES/DM	65,598	60,800	
INC	9	Add RH, CB, FF	1	502	*	S	Pfizer	WHB/QC/PBC/VS/ES	6,647	3,900	
INC	9	Add RH, CB, FF	1	905	*	S	Velsicol Chemical	QT/VS/AS/CS		3,900	92

TABLE B-1c. CHARACTERIZATION OF MODEL PLANTS FOR THE 6 PERCENT BTF ALTERNATIVE (Hg)

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	9	Add RH, CI, FF	1	330	*	M	General Electric	QT/WS/DM	10,345	22,100	
INC	9	Add RH, CI, FF	1	344	*	M	Department of Army	QC/VS/PT/DM	13,886	22,100	
INC	9	Add RH, CI, FF	1	347	*	M	Department of Army	C/QC/VS/S/DM	10,795	22,100	
INC	9	Add RH, CI, FF	1	358	*	M	Eli Lilly	QC/VS/C/CT/S/DM	14,406	22,100	
INC	9	Add RH, CI, FF	1	701	*	M	Eli Lilly	VS/PT	9,208	22,100	92
INC	9	Add RH, CI, FF	1	702	*	M	Dupont	QT/S/C		22,100	
INC	9	Add RH, CI, FF	2	714	*	M	Olnin Chemical	WS	19,185	22,100	92
INC	9	Add RH, CI, FF	1	810	*	M	Tennessee Eastman	Q/VS/PBS	28,434	22,100	
INC	9	Add RH, CI, FF	1	902	*	M	Rocky Mountain Arsenal	QT/VS/PT	25,436	22,100	
INC	9	Add RH, CI, FF	1	210	*	L	LWD	FF/S	96,107	60,800	
INC	9	Add RH, CI, FF	1	216	*	L	Rollins	HES/WS	40,002	60,800	
INC	9	Add RH, CI, FF	1	221		L	Rollins	PT	51,114	60,800	
INC	9	Add RH, CI, FF	1	329	*	L	Dupont	PT/IWS	53,489	60,800	
INC	9	Add RH, CI, FF	1	711	*	L	Chevron Chemical	C/VS/AS	52,907	60,800	
INC	10	Add Q, CI, FF	1	712	*	L	Nepera	NONE	65,256	60,800	
INC	12	Moderate DOM on Existing WS, Add FF	1	725		S	Zeneca	WS/QT	1,489	3,900	
INC	13	Add PT, RH, CI, FF	1	324	*	M	Allied	?	12,120	22,100	92
INC	19	Moderate DOM on Existing VS	1	357	*	M	Department of Energy	QC/VS/PT/IWS	20,778	22,100	
INC	19	Moderate DOM on Existing VS	1	706	*	M	Ciba-Geigy	QT/HS/C		22,100	
INC	20	Add Q, CB, PT	1	703	*	S	Aristech	WHB	1,873	3,900	92
INC	21	Add AB, FF	1	727	*	S	Iowa Army Ammo Plant	GC/C/FF	3,043	3,900	92
INC	22	Moderate DOM on Existing ESP, Add PT	1	353	*	M	Dow Chemical	QC/VS/DM/ESP		22,100	
INC	24	Moderate DOM on Combustor, Add PT, RH, CB, FF	1	904	*	S	First Chemical	?	5,950	3,900	92
INC	25	Add AB, RH, CI, FF	1	332	*	M	Thermalkem	WS	20,208	22,100	
INC	25	Add AB, RH, CI, FF	1	825	*	M	General Electric	CCS/QC/ESP	21,363	22,100	92
INC	25	Add AB, RH, CI, FF	1	915	*	M	Eastman Kodak	QC/VS/C		22,100	92
INC	25	Add AB, RH, CI, FF	1	707	*	L	Dupont	QT/WS	58,120	60,800	
INC	25	Add AB, RH, CI, FF	1	809	*	L	Tennessee Eastman	VS	40,524	60,800	92
INC	28	Moderate DOM on Existing ESP, Add RH, CB	1	708	*	S	Burroughs Wellcome	WS/ESP	3,687	3,900	
INC	33	Moderate DOM on Combustor, Add IWS	1	710	*	M	Dupont	QT/OS/C/S		22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	914	*	M	Vertac Superfund	?	25,849	22,100	92
INC	42	Add RH, CB, IWS	1	704	*	S	Ashland	NONE	5,011	3,900	92
INC	42	Add RH, CB, IWS	1	709	*	S	Cargill Chemical	NONE	3,123	3,900	
INC	44	Add AB, CI	1	209	*	M	Laidlaw	WHB, FF/VQ/PT/DM	21,716	22,100	
INC	49	Add CI, FF	1	400	*	L	Marine Shale	SD/FF	179,333	60,800	
INC	53	Moderate DOM on Combustor, Add CB	1	351	*	S	Iowa Army Ammo Plant	GC/C/FF	3,457	3,900	
INC	53	Moderate DOM on Combustor, Add CI	1	341	*	M	Glaxo	DA/DI/FF/HEPA/CA		22,100	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	356	*	S	Dupont	QC/AS/FN/DM	5,100	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	713	*	S	Pfizer	VS/PT	2,625	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CB, FF	1	726	*	S	Shell Oil	QC/CS/DM/VS	3,669	3,900	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	359	*	M	Atochem	WHB/FF/S	13,802	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	705	*	M	Ciba-Geigy	QT/VS/ESP/PT	36,116	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	807		M	Bros Lagoon Site	C/WHB/VQ/PT/HS/DM	34,109	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	808	*	M	Dow Chemical	QT/PBS/ESP	35,720	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	331	*	L	Ross	PT/IWS	44,379	60,800	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	334	*	L	3M	WS/ESP/PT	40,599	60,800	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	600	*	L	Dow Chemical	WHB/QC/PT/IWS	43,839	60,800	
INC	61	Add RH, CB	1	339	*	S	Dupont	AT/PT/RJS/ESP	6,263	3,900	
INC	61	Add RH, CB	1	342	*	S	Upjohn	WHB/QC/S/VS/DM	5,640	3,900	
INC	61	Add RH, CB	1	348	*	S	Occidental Chemcial	QC/AS/IWS		3,900	

TABLE B-1c. CHARACTERIZATION OF MODEL PLANTS FOR THE 6 PERCENT BTF ALTERNATIVE (Hg)

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	61	Add RH, CB	1	327		L	Aptus	SD/FF/WS/ESP	49,572	60,800	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	728	*	S	Eli Lilly	QT/PT/VS	5,819	3,900	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	504	*	M	Chevron Chemical	VS/C	32,804	22,100	92
INC	64	Moderate DOM on Combustor, Add CI, FF	1	350	*	M	Dupont	WHB/HE/FF	15,883	22,100	
INC	67	Moderate DOM on existing FF, Add CI	1	333	*	L	Trade Waste	SD/FF	42,042	60,800	
INC	70	Moderate DOM on Existing WS, Add AB, RH, CB, FF	1	229	*	S	Vulcan Materials	WHB/ACS/HCS/CS	1,171	3,900	
INC	88	Add RH, FF, CB	1	214	*	M	Rollins	IWS	34,655	22,100	
INC	94	Moderate DOM on Combustor	1	500	*	L	Chevron	QC/VS/KOV/DM	49,822	60,800	
INC	95	Small DOM on Existing VS	1	824	*	S	Pennwalt	QT/VS/PT/DM	1,086	3,900	
INC	97	Add AB, CB, FF	1	503	*	S	Lake City Army Ammo Plant	HTHE/LTHE/FF	4,747	3,900	
INC	98	Small DOM on Existing WS, Add AB, RH, CI, FF	1	805	*	M	American Cyanamid	QT/QS/VS/ES/PBS	31,943	22,100	
INC	99	Moderate DOM on Existing FF and WS, Add Q, CI	1	212	*	L	LWD	FF/S	44,610	60,800	
INC	100	Moderate DOM on Existing FF, Add CB	2	337	*	M	Olnin Chemical	WHB/DA/DI/FF	13,807	22,100	
INC	101	Add AB, RH, CB, FF	1	806	*	M	Amoco Oli	C/VS	20,641	22,100	92
LWAK	3	Add CI, FF	1	224	*	M (Lo HCl)	Solite	FF	39,049	40,500	
LWAK	3	Add CI, FF	1	226	*	M (Lo HCl)	Solite	FF		40,500	
LWAK	3	Add CI, FF	1	314	*	M (Lo HCl)	Solite	FF	36,793	40,500	
LWAK	4	Add CI, FF, ST	1	223	*	M (Hi HCl)	Solite	FF	29,092	40,500	1570
LWAK	6	Add IWS	1	313	*	M (Hi HCl)	Solite	FF	36,793	40,500	1570
LWAK	9	Add AB, WQ, CI, FF	1	227	*	M (Hi HCl)	Solite	FF	38,796	40,500	1570
LWAK	18	Moderate DOM on Combustor	1	225	*	M (Lo HCl)	Solite	FF	38,270	40,500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	310	*	M (Lo HCl)	Solite	FF	47770	40500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	336	*	M (Lo HCl)	Solite	FF	30,336	40,500	875
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	311	*	M (Hi HCl)	Solite	FF	51,627	40,500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	312	*	M (Hi HCl)	Solite	FF	47,698	40,500	
LWAK	24	Add CB	2	307	*	M (Lo HCl)	Norlite	FF/VS	49,050	40,500	

* Facility has been assigned to model group based on assumed emission level. Facility did not report the necessary emission value, therefore one was assigned based on the distribution of reported values from other facilities.

** Reported Ratio is equal to the number of total units located at a site divided by the number of units for which information was reported.
Often a facility will report data for only one unit even when the facility has two or three units at the particular site, since the single reported unit can be considered as representative of the other nonreported units.

nr = not reported

TABLE B-1d. COST ESTIMATES FOR MODEL PLANTS FOR 6 PERCENT BTF ALTERNATIVE (Hg)

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	4	S	Add CI,FF	11	$2,611K	$718K	$1,022K
CK	4	L	Add CI,FF	2	$5,658K	$1,490K	$2,139K
CK	5	S	Add Q,CI,FF	16	$3,144K	$806K	$1,180K
CK	5	L	Add Q,CI,FF	12	$6,570K	$1,645K	$2,414K
CK	20	L	Moderate DOM on existing ESP, Add Q	1	$4,048K	$442K	$974K
CK	33	S	Moderate DOM on Existing ESP, Add Q, CB	1	$9,162K	$924K	$2,129K
CK	34	L	Small DOM on Existing FF, Add Q, CB	1	$16,657K	$1,744K	$3,936K
CK	37	S	Moderate DOM on Combustor, Add Q, CI, FF	1	$3,365K	$806K	$1,216K
CK	37	L	Moderate DOM on Combustor, Add Q, CI, FF	1	$6,837K	$1,645K	$2,457K
CK	38	S	Moderate DOM on Combustor and FF, Add CB	1	$7,218K	$729K	$1,673K
INC	1	M	None	2	$0K	$0K	$0K
INC	3	S	Moderate DOM on Existing WS, Add RH, CB, FF	1	$588K	$243K	$321K
INC	4	S	Add IWS	1	$215K	$97K	$132K
INC	6	S	Add FF	2	$82K	$89K	$98K
INC	6	M	Add FF	1	$295K	$121K	$154K
INC	6	L	Add FF	1	$943K	$198K	$305K
INC	8	M	Add CI	2	$397K	$147K	$199K
INC	8	L	Add CI	2	$425K	$224K	$280K
INC	9	S	Add RH, CB, FF	2	$575K	$241K	$315K
INC	9	M	Add RH, CI, FF	10	$932K	$391K	$508K
INC	9	L	Add RH, CI, FF	5	$1,681K	$672K	$876K
INC	10	L	Add Q, CI, FF	1	$1,735K	$483K	$694K
INC	12	S	Moderate DOM on Existing WS, Add FF	1	$95K	$92K	$104K
INC	13	M	Add PT, RH, CI, FF	1	$1,137K	$515K	$665K
INC	19	M	Moderate DOM on Existing VS	2	$46K	$35K	$47K
INC	20	S	Add Q, CB, PT	1	$619K	$222K	$305K
INC	21	S	Add AB, FF	1	$347K	$282K	$326K
INC	22	M	Moderate DOM on Existing ESP, Add PT	1	$740K	$174K	$277K
INC	24	S	Moderate DOM on Combustor, Add PT, RH, CB, FF	1	$749K	$331K	$433K
INC	25	M	Add AB, RH, CI, FF	3	$1,349K	$924K	$1,096K
INC	25	L	Add AB, RH, CI, FF	2	$2,223K	$1,947K	$2,223K
INC	28	S	Moderate DOM on Existing ESP, Add RH, CB	1	$673K	$178K	$267K
INC	33	M	Moderate DOM on Combustor, Add IWS	1	$834K	$144K	$280K
INC	39	M	Add AB, RH, CI, FF, PT	1	$1,554K	$1,048K	$1,253K
INC	42	S	Add RH, CB, IWS	2	$708K	$249K	$348K
INC	44	M	Add AB, CI	1	$813K	$681K	$788K
INC	49	L	Add CI, FF	1	$1,368K	$422K	$584K
INC	53	S	Moderate DOM on Combustor, Add CB	1	$457K	$91K	$155K
INC	53	M	Moderate DOM on Combustor, Add CI	1	$551K	$147K	$225K
INC	54	S	Moderate DOM on Combustor, Add RH, CB, FF	3	$691K	$241K	$334K
INC	54	M	Moderate DOM on Combustor, Add RH, CI, FF	4	$1,087K	$391K	$533K
INC	54	L	Moderate DOM on Combustor, Add RH, CI, FF	3	$1,866K	$672K	$906K
INC	61	S	Add RH, CB	3	$493K	$152K	$216K
INC	61	L	Add RH, CB	1	$3,687K	$603K	$1,088K
INC	63	S	Moderate DOM on existing VS, Add RH, CB	1	$504K	$158K	$226K
INC	63	M	Moderate DOM on existing VS, Add RH, CB	1	$1,625K	$334K	$554K
INC	64	M	Moderate DOM on Combustor, Add CI, FF	1	$846K	$268K	$379K
INC	67	L	Moderate DOM on existing FF, Add CI	1	$476K	$241K	$299K
INC	70	S	Moderate DOM on Existing WS, Add AB, RH, CB, FF	1	$853K	$436K	$548K
INC	88	M	Add RH, FF, CB	1	$1,875K	$420K	$661K
INC	94	L	Moderate DOM on Combustor	1	$186K	$0K	$30K
INC	95	S	Small DOM on Existing VS	1	$5K	$7K	$8K
INC	97	S	Add AB, CB, FF	1	$687K	$373K	$462K
INC	98	M	Small DOM on Existing WS, Add AB, RH, CI, FF	1	$1,389K	$937K	$1,116K
INC	99	L	Moderate DOM on Existing FF and WS, Add Q, CI	1	$1,038K	$343K	$500K
INC	100	M	Moderate DOM on Existing FF, Add CB	2	$1,358K	$183K	$359K
INC	101	M	Add AB, RH, CB, FF	1	$2,292K	$953K	$1,249K
LWAK	3	M (Lo HCl)	Add CI, FF	3	$1,074K	$350K	$480K
LWAK	4	M (Hi HCl)	Add CI, FF, ST	1	$2,302K	$680K	$1,009K
LWAK	6	M (Hi HCl)	Add IWS	1	$1,016K	$682K	$847K
LWAK	9	M (Hi HCl)	Add AB, WQ, CI, FF	1	$1,883K	$1,615K	$1,850K
LWAK	18	M (Lo HCl)	Moderate DOM on Combustor	1	$172K	$0K	$28K
LWAK	21	M (Lo HCl)	Moderate DOM on Combustor, Add CI, FF	2	$1,246K	$350K	$508K
LWAK	21	M (Hi HCl)	Moderate DOM on Combustor, Add CI, FF	2	$1,246K	$350K	$508K

TABLE B-1d. COST ESTIMATES FOR MODEL PLANTS FOR 6 PERCENT BTF ALTERNATIVE (Hg)

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
LWAK	24	M (Lo HCl)	Add CB	2	$2,477K	$270K	$596K

TABLE B-2a. REQUIRED REDUCTION TO MEET THE ALTERNATIVE 12% MACT FLOOR

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		38		0.015		92		19		11		10		na		5.1		50		0.14		
200	CK	-243	0	-11	0	-48	0	95	95	40	40	0	0	na	na	na	na	na	na	nr	550	50
201	CK	-599	0	58	58	90	90	96	96	45	45	0	0	na	na	na	na	na	na	nr	550	75
202	CK	-88	0	nr	0	16	16	35	35	33	33	0	0	na	na	na	na	na	na	nr	440	75
203	CK	-529	0	-8	0	83	83	39	39	91	91	0	0	na	na	na	na	na	na	97	500	97
204	CK	-101	0	47	47	82	82	-206	0	-12623	0	0	0	na	na	na	na	na	na	82	600	82
205	CK	-28	0	70	70	92	92	-3	0	34	34	0	0	na	na	na	na	na	na	-27	500	0
206	CK	-119	0	34	34	66	66	-119	0	86	86	0	0	na	na	na	na	na	na	88	500	88
207	CK	-124	0	35	35	76	76	66	66	-125	0	0	0	na	na	na	na	na	na	-772	400	0
208	CK	-94	0	-2	0	0	0	-61	0	-143	0	0	0	na	na	na	na	na	na	-3107	420	0
228	CK	nr	25	nr	50	nr	75	nr	0	nr	50	0	0	na	na	na	na	na	na	43	500	43
300	CK	nr	0	79	79	96	96	81	81	67	67	0	0	na	na	na	na	na	na	99	600	99
301	CK	67	67	57	57	-688	0	-13	0	-1748	0	0	0	na	na	76	76	57	57	nr	400	50
302	CK	nr	50	55	55	94	94	31	31	-8	0	0	0	na	na	na	na	na	na	nr	420	75
303	CK	20	20	36	36	-306	0	-6	0	42	42	0	0	na	na	0	0	12	12	nr	250	0
304	CK	9	9	74	74	85	85	66	66	-2688	0	0	0	na	na	na	na	na	na	93	460	93
305	CK	-256	0	79	79	92	92	35	35	88	88	0	0	na	na	na	na	na	na	100	730	100
306	CK	99	99	8	8	-454	0	-43	0	-285	0	0	0	na	na	na	na	na	na	-162	550	0
308	CK	nr	0	27	27	1	1	-167	0	-96	0	0	0	na	na	na	na	na	na	nr	440	75
309	CK	11	11	39	39	83	83	-104	0	76	76	0	0	na	na	na	na	na	na	100	640	100
315	CK	nr	0	-1497	0	-367	0	-93	0	-436	0	0	0	na	na	-117	0	-113	0	-355	450	0
316	CK	nr	25	-29	0	-1467	0	-140	0	62	62	0	0	na	na	15	15	82	82	55	500	25
317	CK	nr	0	-472	0	-221	0	18	18	-142	0	0	0	na	na	na	na	na	na	89	500	89
318	CK	nr	0	-56	0	34	34	-2	0	78	78	0	0	na	na	na	na	na	na	nr	420	0
319	CK	32	32	60	60	86	86	68	68	86	86	0	0	na	na	na	na	na	na	98	540	98
320	CK	nr	0	-350	0	-2449	0	-345	0	-88	0	0	0	na	na	na	na	na	na	-58	480	0
321	CK	nr	50	93	93	-708	0	-66	0	-16	0	0	0	na	na	nr	nr	-44	0	nr	240	0
322	CK	nr	0	21	21	39	39	21	21	51	51	0	0	na	na	na	na	na	na	96	550	96
323	CK	nr	75	32	32	91	91	85	85	85	85	0	0	na	na	na	na	na	na	97	500	97
335	CK	36	36	36	36	88	88	-76	0	91	91	0	0	na	na	na	na	na	na	100	718	100
401	CK	59	59	72	72	92	92	81	81	53	53	0	0	na	na	na	na	na	na	70	400	70
402	CK	-7	0	74	74	97	97	82	82	49	49	0	0	na	na	7	7	90	90	65	450	65
403	CK	96	96	55	55	-210	0	43	43	-1301	0	0	0	na	na	na	na	na	na	96	500	96
404	CK	-768	0	-153	0	-60	0	85	85	84	84	0	0	na	na	na	na	na	na	86	500	86
405	CK	-82	0	58	58	92	92	94	94	-245	0	0	0	na	na	na	na	na	na	16	250	16
406	CK	-393	0	21	21	86	86	90	90	74	74	0	0	na	na	na	na	na	na	72		72
Floor Levels		14		0.006		29.0		36		1300		6.4		50		na		na		0.2		
223	LWAK	56	56	-41	0	-459	0	-6	0	37	37	nr	0	-443	0	na	na	na	na	nr		0
224	LWAK	11	11	-27	0	-627	0	-66	0	-4414	0	nr	0	-558	0	na	na	na	na	nr		0
225	LWAK	-206	0	-1162	0	-2650	0	-251	0	-103	0	nr	50	-541	0	na	na	na	na	nr		0
226	LWAK	nr	50	nr	0	nr	0	nr	0	nr	0	nr	0	-144	0	na	na	na	na	nr		0
227	LWAK	18	18	-313	0	6	6	-44	0	3	3	49	49	96	96	na	na	na	na	nr		0
307	LWAK	97	97	50	50	-349	0	73	73	-4546	0	nr	0	-10	0	na	na	na	na	nr		0
310	LWAK	8	8	67	67	94	94	40	40	-8	0	-83	0	42	42	na	na	na	na	nr		0
311	LWAK	8	8	-6	0	94	94	13	13	-3	0	-31	0	25	25	na	na	na	na	nr		0
312	LWAK	-59	0	40	40	93	93	3	3	-5	0	-83	0	42	42	na	na	na	na	nr		0
313	LWAK	-3617	0	10	10	96	96	88	88	14	14	-49	0	-163	0	na	na	na	na	nr		0
314	LWAK	37	37	73	73	98	98	84	84	-52	0	-42	0	-1289	0	na	na	na	na	nr		0
336	LWAK	nr	0	nr	50	nr	75	nr	75	nr	0	-31	0	25	25	na	na	na	na	-418		0
Floor Levels		5.7		0.012		22		28		9		6.1		50						0.12		0
209	INC	-101	0	-166	0	-149	0	-24	0	62	62	nr	25	82	82	na	na	na	na	nr		75
210	INC	nr	75	-58	0	nr	75	nr	75	75	75	-55	0	-13643	0	na	na	na	na	nr		50
211	INC	nr	0	-40	0	nr	75	nr	75	77	77	-115	0	-951	0	na	na	na	na	nr		0
212	INC	nr	25	46	46	nr	0	nr	50	94	94	-47	0	-917	0	na	na	na	na	nr		0

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
214	INC	97	97	44	44	97	97	81	81	-391	0	-377	0	-231	0	na	na	na	na	-23		0
216	INC	93	93	61	61	97	97	77	77	14	14	nr	0	-385	0	na	na	na	na	nr		0
221	INC	44	44	13	13	47	47	63	63	63	63	-74	0	-226	0	na	na	na	na	71		71
222	INC	nr	75	-430	0	-591	0	nr	25	-325	0	-1537	0	-34	0	na	na	na	na	89	383	89
229	INC	nr	0	37	37	48	48	55	55	92	92	nr	0	nr	75	na	na	na	na	98		98
324	INC	nr	75	43	43	99	99	78	78	96	96	nr	0	-60	0	na	na	na	na	nr		75
325	INC	91	91	-251	0	79	79	22	22	18	18	-756	0	-384	0	na	na	na	na	95		95
327	INC	99	99	-749	0	23	23	-4	0	-115	0	-17	0	-498	0	na	na	na	na	99		99
329	INC	nr	75	61	61	nr	75	nr	75	-3	0	-140	0	-418	0	na	na	na	na	nr		50
330	INC	-10	0	71	71	93	93	46	46	85	85	nr	0	nr	0	na	na	na	na	100		100
331	INC	85	85	-44	0	99	99	44	44	nr	25	nr	50	nr	0	na	na	na	na	-88		0
332	INC	nr	25	89	89	nr	25	nr	50	87	87	nr	0	90	90	na	na	na	na	nr		75
333	INC	nr	75	-616	0	nr	75	nr	75	84	84	nr	0	-1018	0	na	na	na	na	nr		25
334	INC	18	18	80	80	100	100	96	96	51	51	-203	0	33	33	na	na	na	na	94		94
337	INC	97	97	-4021	0	77	77	89	89	83	83	-87	0	-6481	0	na	na	na	na	nr	413	0
338	INC	90	90	-860	0	25	25	67	67	-3296	0	-245	0	-2389	0	na	na	na	na	nr	415	0
339	INC	nr	75	-336	0	nr	25	nr	0	26	26	-365	0	nr	0	na	na	na	na	nr		0
340	INC	43	43	-91	0	-132	0	65	65	53	53	-237	0	-69	0	na	na	na	na	nr	444	75
341	INC	-399	0	-520	0	-59	0	-199	0	-99	0	nr	25	13	13	na	na	na	na	nr		75
342	INC	9	9	-218	0	-6	0	-646	0	-3255	0	nr	0	nr	0	na	na	na	na	nr		0
344	INC	nr	75	-661	0	9	9	69	69	-636	0	-228	0	-210	0	na	na	na	na	nr		0
346	INC	-1483	0	-851	0	75	75	-88	0	-868	0	nr	0	-78	0	na	na	na	na	4		4
347	INC	5	5	-86	0	-108	0	-79	0	-378	0	nr	0	nr	0	na	na	na	na	-520		0
348	INC	nr	75	-606	0	0	0	-669	0	-865	0	nr	0	-502	0	na	na	na	na	nr		75
349	INC	nr	0	-484	0	45	45	nr	75	nr	0	nr	0	-477	0	na	na	na	na	nr	350	0
350	INC	nr	50	-457	0	nr	75	nr	75	nr	0	nr	50	-1385	0	na	na	na	na	nr		50
351	INC	nr	75	-34	0	nr	0	-171	0	nr	50	nr	25	32	32	na	na	na	na	nr	290	50
353	INC	-27	0	46	46	80	0	85	85	nr	75	nr	0	-215	0	na	na	na	na	30		30
354	INC	-302	0	-70	0	-775	0	-178	0	-192	0	nr	0	-1591	0	na	na	na	na	-1205		0
356	INC	nr	25	63	63	nr	50	nr	0	nr	25	nr	50	-1251	0	na	na	na	na	nr		75
357	INC	nr	0	52	52	nr	75	nr	75	-14	0	nr	0	-354	0	na	na	na	na	nr		0
358	INC	nr	75	63	63	nr	75	nr	50	-141	0	nr	0	-3232	0	na	na	na	na	nr		0
359	INC	nr	75	51	51	96	96	100	100	-3	0	nr	0	50	50	na	na	na	na	nr	375	25
400	INC	71	71	-93	0	97	97	73	73	nr	0	nr	0	nr	0	na	na	na	na	nr	400	50
500	INC	-98	0	-590	0	-515	0	-694	0	80	80	nr	25	nr	0	na	na	na	na	-225		0
502	INC	nr	75	67	67	99	99	58	58	56	56	nr	0	nr	0	na	na	na	na	-530		0
503	INC	74	74	57	57	97	97	94	94	nr	0	nr	50	nr	75	na	na	na	na	nr	285	75
504	INC	100	100	43	43	50	50	82	82	-69	0	nr	0	nr	0	na	na	na	na	nr		0
600	INC	nr	50	-60	0	nr	50	nr	75	-620	0	nr	0	nr	50	na	na	na	na	nr		0
700	INC	nr	0	72	72	100	100	96	96	49	49	nr	0	nr	0	na	na	na	na	nr		25
701	INC	nr	50	72	72	nr	50	nr	75	25	25	-523	0	nr	0	na	na	na	na	nr		50
702	INC	nr	0	85	85	nr	75	nr	50	nr	0	nr	0	nr	0	na	na	na	na	nr		75
703	INC	nr	75	-324	0	nr	0	nr	0	98	98	-1516	0	-4240	0	na	na	na	na	nr		0
704	INC	nr	25	36	36	nr	50	nr	50	95	95	nr	0	-1042	0	na	na	na	na	nr		25
705	INC	48	48	71	71	89	89	83	83	20	20	nr	25	-1632	0	na	na	na	na	nr		75
706	INC	nr	0	72	72	nr	0	nr	0	-1527	0	-20	0	-26	0	na	na	na	na	-496		0
707	INC	nr	0	95	95	nr	75	nr	75	-35	0	nr	0	99	99	na	na	na	na	nr		50
708	INC	nr	50	54	54	nr	50	nr	75	-573	0	nr	0	-474	0	na	na	na	na	nr		75
709	INC	nr	75	76	76	nr	0	nr	0	nr	75	-307	0	-544	0	na	na	na	na	nr		0
710	INC	nr	0	55	55	nr	75	nr	0	98	98	63	63	-70	0	na	na	na	na	nr		0
711	INC	nr	0	63	63	nr	0	nr	50	-805	0	nr	0	-246	0	na	na	na	na	nr		75
712	INC	nr	50	60	60	-818	0	16	16	nr	0	nr	0	nr	0	na	na	na	na	nr		0
713	INC	nr	0	82	82	nr	75	nr	25	68	68	nr	50	-2399	0	na	na	na	na	nr		75
714	INC	nr	0	34	34	nr	75	nr	0	86	86	nr	0	-195	0	na	na	na	na	nr		50
725	INC	-245	0	44	44	41	41	45	45	93	93	-263	0	-1110	0	na	na	na	na	30		30
726	INC	nr	75	-380	0	nr	75	nr	75	nr	75	48	48	-147	0	na	na	na	na	nr		0

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
727	INC	nr	0	86	86	nr	75	nr	75	nr	50	96	96	98	98	na	na	na	na	nr		50
728	INC	nr	50	72	72	nr	0	nr	0	-1869	0	nr	0	nr	0	na	na	na	na	nr		75
784	INC	nr	0	70	70	nr	75	nr	75	99	99	nr	0	-1273	0	na	na	na	na	nr		0
805	INC	nr	25	78	78	nr	25	nr	50	92	92	20	20	85	85	na	na	na	na	nr		75
806	INC	96	96	72	72	96	96	-256	0	82	82	74	74	75	75	na	na	na	na	nr		0
807	INC	50	50	57	57	90	90	81	81	-214	0	15	15	-831	0	na	na	na	na	70		70
808	INC	nr	50	37	37	nr	75	nr	75	-1507	0	nr	0	2	2	na	na	na	na	22		22
809	INC	nr	0	nr	0	100	100	99	99	nr	75	-41	0	96	96	na	na	na	na	nr		75
810	INC	nr	0	nr	75	98	98	95	95	nr	75	nr	0	-222	0	na	na	na	na	nr		0
824	INC	-648	0	-91	0	47	47	77	77	-254	0	nr	0	-487	0	na	na	na	na	nr		0
825	INC	nr	75	82	82	nr	0	nr	50	-116	0	nr	75	nr	75	na	na	na	na	nr		50
902	INC	88	88	44	44	8	8	-194	0	-88	0	-13	0	-27	0	na	na	na	na	-1686		0
904	INC	nr	75	-10	0	nr	75	nr	0	nr	75	17	17	-9832	0	na	na	na	na	nr		25
905	INC	nr	75	nr	50	100	100	84	84	nr	0	nr	0	-36	0	na	na	na	na	nr		0
906	INC	nr	0	83	83	nr	75	nr	75	94	94	-206	0	-730	0	na	na	na	na	nr		75
914	INC	nr	50	-195	0	nr	75	nr	75	96	96	nr	75	-1289	0	na	na	na	na	97		97
915	INC	nr	75	79	79	98	98	96	96	nr	75	66	66	92	92	na	na	na	na	74		74

TABLE B-2b. MODEL GROUP SELECTION FOR THE ALTERNATIVE 12% MACT FLOOR

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
200	CK	FF	0	0	0	95	40	0	na	na	na	550	50	19	Add Q, IWS
201	CK	FF	0	58	90	96	45	0	na	na	na	550	75	19	Add Q, IWS
202	CK	FF	0	0	16	35	33	0	na	na	na	440	75	16	Add Q, CI, FF, PT
203	CK	ESP	0	0	83	39	91	0	na	na	na	500	97	16	Add Q, CI, FF, PT
204	CK	ESP	0	47	82	0	0	0	na	na	na	600	82	18	Add Q, FF
205	CK	ESP	0	70	92	0	34	0	na	na	na	500	0	6	Add IWS
206	CK	ESP	0	34	66	0	86	0	na	na	na	500	88	19	Add Q, IWS
207	CK	MC / ESP	0	35	76	66	0	0	na	na	na	400	0	3	Add FF
208	CK	ESP	0	0	0	0	0	0	na	na	na	420	0	1	None
228	CK	ESP	25	50	75	0	50	0	na	na	na	500	43	16	Add Q, CI, FF, PT
300	CK	ESP	0	79	96	81	67	0	na	na	na	600	99	16	Add Q, CI, FF, PT
301	CK	FF	67	57	0	0	0	0	na	76	57	400	50	28	Moderate DOM on Combustor, Add CI, FF
302	CK	ESP	50	55	94	31	0	0	na	na	na	420	75	4	Add CI,FF
303	CK	QC/FF	20	36	0	0	42	0	na	0	12	250	0	8	Add CI,FF,PT
304	CK	ESP	9	74	85	66	0	0	na	na	na	460	93	5	Add Q,CI,FF
305	CK	ESP	0	79	92	35	88	0	na	na	na	730	100	16	Add Q, CI, FF, PT
306	CK	MC/FF	99	8	0	0	0	0	na	na	na	550	0	34	Small DOM on Existing FF, Add Q, CB
308	CK	ESP	0	27	1	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
309	CK	MC / ESP	11	39	83	0	76	0	na	na	na	640	100	16	Add Q, CI, FF, PT
315	CK	FF	0	0	0	0	0	0	na	0	0	450	0	1	None
316	CK	FF	25	0	0	0	62	0	na	15	82	500	25	39	Moderate DOM on Combustor, Add Q, CI, FF, PT
317	CK	FF	0	0	0	18	0	0	na	na	na	500	89	31	Small DOM on Existing FF, Add Q
318	CK	ESP	0	0	34	0	78	0	na	na	na	420	0	6	Add IWS
319	CK	ESP	32	60	86	68	86	0	na	na	na	540	98	16	Add Q, CI, FF, PT
320	CK	FF	0	0	0	0	0	0	na	na	na	480	0	1	None
321	CK	ESP	50	93	0	0	0	0	na	nr	0	240	0	4	Add CI,FF
322	CK	ESP	0	21	39	21	51	0	na	na	na	550	96	16	Add Q, CI, FF, PT
323	CK	ESP	75	32	91	85	85	0	na	na	na	500	97	16	Add Q, CI, FF, PT
335	CK	ESP	36	36	88	0	91	0	na	na	na	718	100	16	Add Q, CI, FF, PT
401	CK	ESP	59	72	92	81	53	0	na	na	na	400	70	8	Add CI,FF,PT
402	CK	ESP	0	74	97	82	49	0	na	7	90	450	65	40	Moderate DOM on Combustor, Add Q, IWS
403	CK	ESP	96	55	0	43	0	0	na	na	na	500	96	33	Moderate DOM on Existing ESP, Add Q, CB
404	CK	ESP	0	0	0	85	84	0	na	na	na	500	86	19	Add Q, IWS
405	CK	ESP	0	58	92	94	0	0	na	na	na	250	16	4	Add CI,FF
406	CK	ESP	0	21	86	90	74	0	na	na	na		72	8	Add CI,FF,PT
223	LWAK	FF	56	0	0	0	37	0	0	na	na		0	4	Add CI, FF, ST
224	LWAK	FF	11	0	0	0	0	0	0	na	na		0	3	Add CI, FF
225	LWAK	FF	0	0	0	0	0	50	0	na	na		0	18	Moderate DOM on Combustor
226	LWAK	FF	50	0	0	0	0	0	0	na	na		0	3	Add CI, FF
227	LWAK	FF	18	0	6	0	3	49	96	na	na		0	11	Add AB, WQ, CI, FF, ST
307	LWAK	FF/VS	97	0	0	73	0	0	0	na	na		0	10	Moderate DOM on Existing FF, Add CB

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
310	LWAK	FF	8	0	94	40	0	0	42	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
311	LWAK	FF	8	0	94	13	0	0	25	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
312	LWAK	FF	0	0	93	3	0	0	42	na	na		0	16	Moderate DOM on Combustor, Add FF
313	LWAK	FF	0	0	96	88	14	0	0	na	na		0	6	Add IWS
314	LWAK	FF	37	0	98	84	0	0	0	na	na		0	3	Add CI, FF
336	LWAK	FF	0	0	75	75	0	0	25	na	na		0	16	Moderate DOM on Combustor, Add FF
209	INC	WHB, FF/VQ/PT/DM	0	0	0	0	62	25	82	na	na		75	110	Moderate DOM on Existing WS, Add AB, CI
210	INC	FF/S	75	0	75	75	75	0	0	na	na		50	13	Add PT, RH, CI, FF
211	INC	SS/PT/VS	0	0	75	75	77	0	0	na	na		0	4	Add IWS
212	INC	FF/S	25	46	0	50	94	0	0	na	na		0	86	Add Q, IWS, CI
214	INC	IWS	97	44	97	81	0	0	0	na	na		0	88	Add RH, FF, CB
216	INC	HES / WS	93	61	97	77	14	0	0	na	na		0	29	Small DOM on Existing WS, Add RH, CI, FF
221	INC	PT	44	13	47	63	63	0	0	na	na		71	102	Moderate DOM on Existing WS, Add RH, CI, FF
222	INC	WHB/SD/ESP/Q/PBS	75	0	0	25	0	0	0	na	na	383	89	103	Moderate DOM on Existing ESP, Add CI
229	INC	WHB/ACS/HCS/CS	0	37	48	55	92	0	75	na	na		98	43	Add AB, RH, CB, IWS
324	INC	?	75	43	99	78	96	0	0	na	na		75	13	Add PT, RH, CI, FF
325	INC	SD/FF/WS/ IWS	91	0	79	22	18	0	0	na	na		95	104	Small DOM on Existing WS, Add CI, FF
327	INC	SD/FF/WS/ ESP	99	0	23	0	0	0	0	na	na		99	109	Small DOM on Existing FF, Add RH, CB
329	INC	PT/IWS	75	61	75	75	0	0	0	na	na		50	9	Add RH, CI, FF
330	INC	QT/WS/DM	0	71	93	46	85	0	0	na	na		100	13	Add PT, RH, CI, FF
331	INC	PT/IWS	85	0	99	44	25	50	0	na	na		0	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF
332	INC	WS	25	89	25	50	87	0	90	na	na		75	39	Add AB, RH, CI, FF, PT
333	INC	SD/FF	75	0	75	75	84	0	0	na	na		25	36	Add CI, IWS
334	INC	WS/ESP/PT	18	80	100	96	51	0	33	na	na		94	56	Moderate DOM on WS, Combustor, Add RH, CI, FF
337	INC	WHB/DA/DI/FF	97	0	77	89	83	0	0	na	na	413	0	105	Add CB, IWS
338	INC	QC/FF/SS/C/HES/DM	90	0	25	67	0	0	0	na	na	415	0	67	Moderate DOM on existing FF, Add CI
339	INC	AT/PT/RJS/ESP	75	0	25	0	26	0	0	na	na		0	107	Moderate DOM on WS, Small DOM on VS, Add RH, CB
340	INC	WHB/ESP/WS	43	0	0	65	53	0	0	na	na	444	75	108	Moderate DOM on Existing ESP and WS, Add CI
341	INC	DA/DI/FF/HEPA/CA	0	0	0	0	0	25	13	na	na		75	53	Moderate DOM on Combustor, Add CI
342	INC	WHB/QC/S/VS/DM	9	0	0	0	0	0	0	na	na		0	61	Add RH, CB
344	INC	QC/VS/PT/DM	75	0	9	69	0	0	0	na	na		0	9	Add RH, CI, FF
346	INC	C/QC/VS/PT/DM	0	0	75	0	0	0	0	na	na		4	9	Add RH, CI, FF
347	INC	C/QC/VS/S/DM	5	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
348	INC	QC/AS/IWS	75	0	0	0	0	0	0	na	na		75	61	Add RH, CB
349	INC	QC/FF/QC/PT	0	0	45	75	0	0	0	na	na	350	0	6	Add FF
350	INC	WHB/HE/FF	50	0	75	75	0	50	0	na	na		50	64	Moderate DOM on Combustor, Add CI, FF
351	INC	GC/C/ FF	75	0	0	0	50	25	32	na	na	290	50	46	Moderate DOM on Combustor, Add CB, PT
353	INC	QC/VS/DM/ ESP	0	46	0	85	75	0	0	na	na		30	13	Add PT, RH, CI, FF
354	INC	QC/AS/VS/DM/IWS	0	0	0	0	0	0	0	na	na		0	1	None
356	INC	QC/AS/FN/DM	25	63	50	0	25	50	0	na	na		75	65	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF
357	INC	QC/VS/PT/IWS	0	52	75	75	0	0	0	na	na		0	6	Add FF
358	INC	QC/VS/C/CT/S/DM	75	63	75	50	0	0	0	na	na		0	9	Add RH, CI, FF

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
359	INC	WHB/ FF/S	75	51	96	100	0	0	50	na	na	375	25	54	Moderate DOM on Combustor, Add RH, CI, FF
400	INC	SD/FF	71	0	97	73	0	0	0	na	na	400	50	49	Add CI, FF
500	INC	QC/VS/KOV/ DM	0	0	0	0	80	25	0	na	na		0	27	Moderate DOM on Combustor, Add PT
502	INC	WHB /QC/ PBC/ VS/ES	75	67	99	58	56	0	0	na	na		0	3	Moderate DOM on Existing WS, Add RH, CB, FF
503	INC	HTHE/LTHE/FF	74	57	97	94	0	50	75	na	na	285	75	97	Add AB, CB, FF
504	INC	VS/C	100	43	50	82	0	0	0	na	na		0	88	Add RH, FF, CB
600	INC	WHB/QC/PT/IWS	50	0	50	75	0	0	50	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
700	INC	SD/RJS/VS/WS	0	72	100	96	49	0	0	na	na		25	3	Moderate DOM on Existing WS, Add RH, CI, FF
701	INC	VS/PT	50	72	50	75	25	0	0	na	na		50	29	Small DOM on Existing WS, Add RH, CI, FF
702	INC	QT/S/C	0	85	75	50	0	0	0	na	na		75	9	Add RH, CI, FF
703	INC	WHB	75	0	0	0	98	0	0	na	na		0	20	Add Q, CB, PT
704	INC	NONE	25	36	50	50	95	0	0	na	na		25	42	Add RH, CB, IWS
705	INC	QT/VS/ESP/PT	48	71	89	83	20	25	0	na	na		75	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF
706	INC	QT/HS/C	0	72	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
707	INC	QT/WS	0	95	75	75	0	0	99	na	na		50	25	Add AB, RH, CI, FF
708	INC	WS/ESP	50	54	50	75	0	0	0	na	na		75	9	Add RH, CB, FF
709	INC	NONE	75	76	0	0	75	0	0	na	na		0	42	Add RH, CB, IWS
710	INC	QT/OS/C/S	0	55	75	0	98	63	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
711	INC	C/VS/AS	0	63	0	50	0	0	0	na	na		75	9	Add RH, CI, FF
712	INC	NONE	50	60	0	16	0	0	0	na	na		0	10	Add Q, CI, FF
713	INC	VS/PT	0	82	75	25	68	50	0	na	na		75	93	Moderate DOM on Combustor, Add RH, CB, IWS
714	INC	WS	0	34	75	0	86	0	0	na	na		50	13	Add PT, RH, CI, FF
725	INC	WS/QT	0	44	41	45	93	0	0	na	na		30	42	Add RH, CB, IWS
726	INC	QC/CS/DM/VS	75	0	75	75	75	48	0	na	na		0	93	Moderate DOM on Combustor, Add IWS, RH, CB
727	INC	GC/C/FF	0	86	75	75	50	96	98	na	na		50	43	Add AB, RH, CB, IWS
728	INC	QT/PT/VS	50	72	0	0	0	0	0	na	na		75	63	Moderate DOM on existing VS, Add RH, CB
784	INC	NONE	0	70	75	75	99	0	0	na	na		0	4	Add IWS
805	INC	QT/QS/VS/ES/PBS	25	78	25	50	92	20	85	na	na		75	39	Add AB, RH, CI, FF, PT
806	INC	C/VS	96	72	96	0	82	74	75	na	na		0	106	Add AB, RH, CB, IWS
807	INC	C/WHB/VQ/PT/HS/DM	50	57	90	81	0	15	0	na	na		70	54	Moderate DOM on Combustor, Add RH, CI, FF
808	INC	QT/PBS/ESP	50	37	75	75	0	0	2	na	na		22	54	Moderate DOM on Combustor, Add RH, CI, FF
809	INC	VS	0	0	100	99	75	0	96	na	na		75	39	Add AB, RH, CI, FF, PT
810	INC	Q/VS/PBS	0	75	98	95	75	0	0	na	na		0	4	Add IWS
824	INC	QT/VS/PT/DM	0	0	47	77	0	0	0	na	na		0	6	Add FF
825	INC	CCS/QC/ESP	75	82	0	50	0	75	75	na	na		50	25	Add AB, RH, CI, FF
902	INC	QT/VS/PT	88	44	8	0	0	0	0	na	na		0	9	Add RH, CI, FF
904	INC	?	75	0	75	0	75	17	0	na	na		25	93	Moderate DOM on Combustor, Add IWS, RH, CB
905	INC	QT/VS/AS/CS	75	50	100	84	0	0	0	na	na		0	9	Add RH, CB, FF
906	INC	QT/PT	0	83	75	75	94	0	0	na	na		75	42	Add RH, CB, IWS
914	INC	?	50	0	75	75	96	75	0	na	na		97	39	Add AB, RH, CI, FF, PT
915	INC	QC/VS/C	75	79	98	96	75	66	92	na	na		74	39	Add AB, RH, CI, FF, PT

TABLE C-21c. CHARACTERIZATION OF MODEL PLANTS FOR 12 PERCENT FLOOR

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
CK	1	None	1	315	*	S	Southdown	FF	102,042	147,000	
CK	1	None	1	208	*	L	Keystone	ESP	307,644	370,000	
CK	1	None	3	320	*	L	Lafarge	FF		370,000	
CK	3	Add FF	1	207	*	S	Keystone	MC/ESP	90,681	147,000	
CK	4	Add CI,FF	2	302	*	S	Lafarge	ESP	130,576	147,000	
CK	4	Add CI,FF	1	321	*	S	Lafarge	ESP	59,542	147,000	
CK	4	Add CI,FF	1	405	*	S	Ash Grove	ESP	194,905	147,000	
CK	5	Add Q,CI,FF	3	308	*	S	North Texas	ESP	162,599	147,000	
CK	5	Add Q,CI,FF	1	304	*	L	Lone Star	ESP	300,367	370,000	
CK	6	Add IWS	4	318	*	S	Texas Industries	ESP	152,675	147,000	
CK	6	Add IWS	1	205		L	Holnam	ESP	253,556	370,000	
CK	8	Add CI,FF,PT	1	401		S	Ash Grove	ESP	172,481	147,000	
CK	8	Add CI,FF,PT	1	406		S	Ash Grove	ESP	190,180	147,000	
CK	8	Add CI,FF,PT	1	303		L	Lone Star	MC/FF	408,681	370,000	
CK	16	Add Q, CI, FF, PT	1	228	*	S	Ash Grove	ESP	148,537	147,000	
CK	16	Add Q, CI, FF, PT	2	300	*	S	Essroc	ESP	164,692	147,000	
CK	16	Add Q, CI, FF, PT	2	305		S	Medusa	ESP	196,903	147,000	85
CK	16	Add Q, CI, FF, PT	1	322	*	S	Lafarge	ESP	112,269	147,000	
CK	16	Add Q, CI, FF, PT	1	323	*	S	Lafarge	FF	185,409	147,000	85
CK	16	Add Q, CI, FF, PT	1	335		S	Medusa	ESP	100,378	147,000	85
CK	16	Add Q, CI, FF, PT	1	202	*	L	Heartland	FF	221,421	370,000	
CK	16	Add Q, CI, FF, PT	1	203		L	Holnam	ESP	291,645	370,000	85
CK	16	Add Q, CI, FF, PT	1	309		L	River Cement	MC/ESP	665,839	370,000	
CK	16	Add Q, CI, FF, PT	1	319		L	Continental	ESP	344,250	370,000	85
CK	18	Add Q, FF	1	204	*	L	Holnam	ESP	693,613	370,000	
CK	19	Add Q, IWS	2	200	*	S	Giant	FF	123,584	147,000	
CK	19	Add Q, IWS	2	201	*	S	Giant	FF	137,945	147,000	
CK	19	Add Q, IWS	1	206		L	Holnam	ESP	348,510	370,000	85
CK	19	Add Q, IWS	1	404		L	Ash Grove	ESP	265,721	370,000	85
CK	28	Moderate DOM on Combustor, Add CI, FF	1	301		S	Essroc	FF	185,409	147,000	
CK	31	Small DOM on Existing FF, Add Q	1	317	*	L	Southdown	FF	422,190	370,000	
CK	33	Moderate DOM on Existing ESP, Add Q, CB	1	403		S	Ash Grove	ESP	184,877	147,000	
CK	34	Small DOM on Existing FF, Add Q, CB	1	306	*	L	National	MC/FF	280,868	370,000	
CK	39	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	316	*	L	Southdown	FF		370,000	
CK	40	Moderate DOM on Combustor, Add Q, IWS	1	402	*	S	Ash Grove	ESP	187,605	147,000	
INC	1	None	1	354	*	M	Dow Chemical	QC/AS/VS/DM/IWS	27,383	22,100	
INC	3	Moderate DOM on Existing WS, Add RH, CB, FF	1	502	*	S	Pfizer	WHB/QC/PBC/VS/ES	6,647	3,900	
INC	3	Moderate DOM on Existing WS, Add RH, CI, FF	1	700	*	M	Dupont	SD/RJS/VS/WS	30,185	22,100	
INC	4	Add IWS	1	784	*	S	Cook Composites	NONE		3,900	92
INC	4	Add IWS	1	810	*	M	Tennessee Eastman	Q/VS/PBS	28,434	22,100	
INC	4	Add IWS	1	211	*	L	LWD	SS/PT/VS	43,596	60,800	
INC	6	Add FF	2	349	*	S	Radford Army Ammo Plant	QC/FF/QC/PT	5,653	3,900	
INC	6	Add FF	1	824	*	S	Pennwalt	QT/VS/PT/DM	1,086	3,900	
INC	6	Add FF	1	357	*	M	Department of Energy	QC/VS/PT/IWS	20,778	22,100	
INC	9	Add RH, CB, FF	1	708	*	S	Burroughs Wellcome	WS/ESP	3,687	3,900	
INC	9	Add RH, CB, FF	1	905	*	S	Velsicol Chemical	QT/VS/AS/CS		3,900	92
INC	9	Add RH, CI, FF	1	344	*	M	Department of Army	QC/VS/PT/DM	13,886	22,100	
INC	9	Add RH, CI, FF	1	346	*	M	Department of Army	C/QC/VS/PT/DM	21,812	22,100	
INC	9	Add RH, CI, FF	1	347	*	M	Department of Army	C/QC/VS/S/DM	10,795	22,100	
INC	9	Add RH, CI, FF	1	358	*	M	Eli Lilly	QC/VS/C/CT/S/DM	14,406	22,100	

TABLE C-21c. CHARACTERIZATION OF MODEL PLANTS FOR 12 PERCENT FLOOR

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	9	Add RH, CI, FF	1	702	*	M	Dupont	QT/S/C		22,100	
INC	9	Add RH, CI, FF	1	902	*	M	Rocky Mountain Arsenal	QT/VS/PT	25,436	22,100	
INC	9	Add RH, CI, FF	1	329		L	Dupont	PT/IWS	53,489	60,800	
INC	9	Add RH, CI, FF	1	711	*	L	Chevron Chemical	C/VS/AS	52,907	60,800	
INC	10	Add Q, CI, FF	1	712	*	L	Nepera	NONE	65,256	60,800	
INC	13	Add PT, RH, CI, FF	1	324	*	M	Allied	?	12,120	22,100	92
INC	13	Add PT, RH, CI, FF	1	330	*	M	General Electric	QT/WS/DM	10,345	22,100	
INC	13	Add PT, RH, CI, FF	1	353	*	M	Dow Chemical	QC/VS/DM/ESP		22,100	
INC	13	Add PT, RH, CI, FF	2	714	*	M	Olnin Chemical	WS	19,185	22,100	92
INC	13	Add PT, RH, CI, FF	1	210	*	L	LWD	FF/S	96,107	60,800	
INC	19	Moderate DOM on Existing VS	1	706	*	M	Ciba-Geigy	QT/HS/C		22,100	
INC	20	Add Q, CB, PT	1	703	*	S	Aristech	WHB	1,873	3,900	92
INC	25	Add AB, RH, CI, FF	1	825	*	M	General Electric	CCS/QC/ESP	21,363	22,100	92
INC	25	Add AB, RH, CI, FF	1	707	*	L	Dupont	QT/WS	58,120	60,800	
INC	27	Moderate DOM on Combustor, Add PT	1	500	*	L	Chevron	QC/VS/KOV/DM	49,822	60,800	
INC	29	Small DOM on Existing WS, Add RH, CI, FF	1	701	*	M	Eli Lilly	VS/PT	9,208	22,100	92
INC	29	Small DOM on Existing WS, Add RH, CI, FF	1	216	*	L	Rollins	HES/WS	40,002	60,800	
INC	33	Moderate DOM on Combustor, Add IWS	1	710	*	M	Dupont	QT/OS/C/S		22,100	92
INC	36	Add CI, IWS	1	333	*	L	Trade Waste	SD/FF	42,042	60,800	
INC	39	Add AB, RH, CI, FF, PT	1	332	*	M	Thermalkem	WS	20,208	22,100	
INC	39	Add AB, RH, CI, FF, PT	1	805	*	M	American Cyanamid	QT/QS/VS/ES/PBS	31,943	22,100	
INC	39	Add AB, RH, CI, FF, PT	1	914	*	M	Vertac Superfund	?	25,849	22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	915	*	M	Eastman Kodak	QC/VS/C		22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	809	*	L	Tennessee Eastman	VS	40,524	60,800	92
INC	42	Add RH, CB, IWS	1	704	*	S	Ashland	NONE	5,011	3,900	92
INC	42	Add RH, CB, IWS	1	709	*	S	Cargill Chemical	NONE	3,123	3,900	
INC	42	Add RH, CB, IWS	1	725	*	S	Zeneca	WS/QT	1,489	3,900	
INC	42	Add RH, CB, IWS	1	906	*	S	Monsanto	QT/PT	2,738	3,900	92
INC	43	Add AB, RH, CB, IWS	1	229	*	S	Vulcan Materials	WHB/ACS/HCS/CS	1,171	3,900	
INC	43	Add AB, RH, CB, IWS	1	727	*	S	Iowa Army Ammo Plant	GC/C/FF	3,043	3,900	92
INC	46	Moderate DOM on Combustor, Add CB, PT	1	351	*	S	Iowa Army Ammo Plant	GC/C/FF	3,457	3,900	
INC	49	Add CI, FF	1	400	*	L	Marine Shale	SD/FF	179,333	60,800	
INC	53	Moderate DOM on Combustor, Add CI	1	341	*	M	Glaxo	DA/DI/FF/HEPA/CA		22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	359	*	M	Atochem	WHB/FF/S	13,802	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	807	*	M	Bros Lagoon Site	C/WHB/VQ/PT/HS/DM	34,109	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	808		M	Dow Chemical	QT/PBS/ESP	35,720	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	600	*	L	Dow Chemical	WHB/QC/PT/IWS	43,839	60,800	
INC	56	Moderate DOM on WS, Combustor, Add RH, CI, FF	1	334	*	L	3M	WS/ESP/PT	40,599	60,800	
INC	61	Add RH, CB	1	342	*	S	Upjohn	WHB/QC/S/VS/DM	5,640	3,900	
INC	61	Add RH, CB	1	348	*	S	Occidental Chemcial	QC/AS/IWS		3,900	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	728	*	S	Eli Lilly	QT/PT/VS	5,819	3,900	
INC	64	Moderate DOM on Combustor, Add CI, FF	1	350	*	M	Dupont	WHB/HE/FF	15,883	22,100	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF	1	356	*	S	Dupont	QC/AS/FN/DM	5,100	3,900	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	705	*	M	Ciba-Geigy	QT/VS/ESP/PT	36,116	22,100	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	331	*	L	Ross	PT/IWS	44,379	60,800	
INC	67	Moderate DOM on existing FF, Add CI	1	338	*	L	Dupont	QC/FF/SS/C/HES/DM	65,598	60,800	
INC	86	Add Q, IWS, CI	1	212	*	L	LWD	FF/S	44,610	60,800	
INC	88	Add RH, FF, CB	1	214	*	M	Rollins	IWS	34,655	22,100	
INC	88	Add RH, FF, CB	1	504	*	M	Chevron Chemical	VS/C	32,804	22,100	92
INC	93	Moderate DOM on Combustor, Add RH, CB, IWS	1	713	*	S	Pfizer	VS/PT	2,625	3,900	
INC	93	Moderate DOM on Combustor, Add IWS, RH, CB	1	726		S	Shell Oil	QC/CS/DM/VS	3,669	3,900	
INC	93	Moderate DOM on Combustor, Add IWS, RH, CB	1	904	*	S	First Chemical	?	5,950	3,900	92

TABLE C-21c. CHARACTERIZATION OF MODEL PLANTS FOR 12 PERCENT FLOOR

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	97	Add AB, CB, FF	1	503	*	S	Lake City Army Ammo Plant	HTHE/LTHE/FF	4,747	3,900	
INC	102	Moderate DOM on Existing WS, Add RH, CI, FF	1	221	*	L	Rollins	PT	51,114	60,800	
INC	103	Moderate DOM on Existing ESP, Add CI	1	222		L	WTI	WHB/SD/ESP/Q/PBS	93,718	60,800	
INC	104	Small DOM on Existing WS, Add CI, FF	1	325	*	M	Aptus	SD/FF/WS/IWS	23,127	22,100	
INC	105	Add CB, IWS	2	337	*	M	Olnin Chemical	WHB/DA/DI/FF	13,807	22,100	
INC	106	Add AB, RH, CB, IWS	1	806	*	M	Amoco Oli	C/VS	20,641	22,100	92
INC	107	Moderate DOM on WS, Small DOM on VS, Add RH, CB	1	339	*	S	Dupont	AT/PT/RJS/ESP	6,263	3,900	
INC	108	Moderate DOM on Existing ESP and WS, Add CI	1	340	*	M	Miles	WHB/ESP/WS	16,003	22,100	
INC	109	Small DOM on Existing FF, Add RH, CB	1	327	*	L	Aptus	SD/FF/WS/ESP	49,572	60,800	
INC	110	Moderate DOM on Existing WS, Add AB, CI	1	209	*	M	Laidlaw	WHB, FF/VQ/PT/DM	21,716	22,100	
LWAK	3	Add CI, FF	1	224	*	M (Lo HCl)	Solite	FF	39,049	40,500	
LWAK	3	Add CI, FF	1	226	*	M (Lo HCl)	Solite	FF		40,500	
LWAK	3	Add CI, FF	1	314	*	M (Lo HCl)	Solite	FF	36,793	40,500	
LWAK	4	Add CI, FF, ST	1	223	*	M (Hi HCl)	Solite	FF	29,092	40,500	1570
LWAK	6	Add IWS	1	313	*	M (Hi HCl)	Solite	FF	36,793	40,500	1570
LWAK	10	Moderate DOM on Existing FF, Add CB	2	307	*	M (Lo HCl)	Norlite	FF/VS	49,050	40,500	
LWAK	11	Add AB, WQ, CI, FF, ST	1	227	*	M (Hi HCl)	Solite	FF	38,796	40,500	1570
LWAK	16	Moderate DOM on Combustor, Add FF	1	336	*	M (Lo HCl)	Solite	FF	30336	40500	875
LWAK	16	Moderate DOM on Combustor, Add FF	1	312	*	M (Hi HCl)	Solite	FF	47,698	40,500	
LWAK	18	Moderate DOM on Combustor	1	225	*	M (Lo HCl)	Solite	FF	38,270	40,500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	310	*	M (Lo HCl)	Solite	FF	47,770	40,500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	311	*	M (Hi HCl)	Solite	FF	51,627	40,500	

* Facility has been assigned to model group based on assumed emission level. Facility did not report the necessary emission value, therefore one was assigned based on the distribution of reported values from other facilities.

** Reported Ratio is equal to the number of total units located at a site divided by the number of units for which information was reported.
Often a facility will report data for only one unit even when the facility has two or three units at the particular site, since the single reported unit can be considered as representative of the other nonreported units.

nr = not reported

TABLE B-2d. COST ESTIMATES FOR MODEL PLANTS FOR THE 12 PERCENT FLOOR

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	1	S	None	1	$0K	$0K	$0K
CK	1	L	None	4	$0K	$0K	$0K
CK	3	S	Add FF	1	$2,141K	$355K	$596K
CK	4	S	Add CI,FF	4	$2,611K	$718K	$1,022K
CK	5	S	Add Q,CI,FF	3	$3,144K	$806K	$1,180K
CK	5	L	Add Q,CI,FF	1	$6,570K	$1,645K	$2,414K
CK	6	S	Add IWS	4	$2,390K	$379K	$768K
CK	6	L	Add IWS	1	$4,410K	$747K	$1,465K
CK	8	S	Add CI,FF,PT	2	$3,512K	$1,048K	$1,498K
CK	8	L	Add CI,FF,PT	1	$7,593K	$2,174K	$3,138K
CK	16	S	Add Q, CI, FF, PT	8	$4,045K	$1,136K	$1,656K
CK	16	L	Add Q, CI, FF, PT	4	$8,505K	$2,329K	$3,413K
CK	18	L	Add Q, FF	1	$5,984K	$909K	$1,601K
CK	19	S	Add Q, IWS	4	$2,923K	$467K	$926K
CK	19	L	Add Q, IWS	2	$5,322K	$902K	$1,740K
CK	28	S	Moderate DOM on Combustor, Add CI, FF	1	$2,832K	$718K	$1,058K
CK	31	L	Small DOM on Existing FF, Add Q	1	$971K	$204K	$333K
CK	33	S	Moderate DOM on Existing ESP, Add Q, CB	1	$9,162K	$924K	$2,129K
CK	34	L	Small DOM on Existing FF, Add Q, CB	1	$16,657K	$1,744K	$3,936K
CK	39	L	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	$8,772K	$2,329K	$3,456K
CK	40	S	Moderate DOM on Combustor, Add Q, IWS	1	$3,144K	$467K	$962K
INC	1	M	None	1	$0K	$0K	$0K
INC	3	S	Moderate DOM on Existing WS, Add RH, CB, FF	1	$588K	$243K	$321K
INC	3	M	Moderate DOM on Existing WS, Add RH, CI, FF	1	$1,004K	$405K	$541K
INC	4	S	Add IWS	1	$215K	$97K	$132K
INC	4	M	Add IWS	1	$680K	$144K	$254K
INC	4	L	Add IWS	1	$1,331K	$228K	$445K
INC	6	S	Add FF	3	$82K	$89K	$98K
INC	6	M	Add FF	1	$295K	$121K	$154K
INC	9	S	Add RH, CB, FF	2	$575K	$241K	$315K
INC	9	M	Add RH, CI, FF	6	$932K	$391K	$508K
INC	9	L	Add RH, CI, FF	2	$1,681K	$672K	$876K
INC	10	L	Add Q, CI, FF	1	$1,735K	$483K	$694K
INC	13	M	Add PT, RH, CI, FF	5	$1,137K	$515K	$665K
INC	13	L	Add PT, RH, CI, FF	1	$2,126K	$866K	$1,143K
INC	19	M	Moderate DOM on Existing VS	1	$46K	$35K	$47K
INC	20	S	Add Q, CB, PT	1	$619K	$222K	$305K
INC	25	M	Add AB, RH, CI, FF	1	$1,349K	$924K	$1,096K
INC	25	L	Add AB, RH, CI, FF	1	$2,223K	$1,947K	$2,223K
INC	27	L	Moderate DOM on Combustor, Add PT	1	$631K	$195K	$297K
INC	29	M	Small DOM on Existing WS, Add RH, CI, FF	1	$972K	$403K	$528K
INC	29	L	Small DOM on Existing WS, Add RH, CI, FF	1	$1,782K	$702K	$925K
INC	33	M	Moderate DOM on Combustor, Add IWS	1	$834K	$144K	$280K
INC	36	L	Add CI, IWS	1	$1,755K	$452K	$725K
INC	39	M	Add AB, RH, CI, FF, PT	4	$1,554K	$1,048K	$1,253K
INC	39	L	Add AB, RH, CI, FF, PT	1	$2,669K	$2,142K	$2,490K
INC	42	S	Add RH, CB, IWS	4	$708K	$249K	$348K
INC	43	S	Add AB, RH, CB, IWS	2	$973K	$441K	$576K
INC	46	S	Moderate DOM on Combustor, Add CB, PT	1	$514K	$181K	$254K
INC	49	L	Add CI, FF	1	$1,368K	$422K	$584K
INC	53	M	Moderate DOM on Combustor, Add CI	1	$551K	$147K	$225K
INC	54	M	Moderate DOM on Combustor, Add RH, CI, FF	3	$1,087K	$391K	$533K
INC	54	L	Moderate DOM on Combustor, Add RH, CI, FF	1	$1,866K	$672K	$906K
INC	56	L	Moderate DOM on Combustor & WS, Add RH, CI, FF	1	$2,061K	$712K	$998K
INC	61	S	Add RH, CB	2	$493K	$152K	$216K
INC	63	S	Moderate DOM on existing VS, Add RH, CB	1	$504K	$158K	$226K
INC	64	M	Moderate DOM on Combustor, Add CI, FF	1	$846K	$268K	$379K
INC	65	S	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF	1	$702K	$246K	$341K
INC	65	M	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	$1,126K	$403K	$553K
INC	65	L	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	$1,967K	$702K	$955K
INC	67	L	Moderate DOM on existing FF, Add CI	1	$476K	$241K	$299K
INC	86	L	Add Q, IWS, CI	1	$2,122K	$513K	$834K
INC	88	M	Add RH, FF, CB	2	$1,875K	$420K	$661K
INC	93	S	Moderate DOM on Combustor, Add IWS, RH, CB	3	$824K	$249K	$367K

TABLE B-2d. COST ESTIMATES FOR MODEL PLANTS FOR THE 12 PERCENT FLOOR

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
INC	97	S	Add AB, CB, FF	1	$687K	$373K	$462K
INC	102	L	Moderate DOM on Existing WS, Add RH, CI, FF	1	$1,876K	$712K	$968K
INC	103	L	Moderate DOM on Existing ESP, Add CI	1	$791K	$285K	$389K
INC	104	M	Small DOM on Existing WS, Add CI	1	$437K	$160K	$220K
INC	105	M	Add CB, IWS	2	$2,019K	$320K	$607K
INC	106	M	Add AB, RH, CB, IWS	1	$2,676K	$976K	$1,349K
INC	107	S	Moderate DOM on WS, Small DOM on VS, Add RH, CB	1	$511K	$161K	$230K
INC	108	M	Moderate DOM on Existing ESP and WS, Add CI	1	$746K	$210K	$317K
INC	109	L	Small DOM on Existing FF, Add RH, CB	1	$3,701K	$615K	$1,102K
INC	110	M	Moderate DOM on Existing WS, Add AB, CI	1	$885K	$696K	$821K
LWAK	3	M (Lo HCl)	Add CI, FF	3	$1,074K	$350K	$480K
LWAK	4	M (Hi HCl)	Add CI, FF, ST	1	$2,302K	$680K	$1,009K
LWAK	6	M (Hi HCl)	Add IWS	1	$1,016K	$682K	$847K
LWAK	10	M (Lo HCl)	Moderate DOM on Existing FF, Add CB	2	$2,512K	$281K	$608K
LWAK	11	M (Hi HCl)	Add AB, WQ, CI, FF, ST	1	$3,112K	$1,944K	$2,380K
LWAK	16	M (Lo HCl)	Moderate DOM on Combustor, Add FF	1	$833K	$161K	$264K
LWAK	16	M (Hi HCl)	Moderate DOM on Combustor, Add FF	1	$833K	$161K	$264K
LWAK	18	M (Lo HCl)	Moderate DOM on Combustor	1	$172K	$K	$28K
LWAK	21	M (Lo HCl)	Moderate DOM on Combustor, Add CI, FF	1	$1,246K	$350K	$508K
LWAK	21	M (Hi HCl)	Moderate DOM on Combustor, Add CI, FF	1	$1,246K	$350K	$508K

TABLE B-3a. REQUIRED REDUCTION TO MEET THE ALTERNATIVE 12% BTF OPTION

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
Floor Levels		5		0.015		92		19		11		10		na		5.1		50		0.14		
200	CK	55	55	-11	0	-48	0	95	95	40	40	0	0	na	na	na	na	na	na	nr	550	50
201	CK	8	8	58	58	90	90	96	96	45	45	0	0	na	na	na	na	na	na	nr	550	75
202	CK	75	75	nr	0	16	16	35	35	33	33	0	0	na	na	na	na	na	na	nr	440	75
203	CK	17	17	-8	0	83	83	39	39	91	91	0	0	na	na	na	na	na	na	97	500	97
204	CK	74	74	47	47	82	82	-206	0	-12623	0	0	0	na	na	na	na	na	na	82	600	82
205	CK	83	83	70	70	92	92	-3	0	34	34	0	0	na	na	na	na	na	na	-27	500	0
206	CK	71	71	34	34	66	66	-119	0	86	86	0	0	na	na	na	na	na	na	88	500	88
207	CK	71	71	35	35	76	76	66	66	-125	0	0	0	na	na	na	na	na	na	-772	400	0
208	CK	74	74	-2	0	0	0	-61	0	-143	0	0	0	na	na	na	na	na	na	-3107	420	0
228	CK	nr	75	nr	50	nr	75	nr	0	nr	50	0	0	na	na	na	na	na	na	43	500	43
300	CK	nr	50	79	79	96	96	81	81	67	67	0	0	na	na	na	na	na	na	99	600	99
301	CK	96	96	57	57	-688	0	-13	0	-1748	0	0	0	na	na	76	76	57	57	nr	400	50
302	CK	nr	75	55	55	94	94	31	31	-8	0	0	0	na	na	na	na	na	na	nr	420	75
303	CK	89	89	36	36	-306	0	-6	0	42	42	0	0	na	na	0	0	12	12	nr	250	0
304	CK	88	88	74	74	85	85	66	66	-2688	0	0	0	na	na	na	na	na	na	93	460	93
305	CK	53	53	79	79	92	92	35	35	88	88	0	0	na	na	na	na	na	na	100	730	100
306	CK	100	100	8	8	-454	0	-43	0	-285	0	0	0	na	na	na	na	na	na	-162	550	0
308	CK	nr	50	27	27	1	1	-167	0	-96	0	0	0	na	na	na	na	na	na	nr	440	75
309	CK	88	88	39	39	83	83	-104	0	76	76	0	0	na	na	na	na	na	na	100	640	100
315	CK	nr	50	-1497	0	-367	0	-93	0	-436	0	0	0	na	na	-117	0	-113	0	-355	450	0
316	CK	nr	75	-29	0	-1467	0	-140	0	62	62	0	0	na	na	15	15	82	82	55	500	25
317	CK	nr	75	-472	0	-221	0	18	18	-142	0	0	0	na	na	na	na	na	na	89	500	89
318	CK	nr	75	-56	0	34	34	-2	0	78	78	0	0	na	na	na	na	na	na	nr	420	0
319	CK	91	91	60	60	86	86	68	68	86	86	0	0	na	na	na	na	na	na	98	540	98
320	CK	nr	50	-350	0	-2449	0	-345	0	-88	0	0	0	na	na	na	na	na	na	-58	480	0
321	CK	nr	75	93	93	-708	0	-66	0	-16	0	0	0	na	na	nr	nr	-44	0	nr	240	0
322	CK	nr	25	21	21	39	39	21	21	51	51	0	0	na	na	na	na	na	na	96	550	96
323	CK	nr	75	32	32	91	91	85	85	85	85	0	0	na	na	na	na	na	na	97	500	97
335	CK	92	92	36	36	88	88	-76	0	91	91	0	0	na	na	na	na	na	na	100	718	100
401	CK	95	95	72	72	92	92	81	81	53	53	0	0	na	na	na	na	na	na	70	400	70
402	CK	86	86	74	74	97	97	82	82	49	49	0	0	na	na	7	7	90	90	65	450	65
403	CK	100	100	55	55	-210	0	43	43	-1301	0	0	0	na	na	na	na	na	na	96	500	96
404	CK	-14	0	-153	0	-60	0	85	85	84	84	0	0	na	na	na	na	na	na	86	500	86
405	CK	76	76	58	58	92	92	94	94	-245	0	0	0	na	na	na	na	na	na	16	250	16
406	CK	35	35	21	21	86	86	90	90	74	74	0	0	na	na	na	na	na	na	72		72
Floor Levels		5		0.006		29.0		36		25		6.4		50		na		na		0.2		
223	LWAK	84	84	-41	0	-459	0	-6	0	99	99	nr	0	-443	0	na	na	na	na	nr		0
224	LWAK	68	68	-27	0	-627	0	-66	0	13	13	nr	0	-558	0	na	na	na	na	nr		0
225	LWAK	-9	0	-1162	0	-2650	0	-251	0	96	96	nr	50	-541	0	na	na	na	na	nr		0
226	LWAK	nr	75	nr	0	nr	0	nr	0	75	0	nr	0	-144	0	na	na	na	na	nr		0
227	LWAK	71	71	-313	0	6	6	-44	0	98	98	49	49	96	96	na	na	na	na	nr		0
307	LWAK	99	99	50	50	-349	0	73	73	11	11	nr	0	-10	0	na	na	na	na	nr		0
310	LWAK	67	67	67	67	94	94	40	40	98	98	-83	0	42	42	na	na	na	na	nr		0
311	LWAK	67	67	-6	0	94	94	13	13	98	98	-31	0	25	25	na	na	na	na	nr		0
312	LWAK	43	43	40	40	93	93	3	3	98	98	-83	0	42	42	na	na	na	na	nr		0
313	LWAK	-1228	0	10	10	96	96	88	88	98	98	-49	0	-163	0	na	na	na	na	nr		0
314	LWAK	77	77	73	73	98	98	84	84	97	97	-42	0	-1289	0	na	na	na	na	nr		0
336	LWAK	nr	75	nr	50	nr	75	nr	75	75	0	-31	0	25	25	na	na	na	na	-418		0
Floor Levels		5.0		0.012		22		28		9		6.1		50						0.12		0
209	INC	-76	0	-166	0	-149	0	-24	0	62	62	nr	25	82	82	na	na	na	na	nr		75

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
210	INC	nr	75	-58	0	nr	75	nr	75	75	75	-55	0	-13643	0	na	na	na	na	nr		50
211	INC	nr	0	-40	0	nr	75	nr	75	77	77	-115	0	-951	0	na	na	na	na	nr		0
212	INC	nr	25	46	46	nr	0	nr	50	94	94	-47	0	-917	0	na	na	na	na	nr		0
214	INC	97	97	44	44	97	97	81	81	-391	0	-377	0	-231	0	na	na	na	na	-23		0
216	INC	93	93	61	61	97	97	77	77	14	14	nr	0	-385	0	na	na	na	na	nr		0
221	INC	51	51	13	13	47	47	63	63	63	63	-74	0	-226	0	na	na	na	na	71		71
222	INC	nr	75	-430	0	-591	0	nr	25	-325	0	-1537	0	-34	0	na	na	na	na	89	383	89
229	INC	nr	0	37	37	48	48	55	55	92	92	nr	0	nr	75	na	na	na	na	98		98
324	INC	nr	75	43	43	99	99	78	78	96	96	nr	0	-60	0	na	na	na	na	nr		75
325	INC	92	92	-251	0	79	79	22	22	18	18	-756	0	-384	0	na	na	na	na	95		95
327	INC	99	99	-749	0	23	23	-4	0	-115	0	-17	0	-498	0	na	na	na	na	99		99
329	INC	nr	75	61	61	nr	75	nr	75	-3	0	-140	0	-418	0	na	na	na	na	nr		50
330	INC	4	4	71	71	93	93	46	46	85	85	nr	0	nr	0	na	na	na	na	100		100
331	INC	87	87	-44	0	99	99	44	44	nr	25	nr	50	nr	0	na	na	na	na	-88		0
332	INC	nr	50	89	89	nr	25	nr	50	87	87	nr	0	90	90	na	na	na	na	nr		75
333	INC	nr	75	-616	0	nr	75	nr	75	84	84	nr	0	-1018	0	na	na	na	na	nr		25
334	INC	28	28	80	80	100	100	96	96	51	51	-203	0	33	33	na	na	na	na	94		94
337	INC	97	97	-4021	0	77	77	89	89	83	83	-87	0	-6481	0	na	na	na	na	nr	413	0
338	INC	91	91	-860	0	25	25	67	67	-3296	0	-245	0	-2389	0	na	na	na	na	nr	415	0
339	INC	nr	75	-336	0	nr	25	nr	0	26	26	-365	0	nr	0	na	na	na	na	nr		0
340	INC	50	50	-91	0	-132	0	65	65	53	53	-237	0	-69	0	na	na	na	na	nr	444	75
341	INC	-338	0	-520	0	-59	0	-199	0	-99	0	nr	25	13	13	na	na	na	na	nr		75
342	INC	20	20	-218	0	-6	0	-646	0	-3255	0	nr	0	nr	0	na	na	na	na	nr		0
344	INC	nr	75	-661	0	9	9	69	69	-636	0	-228	0	-210	0	na	na	na	na	nr		0
346	INC	-1289	0	-851	0	75	75	-88	0	-868	0	nr	0	-78	0	na	na	na	na	4		4
347	INC	17	17	-86	0	-108	0	-79	0	-378	0	nr	0	nr	0	na	na	na	na	-520		0
348	INC	nr	75	-606	0	0	0	-669	0	-865	0	nr	0	-502	0	na	na	na	na	nr		75
349	INC	nr	0	-484	0	45	45	nr	75	nr	0	nr	0	-477	0	na	na	na	na	nr	350	0
350	INC	nr	50	-457	0	nr	75	nr	75	nr	0	nr	50	-1385	0	na	na	na	na	nr		50
351	INC	nr	75	-34	0	nr	0	-171	0	nr	50	nr	25	32	32	na	na	na	na	nr	290	50
353	INC	-11	0	46	46	80	0	85	85	nr	75	nr	0	-215	0	na	na	na	na	30		30
354	INC	-253	0	-70	0	-775	0	-178	0	-192	0	nr	0	-1591	0	na	na	na	na	-1205		0
356	INC	nr	50	63	63	nr	50	nr	0	nr	25	nr	50	-1251	0	na	na	na	na	nr		75
357	INC	nr	0	52	52	nr	75	nr	75	-14	0	nr	0	-354	0	na	na	na	na	nr		0
358	INC	nr	75	63	63	nr	75	nr	50	-141	0	nr	0	-3232	0	na	na	na	na	nr		0
359	INC	nr	75	51	51	96	96	100	100	-3	0	nr	0	50	50	na	na	na	na	nr	375	25
400	INC	74	74	-93	0	97	97	73	73	nr	0	nr	0	nr	0	na	na	na	na	nr	400	50
500	INC	-74	0	-590	0	-515	0	-694	0	80	80	nr	25	nr	0	na	na	na	na	-225		0
502	INC	nr	75	67	67	99	99	58	58	56	56	nr	0	nr	0	na	na	na	na	-530		0
503	INC	77	77	57	57	97	97	94	94	nr	0	nr	50	nr	75	na	na	na	na	nr	285	75
504	INC	100	100	43	43	50	50	82	82	-69	0	nr	0	nr	0	na	na	na	na	nr		0
600	INC	nr	50	-60	0	nr	50	nr	75	-620	0	nr	0	nr	50	na	na	na	na	nr		0
700	INC	nr	0	72	72	100	100	96	96	49	49	nr	0	nr	0	na	na	na	na	nr		25
701	INC	nr	50	72	72	nr	50	nr	75	25	25	-523	0	nr	0	na	na	na	na	nr		50
702	INC	nr	0	85	85	nr	75	nr	50	nr	0	nr	0	nr	0	na	na	na	na	nr		75
703	INC	nr	75	-324	0	nr	0	nr	0	98	98	-1516	0	-4240	0	na	na	na	na	nr		0
704	INC	nr	25	36	36	nr	50	nr	50	95	95	nr	0	-1042	0	na	na	na	na	nr		25
705	INC	55	55	71	71	89	89	83	83	20	20	nr	25	-1632	0	na	na	na	na	nr		75
706	INC	nr	0	72	72	nr	0	nr	0	-1527	0	-20	0	-26	0	na	na	na	na	-496		0
707	INC	nr	0	95	95	nr	75	nr	75	-35	0	nr	0	99	99	na	na	na	na	nr		50
708	INC	nr	50	54	54	nr	50	nr	75	-573	0	nr	0	-474	0	na	na	na	na	nr		75
709	INC	nr	75	76	76	nr	0	nr	0	nr	75	-307	0	-544	0	na	na	na	na	nr		0
710	INC	nr	0	55	55	nr	75	nr	0	98	98	63	63	-70	0	na	na	na	na	nr		0
711	INC	nr	0	63	63	nr	0	nr	50	-805	0	nr	0	-246	0	na	na	na	na	nr		75

EER Site ID No.	Type	Hg Req. % Reduct.	Hg Adj. Reduct.	PM Req. % Reduct.	PM Adj. Reduct.	SVM Req. % Reduct.	SVM Adj. Reduct.	LVM Req. % Reduct.	LVM Adj. Reduct.	HCl/Cl2 Req. % Reduct.	HCl/Cl2 Adj. Reduct.	HC Req. % Reduct.	HC Adj. Reduct.	CO Req. % Reduct.	CO Adj. Reduct.	HC-Byp Req. % Reduct.	HC-Byp Adj. Reduct.	CO-Byp Req. % Reduct.	CO-Byp Adj. Reduct.	TEQ Req. % Reduct.	APCD Temp (°F)	TEQ Adj Reduct
712	INC	nr	50	60	60	-818	0	16	16	nr	0	nr	0	nr	0	na	na	na	na	nr		0
713	INC	nr	0	82	82	nr	75	nr	25	68	68	nr	50	-2399	0	na	na	na	na	nr		75
714	INC	nr	25	34	34	nr	75	nr	0	86	86	nr	0	-195	0	na	na	na	na	nr		50
725	INC	-202	0	44	44	41	41	45	45	93	93	-263	0	-1110	0	na	na	na	na	30		30
726	INC	nr	75	-380	0	nr	75	nr	75	nr	75	48	48	-147	0	na	na	na	na	nr		0
727	INC	nr	0	86	86	nr	75	nr	75	nr	50	96	96	98	98	na	na	na	na	nr		50
728	INC	nr	50	72	72	nr	0	nr	0	-1869	0	nr	0	nr	0	na	na	na	na	nr		75
784	INC	nr	0	70	70	nr	75	nr	75	99	99	nr	0	-1273	0	na	na	na	na	nr		0
805	INC	nr	50	78	78	nr	25	nr	50	92	92	20	20	85	85	na	na	na	na	nr		75
806	INC	97	97	72	72	96	96	-256	0	82	82	74	74	75	75	na	na	na	na	nr		0
807	INC	56	56	57	57	90	90	81	81	-214	0	15	15	-831	0	na	na	na	na	70		70
808	INC	nr	50	37	37	nr	75	nr	75	-1507	0	nr	0	2	2	na	na	na	na	22		22
809	INC	nr	0	nr	0	100	100	99	99	nr	75	-41	0	96	96	na	na	na	na	nr		75
810	INC	nr	25	nr	75	98	98	95	95	nr	75	nr	0	-222	0	na	na	na	na	nr		0
824	INC	-556	0	-91	0	47	47	77	77	-254	0	nr	0	-487	0	na	na	na	na	nr		0
825	INC	nr	75	82	82	nr	0	nr	50	-116	0	nr	75	nr	75	na	na	na	na	nr		50
902	INC	90	90	44	44	8	8	-194	0	-88	0	-13	0	-27	0	na	na	na	na	-1686		0
904	INC	nr	75	-10	0	nr	75	nr	0	nr	75	17	17	-9832	0	na	na	na	na	nr		25
905	INC	nr	75	nr	50	100	100	84	84	nr	0	nr	0	-36	0	na	na	na	na	nr		0
906	INC	nr	0	83	83	nr	75	nr	75	94	94	-206	0	-730	0	na	na	na	na	nr		75
914	INC	nr	50	-195	0	nr	75	nr	75	96	96	nr	75	-1289	0	na	na	na	na	97		97
915	INC	nr	75	79	79	98	98	96	96	nr	75	66	66	92	92	na	na	na	na	74		74

TABLE B-3b. MODEL GROUP SELECTION FOR THE ALTERNATIVE 12% BTF OPTION

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
200	CK	FF	55	0	0	95	40	0	na	na	na	550	50	16	Add Q, CI, FF, PT
201	CK	FF	8	58	90	96	45	0	na	na	na	550	75	16	Add Q, CI, FF, PT
202	CK	FF	75	0	16	35	33	0	na	na	na	440	75	16	Add Q, CI, FF, PT
203	CK	ESP	17	0	83	39	91	0	na	na	na	500	97	16	Add Q, CI, FF, PT
204	CK	ESP	74	47	82	0	0	0	na	na	na	600	82	5	Add Q,CI,FF
205	CK	ESP	83	70	92	0	34	0	na	na	na	500	0	16	Add Q, CI, FF, PT
206	CK	ESP	71	34	66	0	86	0	na	na	na	500	88	16	Add Q, CI, FF, PT
207	CK	MC / ESP	71	35	76	66	0	0	na	na	na	400	0	4	Add CI,FF
208	CK	ESP	74	0	0	0	0	0	na	na	na	420	0	4	Add CI,FF
228	CK	ESP	75	50	75	0	50	0	na	na	na	500	43	16	Add Q, CI, FF, PT
300	CK	ESP	50	79	96	81	67	0	na	na	na	600	99	16	Add Q, CI, FF, PT
301	CK	FF	96	57	0	0	0	0	na	76	57	400	50	38	Moderate DOM on Combustor and FF, Add CB
302	CK	ESP	75	55	94	31	0	0	na	na	na	420	75	4	Add CI,FF
303	CK	QC/FF	89	36	0	0	42	0	na	0	12	250	0	8	Add CI,FF,PT
304	CK	ESP	88	74	85	66	0	0	na	na	na	460	93	5	Add Q,CI,FF
305	CK	ESP	53	79	92	35	88	0	na	na	na	730	100	16	Add Q, CI, FF, PT
306	CK	MC/FF	100	8	0	0	0	0	na	na	na	550	0	34	Small DOM on Existing FF, Add Q, CB
308	CK	ESP	50	27	1	0	0	0	na	na	na	440	75	5	Add Q,CI,FF
309	CK	MC / ESP	88	39	83	0	76	0	na	na	na	640	100	16	Add Q, CI, FF, PT
315	CK	FF	50	0	0	0	0	0	na	0	0	450	0	5	Add Q,CI,FF
316	CK	FF	75	0	0	0	62	0	na	15	82	500	25	39	Moderate DOM on Combustor, Add Q, CI, FF, PT
317	CK	FF	75	0	0	18	0	0	na	na	na	500	89	5	Add Q,CI,FF
318	CK	ESP	75	0	34	0	78	0	na	na	na	420	0	8	Add CI,FF,PT
319	CK	ESP	91	60	86	68	86	0	na	na	na	540	98	16	Add Q, CI, FF, PT
320	CK	FF	50	0	0	0	0	0	na	na	na	480	0	5	Add Q,CI,FF
321	CK	ESP	75	93	0	0	0	0	na	nr	0	240	0	4	Add CI,FF
322	CK	ESP	25	21	39	21	51	0	na	na	na	550	96	16	Add Q, CI, FF, PT
323	CK	ESP	75	32	91	85	85	0	na	na	na	500	97	16	Add Q, CI, FF, PT
335	CK	ESP	92	36	88	0	91	0	na	na	na	718	100	16	Add Q, CI, FF, PT
401	CK	ESP	95	72	92	81	53	0	na	na	na	400	70	8	Add CI,FF,PT
402	CK	ESP	86	74	97	82	49	0	na	7	90	450	65	39	Moderate DOM on Combustor, Add Q, CI, FF, PT
403	CK	ESP	100	55	0	43	0	0	na	na	na	500	96	33	Moderate DOM on Existing ESP, Add Q, CB
404	CK	ESP	0	0	0	85	84	0	na	na	na	500	86	19	Add Q, IWS
405	CK	ESP	76	58	92	94	0	0	na	na	na	250	16	4	Add CI,FF
406	CK	ESP	35	21	86	90	74	0	na	na	na		72	8	Add CI,FF,PT
223	LWAK	FF	84	0	0	0	99	0	0	na	na		0	4	Add CI, FF, ST
224	LWAK	FF	68	0	0	0	13	0	0	na	na		0	4	Add CI, FF, ST
225	LWAK	FF	0	0	0	0	96	50	0	na	na		0	19	Moderate DOM on Combustor, Add ST
226	LWAK	FF	75	0	0	0	0	0	0	na	na		0	3	Add CI, FF
227	LWAK	FF	71	0	6	0	98	49	96	na	na		0	11	Add AB, WQ, CI, FF, ST
307	LWAK	FF/VS	99	0	0	73	11	0	0	na	na		0	22	Moderate DOM on Existing FF, Add CB, ST

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
310	LWAK	FF	67	0	94	40	98	0	42	na	na		0	23	Moderate DOM on Combustor, Add CI, FF, ST
311	LWAK	FF	67	0	94	13	98	0	25	na	na		0	23	Moderate DOM on Combustor, Add CI, FF, ST
312	LWAK	FF	43	0	93	3	98	0	42	na	na		0	23	Moderate DOM on Combustor, Add CI, FF, ST
313	LWAK	FF	0	0	96	88	98	0	0	na	na		0	6	Add IWS
314	LWAK	FF	77	0	98	84	97	0	0	na	na		0	4	Add CI, FF, ST
336	LWAK	FF	75	0	75	75	0	0	25	na	na		0	21	Moderate DOM on Combustor, Add CI, FF
209	INC	WHB, FF/VQ/PT/DM	0	0	0	0	62	25	82	na	na		75	110	Moderate DOM on Existing WS, Add AB, CI
210	INC	FF/S	75	0	75	75	75	0	0	na	na		50	13	Add PT, RH, CI, FF
211	INC	SS/PT/VS	0	0	75	75	77	0	0	na	na		0	4	Add IWS
212	INC	FF/S	25	46	0	50	94	0	0	na	na		0	86	Add Q, IWS, CI
214	INC	IWS	97	44	97	81	0	0	0	na	na		0	88	Add RH, FF, CB
216	INC	HES / WS	93	61	97	77	14	0	0	na	na		0	29	Small DOM on Existing WS, Add RH, CI, FF
221	INC	PT	51	13	47	63	63	0	0	na	na		71	102	Moderate DOM on Existing WS, Add RH, CI, FF
222	INC	WHB/SD/ESP/Q/PBS	75	0	0	25	0	0	0	na	na	383	89	103	Moderate DOM on Existing ESP, Add CI
229	INC	WHB/ACS/HCS/CS	0	37	48	55	92	0	75	na	na		98	43	Add AB, RH, CB, IWS
324	INC	?	75	43	99	78	96	0	0	na	na		75	13	Add PT, RH, CI, FF
325	INC	SD/FF/WS/ IWS	92	0	79	22	18	0	0	na	na		95	104	Small DOM on Existing WS, Add CI, FF
327	INC	SD/FF/WS/ ESP	99	0	23	0	0	0	0	na	na		99	109	Small DOM on Existing FF, Add RH, CB
329	INC	PT/IWS	75	61	75	75	0	0	0	na	na		50	9	Add RH, CI, FF
330	INC	QT/WS/DM	4	71	93	46	85	0	0	na	na		100	13	Add PT, RH, CI, FF
331	INC	PT/IWS	87	0	99	44	25	50	0	na	na		0	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF
332	INC	WS	50	89	25	50	87	0	90	na	na		75	39	Add AB, RH, CI, FF, PT
333	INC	SD/FF	75	0	75	75	84	0	0	na	na		25	36	Add CI, IWS
334	INC	WS/ESP/PT	28	80	100	96	51	0	33	na	na		94	56	Moderate DOM on WS & Combustor, Add RH, CI, FF
337	INC	WHB/DA/DI/FF	97	0	77	89	83	0	0	na	na	413	0	105	Add CB, IWS
338	INC	QC/FF/SS/C/HES/DM	91	0	25	67	0	0	0	na	na	415	0	67	Moderate DOM on existing FF, Add CI
339	INC	AT/PT/RJS/ESP	75	0	25	0	26	0	0	na	na		0	107	Moderate DOM on WS, Small DOM on VS, Add RH, CB
340	INC	WHB/ESP/WS	50	0	0	65	53	0	0	na	na	444	75	108	Moderate DOM on Existing ESP and WS, Add CI
341	INC	DA/DI/FF/HEPA/CA	0	0	0	0	0	25	13	na	na		75	53	Moderate DOM on Combustor, Add CI
342	INC	WHB/QC/S/VS/DM	20	0	0	0	0	0	0	na	na		0	61	Add RH, CB
344	INC	QC/VS/PT/DM	75	0	9	69	0	0	0	na	na		0	9	Add RH, CI, FF
346	INC	C/QC/VS/PT/DM	0	0	75	0	0	0	0	na	na		4	9	Add RH, CI, FF
347	INC	C/QC/VS/S/DM	17	0	0	0	0	0	0	na	na		0	9	Add RH, CI, FF
348	INC	QC/AS/IWS	75	0	0	0	0	0	0	na	na		75	61	Add RH, CB
349	INC	QC/FF/QC/PT	0	0	45	75	0	0	0	na	na	350	0	6	Add FF
350	INC	WHB/HE/FF	50	0	75	75	0	50	0	na	na		50	64	Moderate DOM on Combustor, Add CI, FF
351	INC	GC/C/ FF	75	0	0	0	50	25	32	na	na	290	50	46	Moderate DOM on Combustor, Add CB, PT
353	INC	QC/VS/DM/ ESP	0	46	0	85	75	0	0	na	na		30	13	Add PT, RH, CI, FF
354	INC	QC/AS/VS/DM/IWS	0	0	0	0	0	0	0	na	na		0	1	None
356	INC	QC/AS/FN/DM	50	63	50	0	25	50	0	na	na		75	65	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF
357	INC	QC/VS/PT/IWS	0	52	75	75	0	0	0	na	na		0	6	Add FF
358	INC	QC/VS/C/CT/S/DM	75	63	75	50	0	0	0	na	na		0	9	Add RH, CI, FF

EER ID No.	Type	Current APCD	% Emissions Reduction Required to meet Floor 4											Model Group No.	Required Add-on Flue Gas Control
			Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	HC-Byp	CO-Byp	APCD Temp	TEQ		
359	INC	WHB/ FF/S	75	51	96	100	0	0	50	na	na	375	25	54	Moderate DOM on Combustor, Add RH, CI, FF
400	INC	SD/FF	74	0	97	73	0	0	0	na	na	400	50	49	Add CI, FF
500	INC	QC/VS/KOV/ DM	0	0	0	0	80	25	0	na	na		0	27	Moderate DOM on Combustor, Add PT
502	INC	WHB /QC/ PBC/ VS/ES	75	67	99	58	56	0	0	na	na		0	29	Small DOM on Existing WS, Add RH, CB, FF
503	INC	HTHE/LTHE/FF	77	57	97	94	0	50	75	na	na	285	75	97	Add AB, CB, FF
504	INC	VS/C	100	43	50	82	0	0	0	na	na		0	88	Add RH, FF, CB
600	INC	WHB/QC/PT/IWS	50	0	50	75	0	0	50	na	na		0	54	Moderate DOM on Combustor, Add RH, CI, FF
700	INC	SD/RJS/VS/WS	0	72	100	96	49	0	0	na	na		25	3	Moderate DOM on Existing WS, Add RH, CI, FF
701	INC	VS/PT	50	72	50	75	25	0	0	na	na		50	29	Small DOM on Existing WS, Add RH, CI, FF
702	INC	QT/S/C	0	85	75	50	0	0	0	na	na		75	9	Add RH, CI, FF
703	INC	WHB	75	0	0	0	98	0	0	na	na		0	20	Add Q, CB, PT
704	INC	NONE	25	36	50	50	95	0	0	na	na		25	42	Add RH, CB, IWS
705	INC	QT/VS/ESP/PT	55	71	89	83	20	25	0	na	na		75	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF
706	INC	QT/HS/C	0	72	0	0	0	0	0	na	na		0	19	Moderate DOM on Existing VS
707	INC	QT/WS	0	95	75	75	0	0	99	na	na		50	25	Add AB, RH, CI, FF
708	INC	WS/ESP	50	54	50	75	0	0	0	na	na		75	9	Add RH, CB, FF
709	INC	NONE	75	76	0	0	75	0	0	na	na		0	42	Add RH, CB, IWS
710	INC	QT/OS/C/S	0	55	75	0	98	63	0	na	na		0	33	Moderate DOM on Combustor, Add IWS
711	INC	C/VS/AS	0	63	0	50	0	0	0	na	na		75	9	Add RH, CI, FF
712	INC	NONE	50	60	0	16	0	0	0	na	na		0	10	Add Q, CI, FF
713	INC	VS/PT	0	82	75	25	68	50	0	na	na		75	93	Moderate DOM on Combustor, Add RH, CB, IWS
714	INC	WS	25	34	75	0	86	0	0	na	na		50	13	Add PT, RH, CI, FF
725	INC	WS/QT	0	44	41	45	93	0	0	na	na		30	42	Add RH, CB, IWS
726	INC	QC/CS/DM/VS	75	0	75	75	75	48	0	na	na		0	93	Moderate DOM on Combustor, Add IWS, RH, CB
727	INC	GC/C/FF	0	86	75	75	50	96	98	na	na		50	43	Add AB, RH, CB, IWS
728	INC	QT/PT/VS	50	72	0	0	0	0	0	na	na		75	63	Moderate DOM on existing VS, Add RH, CB
784	INC	NONE	0	70	75	75	99	0	0	na	na		0	4	Add IWS
805	INC	QT/QS/VS/ES/PBS	50	78	25	50	92	20	85	na	na		75	39	Add AB, RH, CI, FF, PT
806	INC	C/VS	97	72	96	0	82	74	75	na	na		0	106	Add AB, RH, CB, IWS
807	INC	C/WHB/VQ/PT/HS/DM	56	57	90	81	0	15	0	na	na		70	54	Moderate DOM on Combustor, Add RH, CI, FF
808	INC	QT/PBS/ESP	50	37	75	75	0	0	2	na	na		22	54	Moderate DOM on Combustor, Add RH, CI, FF
809	INC	VS	0	0	100	99	75	0	96	na	na		75	39	Add AB, RH, CI, FF, PT
810	INC	Q/VS/PBS	25	75	98	95	75	0	0	na	na		0	13	Add RH, CI, FF, PT
824	INC	QT/VS/PT/DM	0	0	47	77	0	0	0	na	na		0	6	Add FF
825	INC	CCS/QC/ESP	75	82	0	50	0	75	75	na	na		50	25	Add AB, RH, CI, FF
902	INC	QT/VS/PT	90	44	8	0	0	0	0	na	na		0	9	Add RH, CI, FF
904	INC	?	75	0	75	0	75	17	0	na	na		25	93	Moderate DOM on Combustor, Add IWS, RH, CB
905	INC	QT/VS/AS/CS	75	50	100	84	0	0	0	na	na		0	9	Add RH, CB, FF
906	INC	QT/PT	0	83	75	75	94	0	0	na	na		75	42	Add RH, CB, IWS
914	INC	?	50	0	75	75	96	75	0	na	na		97	39	Add AB, RH, CI, FF, PT
915	INC	QC/VS/C	75	79	98	96	75	66	92	na	na		74	39	Add AB, RH, CI, FF, PT

TABLE B-3c. CHARACTERIZATION OF MODEL PLANTS FOR THE 12 PERCENT BTF

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
CK	4	Add CI,FF	1	207	*	S	Keystone	MC/ESP	90,681	147,000	
CK	4	Add CI,FF	2	302	*	S	Lafarge	ESP	130,576	147,000	
CK	4	Add CI,FF	1	321	*	S	Lafarge	ESP	59,542	147,000	
CK	4	Add CI,FF	1	405	*	S	Ash Grove	ESP	194,905	147,000	
CK	4	Add CI,FF	1	208	*	L	Keystone	ESP	307,644	370,000	
CK	5	Add Q,CI,FF	3	308	*	S	North Texas	ESP	162,599	147,000	
CK	5	Add Q,CI,FF	1	315	*	S	Southdown	FF	102,042	147,000	
CK	5	Add Q,CI,FF	1	204	*	L	Holnam	ESP	693,613	370,000	
CK	5	Add Q,CI,FF	1	304	*	L	Lone Star	ESP	300,367	370,000	
CK	5	Add Q,CI,FF	1	317	*	L	Southdown	FF	422,190	370,000	
CK	5	Add Q,CI,FF	3	320	*	L	Lafarge	FF		370,000	
CK	8	Add CI,FF,PT	4	318	*	S	Texas Industries	ESP	152,675	147,000	
CK	8	Add CI,FF,PT	1	401		S	Ash Grove	ESP	172,481	147,000	
CK	8	Add CI,FF,PT	1	406		S	Ash Grove	ESP	190,180	147,000	
CK	8	Add CI,FF,PT	1	303		L	Lone Star	MC/FF	408,681	370,000	
CK	16	Add Q, CI, FF, PT	2	200	*	S	Giant	FF	123,584	147,000	
CK	16	Add Q, CI, FF, PT	2	201	*	S	Giant	FF	137,945	147,000	
CK	16	Add Q, CI, FF, PT	1	228	*	S	Ash Grove	ESP	148,537	147,000	
CK	16	Add Q, CI, FF, PT	2	300	*	S	Essroc	ESP	164,692	147,000	
CK	16	Add Q, CI, FF, PT	2	305		S	Medusa	ESP	196,903	147,000	85
CK	16	Add Q, CI, FF, PT	1	322	*	S	Lafarge	ESP	112,269	147,000	
CK	16	Add Q, CI, FF, PT	1	323	*	S	Lafarge	FF	185,409	147,000	85
CK	16	Add Q, CI, FF, PT	1	335		S	Medusa	ESP	100,378	147,000	85
CK	16	Add Q, CI, FF, PT	1	202	*	L	Heartland	FF	221,421	370,000	
CK	16	Add Q, CI, FF, PT	1	203		L	Holnam	ESP	291,645	370,000	85
CK	16	Add Q, CI, FF, PT	1	205		L	Holnam	ESP	253,556	370,000	
CK	16	Add Q, CI, FF, PT	1	206		L	Holnam	ESP	348,510	370,000	85
CK	16	Add Q, CI, FF, PT	1	309		L	River Cement	MC/ESP	665,839	370,000	
CK	16	Add Q, CI, FF, PT	1	319		L	Continental	ESP	344,250	370,000	85
CK	19	Add Q, IWS	1	404		L	Ash Grove	ESP	265,721	370,000	85
CK	33	Moderate DOM on Existing ESP, Add Q, CB	1	403		S	Ash Grove	ESP	184,877	147,000	
CK	34	Small DOM on Existing FF, Add Q, CB	1	306	*	L	National	MC/FF	280,868	370,000	
CK	38	Moderate DOM on Combustor and FF, Add CB	1	301		S	Essroc	FF	185,409	147,000	
CK	39	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	402	*	S	Ash Grove	ESP	187,605	147,000	
CK	39	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	316	*	L	Southdown	FF		370,000	
INC	1	None	1	354	*	M	Dow Chemical	QC/AS/VS/DM/IWS	27,383	22,100	
INC	3	Moderate DOM on Existing WS, Add RH, CI, FF	1	700	*	M	Dupont	SD/RJS/VS/WS	30,185	22,100	
INC	4	Add IWS	1	784	*	S	Cook Composites	NONE		3,900	92
INC	4	Add IWS	1	211	*	L	LWD	SS/PT/VS	43,596	60,800	
INC	6	Add FF	2	349	*	S	Radford Army Ammo Plant	QC/FF/QC/PT	5,653	3,900	
INC	6	Add FF	1	824	*	S	Pennwalt	QT/VS/PT/DM	1,086	3,900	
INC	6	Add FF	1	357	*	M	Department of Energy	QC/VS/PT/IWS	20,778	22,100	
INC	9	Add RH, CB, FF	1	708	*	S	Burroughs Wellcome	WS/ESP	3,687	3,900	
INC	9	Add RH, CB, FF	1	905	*	S	Velsicol Chemical	QT/VS/AS/CS		3,900	92
INC	9	Add RH, CI, FF	1	344	*	M	Department of Army	QC/VS/PT/DM	13,886	22,100	
INC	9	Add RH, CI, FF	1	346	*	M	Department of Army	C/QC/VS/PT/DM	21,812	22,100	
INC	9	Add RH, CI, FF	1	347	*	M	Department of Army	C/QC/VS/S/DM	10,795	22,100	
INC	9	Add RH, CI, FF	1	358	*	M	Eli Lilly	QC/VS/C/CT/S/DM	14,406	22,100	

TABLE B-3c. CHARACTERIZATION OF MODEL PLANTS FOR THE 12 PERCENT BTF

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	9	Add RH, CI, FF	1	702	*	M	Dupont	QT/S/C		22,100	
INC	9	Add RH, CI, FF	1	902	*	M	Rocky Mountain Arsenal	QT/VS/PT	25,436	22,100	
INC	9	Add RH, CI, FF	1	329	*	L	Dupont	PT/IWS	53,489	60,800	
INC	9	Add RH, CI, FF	1	711	*	L	Chevron Chemical	C/VS/AS	52,907	60,800	
INC	10	Add Q, CI, FF	1	712	*	L	Nepera	NONE	65,256	60,800	
INC	13	Add PT, RH, CI, FF	1	324	*	M	Allied	?	12,120	22,100	92
INC	13	Add PT, RH, CI, FF	1	330	*	M	General Electric	QT/WS/DM	10,345	22,100	
INC	13	Add PT, RH, CI, FF	1	353	*	M	Dow Chemical	QC/VS/DM/ESP		22,100	
INC	13	Add PT, RH, CI, FF	2	714	*	M	Olnin Chemical	WS	19,185	22,100	92
INC	13	Add RH, CI, FF, PT	1	810	*	M	Tennessee Eastman	Q/VS/PBS	28,434	22,100	
INC	13	Add PT, RH, CI, FF	1	210	*	L	LWD	FF/S	96,107	60,800	
INC	19	Moderate DOM on Existing VS	1	706	*	M	Ciba-Geigy	QT/HS/C		22,100	
INC	20	Add Q, CB, PT	1	703	*	S	Aristech	WHB	1,873	3,900	92
INC	25	Add AB, RH, CI, FF	1	825	*	M	General Electric	CCS/QC/ESP	21,363	22,100	92
INC	25	Add AB, RH, CI, FF	1	707	*	L	Dupont	QT/WS	58,120	60,800	
INC	27	Moderate DOM on Combustor, Add PT	1	500	*	L	Chevron	QC/VS/KOV/DM	49,822	60,800	
INC	29	Small DOM on Existing WS, Add RH, CB, FF	1	502	*	S	Pfizer	WHB/QC/PBC/VS/ES	6,647	3,900	
INC	29	Small DOM on Existing WS, Add RH, CI, FF	1	701	*	M	Eli Lilly	VS/PT	9,208	22,100	92
INC	29	Small DOM on Existing WS, Add RH, CI, FF	1	216	*	L	Rollins	HES/WS	40,002	60,800	
INC	33	Moderate DOM on Combustor, Add IWS	1	710	*	M	Dupont	QT/OS/C/S		22,100	92
INC	36	Add CI, IWS	1	333	*	L	Trade Waste	SD/FF	42,042	60,800	
INC	39	Add AB, RH, CI, FF, PT	1	332	*	M	Thermalkem	WS	20,208	22,100	
INC	39	Add AB, RH, CI, FF, PT	1	805	*	M	American Cyanamid	QT/QS/VS/ES/PBS	31,943	22,100	
INC	39	Add AB, RH, CI, FF, PT	1	914	*	M	Vertac Superfund	?	25,849	22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	915	*	M	Eastman Kodak	QC/VS/C		22,100	92
INC	39	Add AB, RH, CI, FF, PT	1	809	*	L	Tennessee Eastman	VS	40,524	60,800	92
INC	42	Add RH, CB, IWS	1	704	*	S	Ashland	NONE	5,011	3,900	92
INC	42	Add RH, CB, IWS	1	709	*	S	Cargill Chemical	NONE	3,123	3,900	
INC	42	Add RH, CB, IWS	1	725		S	Zeneca	WS/QT	1,489	3,900	
INC	42	Add RH, CB, IWS	1	906	*	S	Monsanto	QT/PT	2,738	3,900	92
INC	43	Add AB, RH, CB, IWS	1	229	*	S	Vulcan Materials	WHB/ACS/HCS/CS	1,171	3,900	
INC	43	Add AB, RH, CB, IWS	1	727	*	S	Iowa Army Ammo Plant	GC/C/FF	3,043	3,900	92
INC	46	Moderate DOM on Combustor, Add CB, PT	1	351	*	S	Iowa Army Ammo Plant	GC/C/FF	3,457	3,900	
INC	49	Add CI, FF	1	400	*	L	Marine Shale	SD/FF	179,333	60,800	
INC	53	Moderate DOM on Combustor, Add CI	1	341	*	M	Glaxo	DA/DI/FF/HEPA/CA		22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	359	*	M	Atochem	WHB/FF/S	13,802	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	807		M	Bros Lagoon Site	C/WHB/VQ/PT/HS/DM	34,109	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	808	*	M	Dow Chemical	QT/PBS/ESP	35,720	22,100	
INC	54	Moderate DOM on Combustor, Add RH, CI, FF	1	600	*	L	Dow Chemical	WHB/QC/PT/IWS	43,839	60,800	
INC	56	Moderate DOM on WS & Combustor, Add RH, CI, FF	1	334	*	L	3M	WS/ESP/PT	40,599	60,800	
INC	61	Add RH, CB	1	342	*	S	Upjohn	WHB/QC/S/VS/DM	5,640	3,900	
INC	61	Add RH, CB	1	348	*	S	Occidental Chemcial	QC/AS/IWS		3,900	
INC	63	Moderate DOM on existing VS, Add RH, CB	1	728	*	S	Eli Lilly	QT/PT/VS	5,819	3,900	
INC	64	Moderate DOM on Combustor, Add CI, FF	1	350	*	M	Dupont	WHB/HE/FF	15,883	22,100	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF	1	356	*	S	Dupont	QC/AS/FN/DM	5,100	3,900	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	705	*	M	Ciba-Geigy	QT/VS/ESP/PT	36,116	22,100	
INC	65	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	331	*	L	Ross	PT/IWS	44,379	60,800	
INC	67	Moderate DOM on existing FF, Add CI	1	338	*	L	Dupont	QC/FF/SS/C/HES/DM	65,598	60,800	
INC	86	Add Q, IWS, CI	1	212	*	L	LWD	FF/S	44,610	60,800	
INC	88	Add RH, FF, CB	1	214	*	M	Rollins	IWS	34,655	22,100	

TABLE B-3c. CHARACTERIZATION OF MODEL PLANTS FOR THE 12 PERCENT BTF

Source Group	Model Plant Number	Required Equipment	Reported Ratio**	Site ID		Size Category	Facility Name	Existing APCD	Flue gas Flowrate (acfm)	Assigned Flue Gas Flowrate (acfm)	Equivalent HCl Conc (ppm)
INC	88	Add RH, FF, CB	1	504	*	M	Chevron Chemical	VS/C	32,804	22,100	92
INC	93	Moderate DOM on Combustor, Add RH, CB, IWS	1	713	*	S	Pfizer	VS/PT	2,625	3,900	
INC	93	Moderate DOM on Combustor, Add IWS, RH, CB	1	726	*	S	Shell Oil	QC/CS/DM/VS	3,669	3,900	
INC	93	Moderate DOM on Combustor, Add IWS, RH, CB	1	904	*	S	First Chemical	?	5,950	3,900	92
INC	97	Add AB, CB, FF	1	503	*	S	Lake City Army Ammo Plant	HTHE/LTHE/FF	4,747	3,900	
INC	102	Moderate DOM on Existing WS, Add RH, CI, FF	1	221		L	Rollins	PT	51,114	60,800	
INC	103	Moderate DOM on Existing ESP, Add CI	1	222	*	L	WTI	WHB/SD/ESP/Q/PBS	93,718	60,800	
INC	104	Small DOM on Existing WS, Add CI, FF	1	325	*	M	Aptus	SD/FF/WS/IWS	23,127	22,100	
INC	105	Add CB, IWS	2	337	*	M	Olnin Chemical	WHB/DA/DI/FF	13,807	22,100	
INC	106	Add AB, RH, CB, IWS	1	806	*	M	Amoco Oli	C/VS	20,641	22,100	92
INC	107	Moderate DOM on WS, Small DOM on VS, Add RH, CB	1	339	*	S	Dupont	AT/PT/RJS/ESP	6,263	3,900	
INC	108	Moderate DOM on Existing ESP and WS, Add CI	1	340	*	M	Miles	WHB/ESP/WS	16,003	22,100	
INC	109	Small DOM on Existing FF, Add RH, CB	1	327		L	Aptus	SD/FF/WS/ESP	49,572	60,800	
INC	110	Moderate DOM on Existing WS, Add AB, CI	1	209	*	M	Laidlaw	WHB, FF/VQ/PT/DM	21,716	22,100	
LWAK	3	Add CI, FF	1	226	*	M (Lo HCl)	Solite	FF		40,500	
LWAK	4	Add CI, FF, ST	1	224	*	M (Lo HCl)	Solite	FF	39,049	40,500	
LWAK	4	Add CI, FF, ST	1	314	*	M (Lo HCl)	Solite	FF	36,793	40,500	
LWAK	4	Add CI, FF, ST	1	223	*	M (Hi HCl)	Solite	FF	29,092	40,500	1570
LWAK	6	Add IWS	1	313	*	M (Hi HCl)	Solite	FF	36,793	40,500	1570
LWAK	11	Add AB, WQ, CI, FF, ST	1	227	*	M (Hi HCl)	Solite	FF	38,796	40,500	1570
LWAK	19	Moderate DOM on Combustor, Add ST	1	225	*	M (Lo HCl)	Solite	FF	38,270	40,500	
LWAK	21	Moderate DOM on Combustor, Add CI, FF	1	336	*	M (Lo HCl)	Solite	FF	30336	40500	875
LWAK	22	Moderate DOM on Existing FF, Add CB, ST	2	307	*	M (Lo HCl)	Norlite	FF/VS	49,050	40,500	
LWAK	23	Moderate DOM on Combustor, Add CI, FF, ST	1	310	*	M (Lo HCl)	Solite	FF	47,770	40,500	
LWAK	23	Moderate DOM on Combustor, Add CI, FF, ST	1	311	*	M (Hi HCl)	Solite	FF	51,627	40,500	
LWAK	23	Moderate DOM on Combustor, Add CI, FF, ST	1	312	*	M (Hi HCl)	Solite	FF	47,698	40,500	

* Facility has been assigned to model group based on assumed emission level. Facility did not report the necessary emission value, therefore one was assigned based on the distribution of reported values from other facilities.

** Reported Ratio is equal to the number of total units located at a site divided by the number of units for which information was reported.
Often a facility will report data for only one unit even when the facility has two or three units at the particular site, since the single reported unit can be considered as representative of the other nonreported units.

nr = not reported

TABLE B-3d. COST ESTIMATES FOR MODEL PLANTS FOR THE 12 PERCENT BTF

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
CK	4	S	Add CI,FF	5	$2,611K	$718K	$1,022K
CK	4	L	Add CI,FF	1	$5,658K	$1,490K	$2,139K
CK	5	S	Add Q,CI,FF	4	$3,144K	$806K	$1,180
CK	5	L	Add Q,CI,FF	6	$6,570K	$1,645K	$2,414K
CK	8	S	Add CI,FF,PT	6	$3,512K	$1,048K	$1,498K
CK	8	L	Add CI,FF,PT	1	$7,593K	$2,174K	$3,138K
CK	16	S	Add Q, CI, FF, PT	12	$4,045K	$1,136K	$1,656K
CK	16	L	Add Q, CI, FF, PT	6	$8,505K	$2,329K	$3,413K
CK	19	L	Add Q, IWS	1	$5,322K	$902K	$1,740K
CK	33	S	Moderate DOM on Existing ESP, Add Q, CB	1	$9,162K	$924K	$2,129K
CK	34	L	Small DOM on Existing FF, Add Q, CB	1	$16,657K	$1,744K	$3,936K
CK	38	S	Moderate DOM on Combustor and FF, Add CB	1	$7,218K	$729K	$1,673K
CK	39	S	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	$4,266K	$1,136K	$1,692K
CK	39	L	Moderate DOM on Combustor, Add Q, CI, FF, PT	1	$8,772K	$2,329K	$3,456K
INC	1	M	None	1	$0K	$0K	$0K
INC	3	M	Moderate DOM on Existing WS, Add RH, CI, FF	1	$1,004K	$405K	$541K
INC	4	S	Add IWS	1	$215K	$97K	$132K
INC	4	L	Add IWS	1	$1,331K	$228K	$445K
INC	6	S	Add FF	3	$82K	$89K	$98K
INC	6	M	Add FF	1	$295K	$121K	$154K
INC	9	S	Add RH, CB, FF	2	$575K	$241K	$315K
INC	9	M	Add RH, CI, FF	6	$932K	$391K	$508K
INC	9	L	Add RH, CI, FF	2	$1,681K	$672K	$876K
INC	10	L	Add Q, CI, FF	1	$1,735K	$483K	$694K
INC	13	M	Add PT, RH, CI, FF	6	$1,137K	$515K	$665K
INC	13	L	Add PT, RH, CI, FF	1	$2,126K	$866K	$1,143K
INC	19	M	Moderate DOM on Existing VS	1	$46K	$35K	$47K
INC	20	S	Add Q, CB, PT	1	$619K	$222K	$305K
INC	25	M	Add AB, RH, CI, FF	1	$1,349K	$924K	$1,096K
INC	25	L	Add AB, RH, CI, FF	1	$2,223K	$1,947K	$2,223K
INC	27	L	Moderate DOM on Combustor, Add PT	1	$631K	$195K	$297K
INC	29	S	Small DOM on Existing WS, Add RH, CB, FF	1	$586K	$246K	$322K
INC	29	M	Small DOM on Existing WS, Add RH, CI, FF	1	$972K	$403K	$528K
INC	29	L	Small DOM on Existing WS, Add RH, CI, FF	1	$1,782K	$702K	$925K
INC	33	M	Moderate DOM on Combustor, Add IWS	1	$834K	$144K	$280K
INC	36	L	Add CI, IWS	1	$1,755K	$452K	$725K
INC	39	M	Add AB, RH, CI, FF, PT	4	$1,554K	$1,048K	$1,253K
INC	39	L	Add AB, RH, CI, FF, PT	1	$2,669K	$2,142K	$2,490K
INC	42	S	Add RH, CB, IWS	4	$708K	$249K	$348K
INC	43	S	Add AB, RH, CB, IWS	2	$973K	$441K	$576K
INC	46	S	Moderate DOM on Combustor, Add CB, PT	1	$514K	$181K	$254K
INC	49	L	Add CI, FF	1	$1,368K	$422K	$584K
INC	53	M	Moderate DOM on Combustor, Add CI	1	$551K	$147K	$225K
INC	54	M	Moderate DOM on Combustor, Add RH, CI, FF	3	$1,087K	$391K	$533K
INC	54	L	Moderate DOM on Combustor, Add RH, CI, FF	1	$1,866K	$672K	$906K
INC	56	L	Moderate DOM on Combustor & WS, Add RH, CI, FF	1	$2,061K	$712K	$998K
INC	61	S	Add RH, CB	2	$493K	$152K	$216K
INC	63	S	Moderate DOM on existing VS, Add RH, CB	1	$504K	$158K	$226K
INC	64	M	Moderate DOM on Combustor, Add CI, FF	1	$846K	$268K	$379K
INC	65	S	Moderate DOM Combustor, Small DOM WS, Add RH, CB, FF	1	$702K	$246K	$341K
INC	65	M	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	$1,126K	$403K	$553K
INC	65	L	Moderate DOM Combustor, Small DOM WS, Add RH, CI, FF	1	$1,967K	$702K	$955K
INC	67	L	Moderate DOM on existing FF, Add CI	1	$476K	$241K	$299K
INC	86	L	Add Q, IWS, CI	1	$2,122K	$513K	$834K
INC	88	M	Add RH, FF, CB	2	$1,875K	$420K	$661K
INC	93	S	Moderate DOM on Combustor, Add IWS, RH, CB	3	$824K	$249K	$367K
INC	97	S	Add AB, CB, FF	1	$687K	$373K	$462K
INC	102	L	Moderate DOM on Existing WS, Add RH, CI, FF	1	$1,876K	$712K	$968K
INC	103	L	Moderate DOM on Existing ESP, Add CI	1	$791K	$285K	$389K
INC	104	M	Small DOM on Existing WS, Add CI	1	$437K	$160K	$220K
INC	105	M	Add CB, IWS	2	$2,019K	$320K	$607K
INC	106	M	Add AB, RH, CB, IWS	1	$2,676K	$976K	$1,349K
INC	107	S	Moderate DOM on WS, Small DOM on VS, Add RH, CB	1	$511K	$161K	$230K
INC	108	M	Moderate DOM on Existing ESP and WS, Add CI	1	$746K	$210K	$317K
INC	109	L	Small DOM on Existing FF, Add RH, CB	1	$3,701K	$615K	$1,102K
INC	110	M	Moderate DOM on Existing WS, Add AB, CI	1	$885K	$696K	$821K
LWAK	3	M (Lo HCl)	Add CI, FF	1	$1,074K	$350K	$480K
LWAK	4	M (Lo HCl)	Add CI, FF, ST	2	$2,302K	$611K	$941K
LWAK	4	M (Hi HCl)	Add CI, FF, ST	1	$2,302K	$680K	$1,009K

TABLE B-3d. COST ESTIMATES FOR MODEL PLANTS FOR THE 12 PERCENT BTF

Source Group	Model Plant Number	Size Category	Required Equipment	Number of Sources	Capital Cost	Annualized O&M Cost	Annualized Total Cost
LWAK	6	M (Hi HCl)	Add IWS	1	$1,016K	$682K	$847K
LWAK	11	M (Hi HCl)	Add AB, WQ, CI, FF, ST	1	$3,112K	$1,944K	$2,380K
LWAK	19	M (Lo HCl)	Moderate DOM on Combustor, Add ST	1	$1,401K	$261K	$489K
LWAK	21	M (Lo HCl)	Moderate DOM on Combustor, Add CI, FF	1	$1,246K	$350K	$508K
LWAK	22	M (Lo HCl)	Moderate DOM on Existing FF, Add CB, ST	2	$3,740K	$542K	$1,069K
LWAK	23	M (Lo HCl)	Moderate DOM on Combustor, Add CI, FF, ST	1	$2,474K	$611K	$969K
LWAK	23	M (Hi HCl)	Moderate DOM on Combustor, Add CI, FF, ST	2	$2,474K	$680K	$1,037K

TABLE B-4. NATIONAL EMISSIONS ESTIMATE (FOR 330 DAYS/YR) FOR THE 6 PERCENT FLOOR, 6 PERCENT BTF PROPOSAL AND 6 PERCENT BTF ALTERNATIVE (Hg)

System Type	Substance	Baseline	6 Percent Floor	6 Percent BTF Proposal	6 Percent BTF Alternative (Hg)	Unit
Cement Kiln	Particulate	7.90E+06	3.50E+06	3.50E+06	3.50E+06	lb/yr
Cement Kiln	LVM	6.32E+03	3.25E+03	3.25E+03	3.25E+03	lb/yr
Cement Kiln	SVM	5.76E+04	3.43E+03	3.43E+03	3.43E+03	lb/yr
Cement Kiln	Mercury	1.16E+04	5.41E+03	2.86E+03	6.42E+02	lb/yr
Cement Kiln	TEQ	1.76E+00	2.28E-02	2.05E-02	2.05E-02	lb/yr
Cement Kiln	Total Cl	4.98E+06	4.98E+06	4.98E+06	4.98E+06	lb/yr
Cement Kiln	CO	1.32E+08	No Floor	No Floor	No Floor	lb/yr
Cement Kiln	CO(MHRA)	1.60E+08	No Floor	No Floor	No Floor	lb/yr
Cement Kiln	THC	8.83E+06	2.34E+06	2.34E+06	2.34E+06	lb/yr
Cement Kiln	THC(MHRA)	1.13E+07	2.20E+06	2.20E+06	2.20E+06	lb/yr
Incinerator	Particulate	4.10E+06	1.58E+06	1.58E+06	1.58E+06	lb/yr
Incinerator	LVM	5.64E+04	4.82E+03	4.82E+03	4.82E+03	lb/yr
Incinerator	SVM	1.08E+05	4.71E+03	4.71E+03	4.71E+03	lb/yr
Incinerator	Mercury	9.48E+03	1.99E+03	1.31E+03	3.17E+02	lb/yr
Incinerator	TEQ	1.74E-01	1.58E-01	8.77E-03	8.77E-03	lb/yr
Incinerator	Total Cl	3.53E+06	2.31E+06	2.31E+06	2.31E+06	lb/yr
Incinerator	CO	2.90E+07	1.81E+06	1.81E+06	1.81E+06	lb/yr
Incinerator	CO(MHRA)	1.19E+07	3.99E+06	3.99E+06	3.99E+06	lb/yr
Incinerator	THC	4.93E+05	3.93E+05	3.93E+05	3.93E+05	lb/yr
Incinerator	THC(MHRA)	1.40E+06	7.83E+05	7.83E+05	7.83E+05	lb/yr
LWA Kiln	Particulate	7.98E+04	7.98E+04	7.31E+04	7.31E+04	lb/yr
LWA Kiln	LVM	3.76E+02	3.57E+02	3.57E+02	3.57E+02	lb/yr
LWA Kiln	SVM	1.16E+03	2.42E+01	2.42E+01	2.42E+01	lb/yr
LWA Kiln	Mercury	5.45E+02	5.45E+02	7.31E+01	2.02E+01	lb/yr
LWA Kiln	TEQ	1.76E-04	1.74E-04	1.76E-04	1.76E-04	lb/yr
LWA Kiln	Total Cl	5.17E+06	4.85E+06	9.98E+05	4.85E+06	lb/yr
LWA Kiln	CO	1.27E+06	2.40E+05	2.40E+05	2.40E+05	lb/yr
LWA Kiln	CO(MHRA)	6.59E+06	2.57E+05	2.57E+05	2.57E+05	lb/yr
LWA Kiln	THC	7.63E+04	5.18E+04	5.18E+04	5.18E+04	lb/yr
LWA Kiln	THC(MHRA)	1.03E+05	5.18E+04	5.18E+04	5.18E+04	lb/yr

TABLE B-5. NATIONAL EMISSIONS ESTIMATE (FOR 330 DAY/YR) FOR THE 12 PERCENT FLOOR AND 12 PERCENT BTF

System Type	Substance	Baseline	12 Percent Floor	12 Percent BTF	Unit
Cement Kiln	Particulate	7.90E+06	3.50E+06	3.50E+06	lb/yr
Cement Kiln	LVM	6.32E+03	1.67E+03	1.67E+03	lb/yr
Cement Kiln	SVM	5.76E+04	8.50E+03	8.50E+03	lb/yr
Cement Kiln	Mercury	1.16E+04	3.35E+03	6.42E+02	lb/yr
Cement Kiln	TEQ	1.76E+00	1.54E-02	1.54E-02	lb/yr
Cement Kiln	Total Cl	4.98E+06	1.42E+06	1.42E+06	lb/yr
Cement Kiln	CO	1.32E+08	No Floor	No Floor	lb/yr
Cement Kiln	CO(MHRA)	1.60E+08	No Floor	No Floor	lb/yr
Cement Kiln	THC	8.83E+06	2.34E+06	2.34E+06	lb/yr
Cement Kiln	THC(MHRA)	1.13E+07	2.20E+06	2.20E+06	lb/yr
Incinerator	Particulate	4.10E+06	1.34E+06	1.34E+06	lb/yr
Incinerator	LVM	5.64E+04	1.69E+03	1.69E+03	lb/yr
Incinerator	SVM	1.08E+05	1.23E+03	1.23E+03	lb/yr
Incinerator	Mercury	9.48E+03	3.55E+02	3.17E+02	lb/yr
Incinerator	TEQ	1.74E-01	6.00E-03	6.00E-03	lb/yr
Incinerator	Total Cl	3.53E+06	6.05E+05	6.05E+05	lb/yr
Incinerator	CO	2.90E+07	1.81E+06	1.81E+06	lb/yr
Incinerator	CO(MHRA)	1.19E+07	3.99E+06	3.99E+06	lb/yr
Incinerator	THC	4.93E+05	3.93E+05	3.93E+05	lb/yr
Incinerator	THC(MHRA)	1.40E+06	7.83E+05	7.83E+05	lb/yr
LWA Kiln	Particulate	7.98E+04	4.39E+04	4.39E+04	lb/yr
LWA Kiln	LVM	3.76E+02	1.26E+02	1.26E+02	lb/yr
LWA Kiln	SVM	1.16E+03	6.47E+01	6.47E+01	lb/yr
LWA Kiln	Mercury	5.45E+02	4.73E+01	2.02E+01	lb/yr
LWA Kiln	TEQ	1.76E-04	1.76E-04	1.76E-04	lb/yr
LWA Kiln	Total Cl	5.17E+06	4.85E+06	1.63E+05	lb/yr
LWA Kiln	CO	1.27E+06	2.40E+05	2.40E+05	lb/yr
LWA Kiln	CO(MHRA)	6.59E+06	2.57E+05	2.57E+05	lb/yr
LWA Kiln	THC	7.63E+04	5.18E+04	5.18E+04	lb/yr
LWA Kiln	THC(MHRA)	1.03E+05	5.18E+04	5.18E+04	lb/yr

TABLE B-6. NATIONAL ENIGINEERING COST BREAKDOWN PER HAP FOR THE 6 PERCENT FLOOR, 6 PERCENT BTF PROPOSAL AND 6PERCENT BTF ALTERNATIVE (Hg)

MACT Option	System Type	Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	D/F	Total
6 Percent Floor	CK	6,001,815	7,839,093	16,663,463	2,492,386	0	29,982	85,364	2,290,612	35,402,715
6 Percent Floor	INC	21,962,456	7,843,150	8,310,969	6,195,776	2,534,567	6,012,430	16,164,208	1,106,556	70,130,112
6 Percent Floor	LWAK	0	94,275	1,981,170	137,440	578,029	489,475	1,021,181	0	4,301,570
6 Percent Floor	**Total**	27,964,270	15,776,519	26,955,602	8,825,603	3,112,595	6,531,888	17,270,753	3,397,168	109,834,397
6 Percent BTF Proposal	CK	12,685,784	6,379,939	13,815,545	2,289,088	0	29,982	85,364	19,598,585	54,884,287
6 Percent BTF Proposal	INC	24,981,248	7,272,621	6,879,226	5,500,399	2,919,426	6,012,430	16,164,208	35,115,981	104,845,539
6 Percent BTF Proposal	LWAK	1,438,668	153,638	2,691,235	84,702	3,852,489	456,703	957,565	0	9,635,000
6 Percent BTF Proposal	**Total**	39,105,700	13,806,197	23,386,006	7,874,190	6,771,915	6,499,116	17,207,137	54,714,566	169,364,827
6 Percent BTF Alt. (Hg)	CK	38,406,970	4,713,226	10,436,289	1,722,294	0	29,982	85,364	20,348,659	75,742,784
6 Percent BTF Alt. (Hg)	INC	45,816,971	6,485,671	6,395,877	5,128,531	3,013,029	6,012,430	16,164,208	27,336,912	116,353,628
6 Percent BTF Alt. (Hg)	LWAK	4,762,408	61,279	1,443,481	137,440	578,029	456,703	957,565	0	8,396,905
6 Percent BTF Alt. (Hg)	**Total**	88,986,349	11,260,176	18,275,647	6,988,266	3,591,057	6,499,116	17,207,137	47,685,571	200,493,317

TABLE B-7. NATIONAL ENGINEERING COST BREAKDOWN PER HAP FOR THE 12 PERCENT FLOOR AND 12 PERCENT BTF

MACT Option	System Type	Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	D/F	Total
6 Percent Floor	CK	6,001,815	7,839,093	16,663,463	2,492,386	0	29,982	85,364	2,290,612	35,402,715
6 Percent Floor	INC	21,962,456	7,843,150	8,310,969	6,195,776	2,534,567	6,012,430	16,164,208	1,106,556	70,130,112
6 Percent Floor	LWAK	0	94,275	1,981,170	137,440	578,029	489,475	1,021,181	0	4,301,570
6 Percent Floor	**Total**	27,964,270	15,776,519	26,955,602	8,825,603	3,112,595	6,531,888	17,270,753	3,397,168	109,834,397
6 Percent BTF Proposal	CK	12,685,784	6,379,939	13,815,545	2,289,088	0	29,982	85,364	19,598,585	54,884,287
6 Percent BTF Proposal	INC	24,981,248	7,272,621	6,879,226	5,500,399	2,919,426	6,012,430	16,164,208	35,115,981	104,845,539
6 Percent BTF Proposal	LWAK	1,438,668	153,638	2,691,235	84,702	3,852,489	456,703	957,565	0	9,635,000
6 Percent BTF Proposal	**Total**	39,105,700	13,806,197	23,386,006	7,874,190	6,771,915	6,499,116	17,207,137	54,714,566	169,364,827
6 Percent BTF Alt. (Hg)	CK	38,406,970	4,713,226	10,436,289	1,722,294	0	29,982	85,364	20,348,659	75,742,784
6 Percent BTF Alt. (Hg)	INC	45,816,971	6,485,671	6,395,877	5,128,531	3,013,029	6,012,430	16,164,208	27,336,912	116,353,628
6 Percent BTF Alt. (Hg)	LWAK	4,762,408	61,279	1,443,481	137,440	578,029	456,703	957,565	0	8,396,905
6 Percent BTF Alt. (Hg)	**Total**	88,986,349	11,260,176	18,275,647	6,988,266	3,591,057	6,499,116	17,207,137	47,685,571	200,493,317

MACT Option	System Type	Hg	PM	SVM	LVM	HCl/Cl2	HC	CO	D/F	Total
12 Percent Floor	CK	10,778,380	6,258,668	8,106,114	5,414,330	15,365,132	29,982	85,364	22,550,250	68,588,219
12 Percent Floor	INC	40,743,008	5,861,574	9,945,265	8,842,628	12,098,928	6,012,430	16,164,208	34,738,078	134,406,121
12 Percent Floor	LWAK	3,931,985	263,824	1,105,173	629,535	1,118,991	456,703	957,565	0	8,463,777
12 Percent Floor	**Total**	55,453,373	12,384,067	19,156,553	14,886,494	28,583,051	6,499,116	17,207,137	57,288,328	211,458,117
12 Percent BTF	CK	39,969,866	4,922,193	6,129,837	4,259,521	17,764,107	29,982	85,364	20,938,573	94,099,443
12 Percent BTF	INC	42,794,522	5,740,313	9,195,556	8,802,309	12,344,790	6,012,430	16,164,208	33,508,787	134,562,915
12 Percent BTF	LWAK	4,729,753	240,755	765,674	449,915	5,173,268	456,703	957,565	0	12,773,634
12 Percent BTF	**Total**	87,494,141	10,903,262	16,091,067	13,511,745	35,282,165	6,499,116	17,207,137	54,447,360	241,435,992