MEMORANDUM

TO: Jim Eddinger, U.S. Environmental Protection Agency, OAQPS/SPPD

FROM: Amanda Singleton, ERG

DATE: April 2010

SUBJECT: MACT Floor Analysis for the Industrial, Commercial, Institutional Boilers National Emission Standards for Hazardous Air Pollutants – Area Source

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The purpose of this memorandum is to present the methodology and results of the maximum achievable control technology (MACT) floor determinations for mercury (Hg) and polycyclic organic matter (POM) at area source boilers. This memo also discusses generally achievable control technologies (GACT) for non-Hg metallic urban hazardous air pollutants (HAP) and organic urban HAP. Emissions data for area source boilers is limited, as these units often fall below permitting thresholds.

We determined the MACT floors using data obtained from three sources: state operating permits, emission test results reported at area sources in the recently implemented Information Collection Request (ICR) approved under OMB Control No. 2060-0616 ICR number 2286.01, and test data received from the U.S. National Forest Service Fuels for Schools Program.[1, 2, 3] We ranked emission test averages for each boiler, calculated MACT floor averages, and conducted emissions data variability analyses. We determined the MACT floor emission limits based on the results of these analyses.

We determined GACT based on a review of state regulations and common work practices for existing units. For new units we reviewed related combustion regulations under the New Source Performance Standards program. The following sections address the methodology used to calculate pollutant limits for existing and new sources. The memorandum is organized as follows:

1.0 Background on MACT Floor and GACT Methodology

Industrial boilers and institutional/commercial boilers were two different source categories included in the area source list published on July 19, 1999 (64 FR 38721). In addition, both industrial boilers and institutional/commercial boilers are on the list of section 112(c)(6) source categories published on April 10, 1998 (63 FR 17830). Section 112(c)(6) of the Clean Air Act (CAA) requires EPA to list categories of sources accounting for not less than 90 percent of emissions of each of seven listed pollutants. These two categories are on the 112(c)(6) list because of emissions of mercury and polycyclic organic matter (POM). Section 112(c)(6) also requires that source categories accounting for emissions of the HAP listed in section 112(c)(6) be subject to standards under sections 112(d)(2) and (d)(4).

EPA estimates that they have subjected to regulation or propose to regulate 90.3 percent of the 172.3 tons in the 1990 emissions inventory for mercury. Coal-fired area source boilers would provide an additional 0.72 percent. Regulation of these boilers under MACT would provide an anticipated margin to ensure that the obligations under CAA section 112(c)(6) are met. Consequently, both GACT and MACT level of controls were evaluated for mercury from biomass and liquid area source boilers.

This NESHAP covers the source categories defined as industrial boilers and institutional and commercial boilers at locations identified as an area source of HAP. Both of the source categories included in this proposal are on the Integrated Urban Air Toxics Strategy Area Source Category List.

A boiler is defined as an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. An area source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that does not emit or have the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more a year.

Because facilities could have multiple boilers on-site that are different capacities, burn different fuels, or have different combustors or levels of add-on control devices, the MACT floor and GACT were determined

by grouping boilers designed to fire similar fuel types, coal, biomass, and liquid, and evaluating reported emission data for each particular subcategory.

2.0 Data Available to Estimate MACT Floors

The affected inventory of area source boilers was estimated using a boiler inspector inventory from 13 states, extrapolated nationwide.[4] This boiler inspector dataset is focused on boiler safety items and contact information and it does not contain emission data for any of the units. To analyze numerical emission data, EPA identified three viable data sources: state operating permits, emission test results reported at area sources in the recently implemented Information Collection Request (ICR) approved under OMB Control No. 2060-0616 ICR number 2286.01, and test data received from the U.S. National Forest Service Fuels for Schools Program. Based on the three data sources considered for the analysis, the following data were available:

- No emission data for POM
- limited emission data (9 coal, 2 biomass) for mercury, and no emission data available for liquid boilers
- No state regulations applicable for mercury or POM
- No state permits specific for mercury or POM
- No surrogate for Hg, but CO as a surrogate for POM
- A few (7 coal, 2 biomass) area source boilers using add-on control technology for mercury
- Limited emission data for CO (5 coal boilers, 30 wood-fired, 68 oil-fired boilers)

3.0 MACT Floors for Existing Sources

3.1 Methodology for Floors for Existing Sources

Using the average nation-wide projections from the 13-state boiler inspector inventory, there are 182,671 boilers at area sources of HAP. Of these, 10,958 boilers are designed to fire biomass, 3,710 boilers are designed to fire coal, 168,003 boilers are designed to fire liquids. For existing sources, MACT cannot be less stringent than the average emission limitation achieved by the best performing 12 percent of existing sources (for which data is available) for categories and subcategories with 30 or more sources or the best performing 5 sources for subcategories with less than 30 sources. The size of the subcategory was determined according to the number of units in the boiler inventory, not the number of units within each subcategory that had emission data available, and all subcategories contain more than 30 sources.

We identified the lowest emission test average (mean) for each pollutant at each boiler. We did not include any data from units that indicated they were permanently shut down. For units with a mix of detection

levels and measured values we used the average of the measured values and the reported numerical detection level to calculate an average. If a boiler reported three non-detect levels, we averaged the numerical detection levels. If a source reported 'zero' or simply "ND" as the value for a test run, that run was not used to calculate the average of the test. Similarly, if a unit reported data that was not standardized to the appropriate units of measure, or did not provide operating and stack test parameters necessary to standardize the emissions data, the data was not used in the MACT floor analysis. The ICR responses were reviewed to identify additional mercury fuel analysis data from uncontrolled coal, biomass or liquid boilers at area sources, but none were identified.

Next, we ranked the minimum stack test means for each pollutant in each subcategory. We conducted this ranking according to the fuels the unit was designed to burn (coal, biomass, or liquid). Because emissions of fuel-based HAP (e.g., mercury) depend on the fuel used rather than the design of the combustion chamber, MACT floors for fuel-based HAP were based on data from all boilers designed to burn the same type of fuel. For boilers burning multiple fuel types we reviewed the emission database to determine the relative heat input percentages each fuel category contributed during the test. If a test was fired with at least 10 percent of the heat input from coal, the unit was classified as designed to burn coal. If the test was fired with at least 10 percent biomass, and less than 10 percent coal, the unit was classified as designed to burn biomass. If the test was fired with at least 10 percent liquid, and less than 10 percent coal or biomass, the unit was classified as designed to burn liquid.

Emissions of POM and CO fluctuate according to the design of the combustion chamber. Although combustor design subcategorization was considered in the proposed NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters at major sources of HAP, there is not enough emission data available to further subcategorize according to combustor design. Further, the 13-state boiler inspector inventory does not include information on the combustor designs of these units and we are unable to identify the distribution of combustor designs at area source boilers. Given the limited emission data available to calculate a MACT floor limit, the boiler combustor design was not a factor in developing the subcategories for the MACT floor.

We then identified minimum emission test averages in the best performing 12 percent for each subcategory. To determine the number of boilers in the best-performing 12 percent, we multiplied the number of sources with emission data in each subcategory by 12 percent and rounded up to the nearest whole integer. For example, 12 percent of a category with 103 emission test averages is 12.36, so we would have averaged the emission test data from the top 13 boilers. This roundup approach is consistent with the approach used by statisticians in survey sampling.[5]

3.2 Incorporating Data Variability

This section discusses the statistical variability incorporated into the MACT floor analysis. Fuel variability was considered, similar to the discussion contained in the MACT floor methodology for major sources, but no fuel analysis data for coal units were available for units in the top 12 percent that had conducted fuel analysis in conjunction with a stack test.[6] There were mercury fuel analysis data available for MIVikingEnergyofLincoln. However this facility is a qualifying cogeneration facility, as defined in section 3(18)(B) of the Federal Power Act (16 U.S.C. 796(18)(B)), and burns homogeneous waste. Fuel variability of homogeneous waste material was not considered in the variability analysis since it is not a representative material for other boilers in the biomass subcategory.

Statistical Variability[7, 8]

After identifying the units with minimum emission test averages in the top 12 percent (or top 5 units), we identified all the emission test runs reported for those top-performing boilers to be in the same subcategory. By including multiple emission tests from units with a test average in the top 12 percent, EPA can evaluate intra-unit variability of emission tests over time, considering variability in control device performance, unit operations, and fuels fired during the test. We evaluated two statistical options based on statistical methods used in previous EPA rulemakings, the 99% upper limit and the 99% UPL.

The Upper Limit (UL) is roughly equivalent to the 99th percentile of the actual data distribution for the sample. While the UL has been utilized by EPA in some of its analyses (see Hospital/Medical/Infectious Waste Incinerators rulemaking), it assumes that the data used represent the population rather than a random sample from that population. The data used to calculate statistical variability on the MACT floor analysis do not represent data from the entire population of affected boilers in this source category. Instead, EPA has collected a sample of emission data from random units in each subcategory. Since the data used to calculate the MACT floor represents a sample of the population of affected units, EPA determined that the upper limit was not an appropriate interval to use for assessing variability.

Instead, EPA selected the upper prediction limit (UPL). A prediction interval for a future observation is an interval that will, with a specified degree of confidence, contain the next (or some other pre-specified) randomly selected observation from a population. In other words, the prediction interval estimates what future values will be, based on present or past background samples taken. Given this definition, the UPL represents the value we can expect the mean of three future observations (three-run average) to fall below, based on the results of the independent sample of size (n) from the same population. In other words, if we were to randomly select a future test condition from any of these sources (i.e., average of three runs), we can be 99 percent confident that the reported level will fall below a MACT floor emission limit calculated using a

UPL. Since a source must demonstrate compliance with the MACT floor using the average of a three-run test, the appropriate test condition to use to assess variability is 3. If a source had to demonstrate compliance by showing that each individual test run was below the MACT floor emission limit, it would be appropriate to use a future test condition of 1.

In light of comments made during the Hospital/Medical/Infectious Waste Incinerator rulemaking, we first determined the distribution of the test run data for the best-performing 12 percent of units within each subcategory prior to calculating UPL values. To evaluate the distribution of the best performing dataset, we computed the skewness and kurtosis statistics and then conducted the appropriate small-sample hypothesis tests.

The skewness statistic (S) characterizes the degree of asymmetry of a given data distribution. Normally distributed data have a skewness of 0. A skewness statistic that is greater (less) than 0 indicates that the data are asymmetrically distributed with a right (left) tail extending toward positive (negative) values. Further, the standard error of the skewness statistic (SES) is given by SES = SQRT(6/N) where N is the sample size. According to the small sample skewness hypothesis test, if the skewness statistic (S) is greater than two times the SES, the data distribution can be considered non-normal.

The kurtosis statistic (K) characterizes the degree of peakedness or flatness of a given data distribution in comparison to a normal distribution. Normally distributed data have a kurtosis of 0. A kurtosis statistic that is greater (less) than 0 indicates a relatively peaked (flat) distribution. Further, the standard error of the kurtosis statistic (SEK) is given by SEK = SQRT(24/N) where N is the sample size. According to the small sample kurtosis hypothesis test, if K is greater than two times the SEK, the data distribution is typically considered to be non-normal.

We applied the skewness and kurtosis hypothesis tests to both the reported test values and the lognormal values of the reported test values. If the S and K statistics of the reported dataset were both less than twice the SES and SEK, respectively, the dataset was classified as normally distributed. If neither of the S and K statistics or only one of these statistics was less than twice the SES or SEK, respectively, then the skewness and kurtosis hypothesis tests were conducted for the natural log-transformed data. Then the distribution most similar to a normal distribution was selected as the basis for calculating the UPL. If both the reported values and the natural-log transformed reported values had S and K statistics that were greater than twice the SES or SEK, respectively, the normally distributed dataset was selected as the basis of the floor to be conservative. If the results of the skewness and kurtosis hypothesis tests were mixed for the reported values and the natural log-transformed reported values, we also chose the normal distribution to be conservative. We believe this approach is more accurate and obtained more representative results than a more simplistic normal distribution assumption.

After determining the distribution of each dataset, a student's t-test statistic was used. The t-test was used in the promulgated Hospital/Medical/Infectious Waste Incinerators rulemaking and proposed Portland Cement rulemaking, and it is more appropriate for smaller sample sizes. The t-statistic is calculated using the following Excel equation:

t-statistic = TINV(2*(1-0.99),n-1)

Where:

n = the number of test runs from units in the top 12 percent

Next, the average (or sample mean) and sample standard deviation of the test runs were calculated. We calculated the 99% UPL values (which was determined to be the appropriate percentile to use in setting MACT limits in the Hospital/Medical/Infectious Waste Incinerators NSPS) based on the test run data for those units in the best-performing 12 percent. Since the compliance with the MACT floor emission limit is based on the average of a three-run test, the UPL is calculated by:

$$UPL = \bar{x} + t(0.99, n-1) \times \sqrt{s^2 \times \left(\frac{1}{n} + \frac{1}{m}\right)}$$

Where:

n = the number of test runs

m = the number of test runs in the compliance average

s = standard deviation of emission data

t (0.99, n-1) = the t-statistic

x = mean of emissions test data

This calculation was performed using the following two Excel functions:

Normal distribution: 99% UPL = AVERAGE (Test Runs in Top 12%) + [STDEV(Test Runs in Top 12%) x TINV(2 * 0.99, n-1 degrees of freedom)*SQRT((1/n)+(1/3))], for a one-tailed t-value (with 2 x probability), probability of 0.01, and sample size of n

Lognormal distribution: 99% UPL = EXP{AVERAGE(Natural Log Values of Test Runs in Top 12%) + [STDEV(Natural Log Values of Test Runs in Top 12%) x TINV(2 * 0.99, n-1 degrees of freedom) * SQRT((1/n)+(1/3))]}, for a one-tailed t-value (with 2 x probability), probability of 0.01, and sample size of n

3.3 Calculating Emission Limits

We determined emission limits for each MACT floor option and pollutant by rounding up the UPL values less than 100 to one significant figure, rounding the UPL values between 100 and 1,000 to two significant figures. This approach allows for an appropriate level of precision depending on the scale of the measured value. For example, we determined the MACT floor emission limit for Hg at coal boilers by rounding up the 99 percent UPL value, from 2.42E-06 pounds per million Btu [lb/mmBtu]) to 3.0E-06 lb/mmBtu. For CO emissions, calculated ppm values less than 1 ppm were rounded up to 1 ppm, since measurements of CO emissions less than 1 ppm were expected to be difficult at all sources. For CO emissions between 1 and 10 ppm, the emissions were rounded up to the nearest whole integer. For CO emissions above 10 ppm, CO emissions were rounded up to the nearest 10 ppm. It should be noted that if the UPL values were rounded down, then the possibility exists that the best-performing units that comprise the MACT floor may not be able to achieve the emission limit on an ongoing basis. In all cases, the significant figure approach and associated rounding does not meaningfully change the emission limits. The emission limits are summarized for each subcategory in Table 1 below. For mercury emissions from liquid boilers, there was no data available to calculate a MACT floor. The MACT floor for liquid units at major sources was used as the basis for the floor for area source boilers. The data ranked and analyzed for the MACT floor at existing units is shown in Appendix A, the UPL floor calculations for each subcategory and each pollutant are shown in Appendix B.

Table 1: MACT Floor Emission Limits for Existing Units

Subcategory	Hg (lb/mmBtu)	CO (ppm @3% O2)
COAL	3.0E-06	390
BIOMASS	4.0E-07*	200
LIQUID	4.0E-06*	2

Notes:

- Liquid fuel floor limit for mercury represents the MACT floor emission limit for existing boilers designed to burn liquid fuels at major sources of HAP.
- Red text indicates at least one test run used to calculate the MACT floor is based on a reported detection limit.
- Under the proposed options 3E and 3N there are no mercury emission limits for biomass and liquid units.

4.0 Floors for New Sources

4.1 Methodology for Floors for New Sources

The same methodology used to calculate the MACT floors for existing sources, as discussed in Section 3.0, was used to calculate the floor for new sources, with two exceptions. First, if the calculated floor for new sources was less stringent than the calculated floor for existing sources, the floor corresponding to the same subcategory for existing sources was used as the basis for the floor for new sources. Although the minimum

average test run for the best performing source resulted in the lowest three-run average test, the 99% UPL-based limit incorporated variability between test runs. As the sample size–in this case the number of test runs–gets smaller, the t-statistic increases. When the sample size of test runs is small, and there is a large variability between test runs, the calculated limit using the UPL approach can be larger than the variability among a larger set of test runs from units in the best performing 12 percent. Similar to the approach used in the HMIWI rulemaking, if the emission limit for new sources was less stringent than the emission limit for existing sources in the same subcategory, we decided to use existing source limits for new sources.

Second, if the lowest emitting unit had less than three test runs, the unit with the next lowest emissions based on at least a three-run test average was used as the basis for the MACT floor from new units. Using the lowest emitting unit with three test runs ensures that adequate variability can be incorporated into the limit to ensure that future sources can repeatedly meet the limit during their compliance tests. The next lowest unit was used in four instances:

1) Coal, Hg – top performing unit only had one test run. Used test data from second best unit, which had 3 runs.
2) Coal, CO – top performing unit only had one test run. Second best unit only had two test runs. Used test data from third best unit, which had 3 runs.
3) Biomass, CO – top performing unit only had one test run. Used test data from second best unit, which had 3 runs.
4) Liquid, CO – top 3 units only had one test run each. Used test data from fourth best unit, which had 3 runs.

Table 2 summarizes the MACT floor emission limits for new sources and the light green highlighted cells represent the limits where the corresponding limit for existing sources in the same subcategory were used as a basis for the limit at new sources. The UPL floor calculations for each subcategory and each pollutant for new sources are shown in Appendix C.

Table 2: MACT Floor Emission Limits for New Units

	Hg (lb/mmBtu)	CO (ppm @3% O2)
COAL	3.0 E-06	390
BIOMASS	4.0 E-07*	120
LIQUID	3.0 E-07*	1

Notes:

- Liquid fuel floor limit for mercury represents the MACT floor emission limit for new boilers designed to burn liquid fuels at major sources of HAP.
- Red text indicates at least one test run used to calculate the MACT floor is based on a reported detection limit.
- Light green shaded cells indicate limits where the calculated limit for new sources was less stringent than the calculated limit for existing sources and so the limit for existing sources was used as the basis for the limit at new sources.
- Under the proposed options 3E and 3N there are no mercury emission limits for biomass and liquid units.

5.0 Determining GACT Limits for Particulate Matter

5.1 Additional Data Sources Available for Assessing GACT

Of the 13 states for which we had boiler inspector data, EPA was able to gather information from one state environmental agency on air pollution control devices for permitted boilers in the state. EPA obtained an additional permit database from the state of Pennsylvania, although EPA did not have boiler inspector data for this state.

EPA had a 1996 document from the Pennsylvania Department of Environmental Protection (DEP), which provided a list of facilities in Pennsylvania with permitted boilers. This list included information on fuel type, unit capacity, and control devices. Given the age of this document, EPA made several calls to facilities that were considered to be potential area sources affected by this rule. As a result of this data gathering effort, it was determined none of the coal-fired boilers in several of the school districts on the list were still in operation. The contacts indicated that due to increased insurance rates on the old boilers, and additional recordkeeping requirements from the state DEP, the boilers have been replaced with natural gas units. Additionally, these contacts stated that this switchover was common practice for several other school districts in similar situations. Since many of the solid fuel boilers on this list were no longer operating, this data source was considered obsolete for identifying GACT levels of control for boilers at area sources.

EPA requested that Pennsylvania DEP provide an updated version of the list of facilities with permitted boilers, and EPA used this list to identify control devices for various fuel and size combinations. This list contained data for approximately 4,000 permitted boiler records.[9] The Pennsylvania database contained information on the facility name and location, fuel, rated heat input capacity, and air pollution control device. This database consists of units at facilities that would potentially require a permit to operate in the state of

Pennsylvania, which included data on 93 facilities with permitted solid fuel boilers.

A second state permit data base from the Wisconsin Department of Natural Resources (DNR) contained approximately 1,731 permitted boiler records, which included data on 108 facilities with permitted solid fuel boilers. The Wisconsin database incorporated information on the facility name and location, unit installation date, SCC code, fuel, rated heat input capacity, and air pollution control device. This database only consisted of units at facilities that are large enough to potentially require a permit from Wisconsin DNR. [10]

One weakness of the state permit databases was that neither of these data sources contained information on boilers at potential area source facilities with only one or two small boilers used to heat the building. Whereas these boilers fall under this industrial, commercial, and institutional area source category, these small commercial or institutional types of facilities typically do not require a permit, and are thus not represented by the state permit data. However, it is unlikely that small boilers such as the aforementioned would have any type of air pollution control device. A second weakness of these datasets was that the boilers in each list were a combination of boilers at major sources and area sources. For example, a boiler located at pulp and paper mill might have an ESP level of control, however this boiler is at a major source of HAP and so this control cannot be used in the analysis for determining the MACT floor level of control for boilers at area sources. In order to correct for this, EPA had to determine which boilers were at area source facilities versus major source facilities using the size of the boiler and industry classification of the facility. The details of the assumptions used in assigning boilers to an area source or major source facility are described in another memorandum.[11]

One strength of the permit databases used in this MACT floor determination is that among the 13 states in the boiler inspector datasets, Pennsylvania represents a state with local coal resources and heavy coal consumption. The Energy Information Administration indicated that Pennsylvania uses the largest amount of coal of any state for commercial or residential uses. The prevalent use of coal in these sectors provides for a large dataset of coal boilers, and their various control devices. EPA considers Wisconsin to be a leading state for biomass fuels, and the biomass dataset includes units that are at likely area sources of HAP, including schools, greenhouses, and farms.

5.2 GACT for Existing Units

For existing coal and biomass area source boilers, the add-on control technology generally being used for removing HAP other than mercury and POM is multiclones. We found that this technology is minimally effective in controlling such metallic HAP emissions.

Multiclones are mechanical separators that use velocity differential across the cyclones to separate particles. A multiclone uses several smaller diameter cyclones to improve efficiency. Multiclones have a control efficiency for PM emissions of about 75 percent. Multiclones are more efficient in collecting larger

particles and their collection efficiency falls off at small particle sizes. This is a disadvantage because non-mercury metallic HAP tend to be on small size particles (i.e., fine particle enrichment). Based on emission data obtained during the major source NESHAP development, multiclones have a control efficiency for non-mercury metallic HAP of only about 10 percent. [12]

Upon review of the area source boilers in the ICR database, 45% of boilers firing biomass, 16% of boilers firing coal, and 1% of boilers firing liquid had a multiclone installed. Further, the two permit databases from Pennsylvania and Wisconsin indicate that 53 percent of coal-fired boilers in Pennsylvania have no control, while the remaining boilers have multiclones installed and 8 percent of biomass boilers in the Wisconsin and Pennsylvania permit databases have no control and the remaining 92 percent of biomass boilers have a multiclone or other mechanical control device installed. Based on the presence of mechanical control devices at solid fuel units greater than or equal to 10 mmBtu/hr, GACT for existing units was determined to be a multiclone. However, although multiclones can achieve reductions in filterable particulate (primarily larger particles), these controls re not effective at reducing mercury emissions, and only minimally effective at reducing other non-Hg metallic HAP. Installation of a multiclone is expected to be comparable or perhaps even less effective than other pollution prevention GACT such as tune-ups. Tune-ups can improve combustion efficiency and, as a result reduce fuel consumption and emissions of fuel-based HAP including Hg. As a result, although multiclones are a GACT for boilers greater than or equal to 10 mmBtu/hr, they are not a suggested GACT for this NESHAP due to their limited ability to reduce emissions of Hg.

For the organic urban HAP (acetaldehyde, acrolein, dioxins, and formaldehyde), the most effective control technology identified is minimizing CO emissions and we determined that this control is generally available and cost effective for new area source boilers. This determination is based on the fact there is no additional costs associated with proposing a CO emission limit (as a surrogate for the urban organic HAP) as GACT because it is the same as the MACT standard being proposed for these subcategories for POM.

5.3 GACT for New Units

The control technologies currently used by facilities in the source categories that reduce non-mercury metallic HAP and PM are fabric filters and electrostatic precipitators (ESP). We determined that these controls are generally available and cost effective for new area source boilers. New area source boilers with heat input capacity of 10 million Btu/hr or greater are subject to the NSPS for boilers (either subpart Db or Dc of part 60) which regulate emissions of PM and require performance testing. Furthermore, new coal and biomass area source boilers will likely require a PM control device to comply with the proposed mercury MACT standard.

The emissions database contains PM test data for 75 area source boilers obtained from the ICR survey conducted for major sources. All of the boilers were greater than 10 million Btu per hour in size. In order to develop PM (as a surrogate for non-mercury metallic HAP) emission limits for the three subcategories, we

compared the PM limits in NSPS subpart Dc with the obtained PM emission data. We considered this to be an appropriate methodology because many new area source boilers will be subject to NSPS subpart Dc. Consequently, we determined that the PM limits in the NSPS could be used to establish the PM emission limit for new area source boilers.

The proposed GACT PM emission levels based on NSPS subpart Dc for new area source boilers is 0.03 lb/mmBtu for all fuel types. Of the 20 biomass boilers for which we have PM emission data, six of these are below that limit. For coal, 5 out of 23 are below the limit and for liquid, 22 of the 32 are below the limit for PM.

For the organic urban HAP (acetaldehyde, acrolein, dioxins, and formaldehyde), the most effective control technology identified is minimizing CO emissions and we determined that this control is generally available and cost effective for new area source boilers. This determination is based on the fact there is no additional costs associated with proposing a CO emission limit (as a surrogate for the urban organic HAP) as GACT because it is the same as the MACT standard being proposed for these subcategories for POM.

6.0 REFERENCES

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APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 1 - Hg Fuel by Floor

Location	Fuel	Data Source	Facility ID	Hg Average (lb/mmBtu)	Rank	In Top 12%?
MA – Saint Gobain (FF)	Coal	2008 Combustion Survey	MASaintGobain	1.00E-06	1	YES
WI – Blount Generating (ESP)	Coal	2008 Combustion Survey	WIBlountGeneratingStation	1.40E-06	2	YES
VA – U. of Richmond (FF)	Coal	2008 Combustion Survey	VAUofRichmond	1.42E-06	3	NO
AK – Clear AF Station (FF)	Coal	2008 Combustion Survey	AKClearAirForceStation	1.45E-06	4	NO
IA – Mid Atlantic Energy (ESP)	Coal	2008 Combustion Survey	IAMidAmericanEnergyRiverside393	5.59E-06	5	NO
OH – Denison U. (FF)	Coal	2008 Combustion Survey	OHDenisonUniversity	2.95E-06	6	NO
IN – Lawrenceburg Distillers (ESP)	Coal	2008 Combustion Survey	INLawrenceburgDistillers	4.30E-06	7	NO
Permit Data - IN Crawfordsville Electric	Coal	2008 Combustion Survey	INCrawfordsvilleElectric	1.18E-02	8	NO
Permit Data - IN Crawfordsville Electric	Coal	2008 Combustion Survey	INCrawfordsvilleElectric	1.29E-02	9	NO
MI – Viking Energy - Lincoln (ESP)	Biomass	2008 Combustion Survey	MIVikingEnergyofLincoln	3.55E-07	1	YES
ME – Boralex (ESP)	Biomass	2008 Combustion Survey	MEBoralexAshland	9.97E-07	2	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Proctor Gamble	Coal	2008 Combustion Survey	WIProctorGamble	1.21E+01	1	YES
Saint Cobain	Coal	2008 Combustion Survey	MASaintGobain	1.56E+02	2	YES
Western Illinois U. #2	Coal	2008 Combustion Survey	ILWesternILUniv	2.16E+02	3	YES
Western Illinois U. #3	Coal	2008 Combustion Survey	ILWesternILUniv	2.16E+02	4	NO
Danville Correctional Center	Coal	Operating Permit Review		2.70E+02	5	NO
Danville Correctional Center	Coal	Operating Permit Review		2.70E+02	6	NO
Danville Correctional Center	Coal	Operating Permit Review		2.70E+02	7	NO
Logan Correctional Center	Coal	Operating Permit Review		2.70E+02	8	NO
Logan Correctional Center	Coal	Operating Permit Review		2.70E+02	9	NO
Logan Correctional Center	Coal	Operating Permit Review		2.70E+02	10	NO
Vienna Correctional Center	Coal	Operating Permit Review		2.70E+02	11	NO
Vienna Correctional Center	Coal	Operating Permit Review		2.70E+02	12	NO
Portland Cemend	Coal	2008 Combustion Survey	CACAPortlandCementColton	4.00E+02	13	NO
Erie Coke	Coal	2008 Combustion Survey	PAEriecoke	4.43E+02	14	NO
Cedar Lane Farms 2	Coal	Operating Permit Review		4.80E+02	15	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Cedar Lane Farms 5	Coal	Operating Permit Review		4.80E+02	16	NO
Cedar Lane Farms 9	Coal	Operating Permit Review		6.00E+02	17	NO
Simpson Door, WA	Biomass	2008 Combustion Survey	WASimpsonDoorCompany	2.92E+01	1	YES
NCH	Biomass	US Fuels for Schools Program		3.86E+01	2	YES
Thompson Falls	Biomass	US Fuels for Schools Program		6.65E+01	3	YES
BHS	Biomass	US Fuels for Schools Program		7.95E+01	4	YES
Columbia N, OR	Biomass	2008 Combustion Survey	ORColumbiaForestKlamathFalls	8.16E+01	5	YES
Travis Lumber #2, AR	Biomass	2008 Combustion Survey	ARTravisLumberMansfield	9.61E+01	6	YES
Council, ID	Biomass	US Fuels for Schools Program		9.86E+01	7	YES
Douglas County, OR	Biomass	2008 Combustion Survey	ORDouglasCounty	1.04E+02	8	YES
Darby	Biomass	US Fuels for Schools Program		1.10E+02	9	NO
Sinder, TX	Biomass	2008 Combustion Survey	TXSniderIndustriesMarshall	1.35E+02	10	NO
Port Angeles, WA	Biomass	2008 Combustion Survey	WAPortAngelesHardwood	1.43E+02	11	NO
Travis Lumber #1, AR	Biomass	2008 Combustion Survey	ARTravisLumberMansfield	1.46E+02	12	NO
Anthony Timber, AR	Biomass	2008 Combustion Survey	ARAnthonyTimberlandBeirne	1.52E+02	13	NO
Malheur #1, OR	Biomass	2008 Combustion Survey	ORMalheurLumber	1.59E+02	14	NO
Armstrong, AR	Biomass	2008 Combustion Survey	ARArmstrongWarren	1.65E+02	15	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Stimson #1, ID	Biomass	2008 Combustion Survey	IDStimsonLumberCoPriestRiver	1.69E+02	16	NO
Biomass One N, OR	Biomass	2008 Combustion Survey	ORBiomassOneWhiteCity	1.90E+02	17	NO
Interfor, WA	Biomass	2008 Combustion Survey	WAInterforPacificPortAngeles	2.10E+02	18	NO
MWCC	Biomass	US Fuels for Schools Program		2.14E+02	19	NO
Biomass One S, OR	Biomass	2008 Combustion Survey	ORBiomassOneWhiteCity	2.20E+02	20	NO
CVU	Biomass	US Fuels for Schools Program		2.25E+02	21	NO
Foster-Glocester School	Biomass	Operating Permit Review		2.30E+02	22	NO
Stimson #2, ID	Biomass	2008 Combustion Survey	IDStimsonLumberCoPriestRiver	2.36E+02	23	NO
Boralex, ME	Biomass	2008 Combustion Survey	MEBoralexAshland	2.53E+02	24	NO
Bridgewater Power	Biomass	Operating Permit Review		2.90E+02	25	NO
Ryegate Power	Biomass	Operating Permit Review		3.80E+02	26	NO
Armstrong, AR	Biomass	2008 Combustion Survey	ARArmstrongWarren	3.91E+02	27	NO
Maine Wood	Biomass	Operating Permit Review		4.20E+02	28	NO
Malheur #2, OR	Biomass	2008 Combustion Survey	ORMalheurLumber	4.23E+02	29	NO
Boralex, ME	Biomass	2008 Combustion Survey	MEBoralexFortFairfield	4.49E+02	30	NO
Kettle Falls, OR	Biomass	2008 Combustion Survey	WABoiseKettleFallsLumber	4.68E+02	31	NO
Stimson, OR	Biomass	2008 Combustion Survey	ORStimsonLumberTillamook	4.79E+02	32	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Cox Interior, KY	Biomass	2008 Combustion Survey	KYCoxInterior	4.98E+02	33	NO
Columbia Forest Products	Biomass	Operating Permit Review		5.00E+02	34	NO
Dillon, MT	Biomass	US Fuels for Schools Program		5.03E+02	35	NO
Armstrong, TN	Biomass	2008 Combustion Survey	TNArmstrongHardwood	5.36E+02	36	NO
BAF, ID	Biomass	2008 Combustion Survey	IDBAFRexburg	5.73E+02	37	NO
VT Tubbs	Biomass	US Fuels for Schools Program		6.20E+02	38	NO
3 Boilers	Biomass	Operating Permit Review		6.20E+02	39	NO
Armstrong, TN	Biomass	2008 Combustion Survey	TNArmstrongHardwood	6.46E+02	40	NO
Armstrong, TN	Biomass	2008 Combustion Survey	TNArmstrongHardwood	6.46E+02	41	NO
11 Boilers	Biomass	Operating Permit Review		7.80E+02	42	NO
2 Boilers	Biomass	Operating Permit Review		7.80E+02	43	NO
Darby, MT	Biomass	US Fuels for Schools Program		7.85E+02	44	NO
Bismarck, MT	Biomass	US Fuels for Schools Program		8.80E+02	45	NO
Sonoco Products	Biomass	Operating Permit Review		9.20E+02	46	NO
Columbia S, OR	Biomass	2008 Combustion Survey	ORColumbiaForestKlamathFalls	9.61E+02	47	NO
Idaho Timber, AR	Biomass	2008 Combustion Survey	ARIdahoTimber	9.99E+02	48	NO
Blue Mountain, OR	Biomass	2008 Combustion Survey	ORBlueMountainLumber	1.03E+03	49	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Armstrong, KY	Biomass	2008 Combustion Survey	KYArmstrong	1.05E+03	50	NO
Armstrong, KY	Biomass	2008 Combustion Survey	KYArmstrong	1.05E+03	51	NO
Victor, MT	Biomass	US Fuels for Schools Program		1.13E+03	52	NO
Hazen Union	Biomass	US Fuels for Schools Program		1.13E+03	53	NO
Collins, OR	Biomass	2008 Combustion Survey	ORCollinsPineCoLakeview	1.15E+03	54	NO
3 Boilers	Biomass	Operating Permit Review		1.30E+03	55	NO
Geneva Energy	Biomass	Operating Permit Review		1.30E+03	56	NO
Potlatch, ID	Biomass	2008 Combustion Survey	IDPotlatchForestProductsCorpPostFalls	1.76E+03	57	NO
Green Acres	Biomass	US Fuels for Schools Program		2.55E+03	58	NO
Stimson, WA	Biomass	2008 Combustion Survey	WAStimsonLumber	2.84E+03	59	NO
Jack Daniels, TN	Biomass	2008 Combustion Survey	TNJackDaniels	3.27E+03	60	NO
American Papermills	Biomass	Operating Permit Review		3.80E+03	61	NO
Jack Daniels, TN	Biomass	2008 Combustion Survey	TNJackDaniels	4.70E+03	62	NO
Armstrong #2, MS	Biomass	2008 Combustion Survey	MSArmstrongVicksburg	1.40E+04	63	NO
Townsend, MT	Biomass	US Fuels for Schools Program		1.47E+04	64	NO
Armstrong #1, MS	Biomass	2008 Combustion Survey	MSArmstrongVicksburg	1.53E+04	65	NO
	Liquid	2008 Combustion Survey	NJRebtex	6.43E-02	1	YES

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	WAEmerald Kalama	1.51E-01	2	YES
	Liquid	2008 Combustion Survey	PABucknellUniversity	6.41E-01	3	YES
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	6.43E-01	4	YES
	Liquid	2008 Combustion Survey	NJUSGypsumCo	6.82E-01	5	YES
	Liquid	2008 Combustion Survey	NJRebtex	8.49E-01	6	YES
	Liquid	2008 Combustion Survey	MATextron	1.00E+00	7	YES
	Liquid	2008 Combustion Survey	CTYaleSterling	1.11E+00	8	YES
	Liquid	2008 Combustion Survey	RIClariant	1.26E+00	9	YES
	Liquid	2008 Combustion Survey	NJHoffmanLaRoche	1.33E+00	10	YES
	Liquid	2008 Combustion Survey	NJICLCarteret	1.41E+00	11	YES
	Liquid	2008 Combustion Survey	NJUSGypsumCo	1.49E+00	12	YES
	Liquid	2008 Combustion Survey	CTYaleSterling	1.50E+00	13	YES
	Liquid	2008 Combustion Survey	PASartomer	1.59E+00	14	YES
	Liquid	2008 Combustion Survey	CTYaleSterling	1.75E+00	15	YES
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	1.86E+00	16	NO
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	1.99E+00	17	NO
	Liquid	2008 Combustion Survey	NJUSGypsumCo	2.08E+00	18	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	PASanofiPasteurSwiftwater	2.15E+00	19	NO
	Liquid	2008 Combustion Survey	NJUnionCarbide	2.31E+00	20	NO
	Liquid	2008 Combustion Survey	PASanofiPasteurSwiftwater	2.58E+00	21	NO
	Liquid	2008 Combustion Survey	NJUnionCarbide	2.69E+00	22	NO
	Liquid	2008 Combustion Survey	NYUofRochester	2.86E+00	23	NO
	Liquid	2008 Combustion Survey	RIClariant	2.94E+00	24	NO
	Liquid	2008 Combustion Survey	NJScheringPlough1681	3.18E+00	25	NO
	Liquid	2008 Combustion Survey	CTYaleSterling	3.72E+00	26	NO
	Liquid	2008 Combustion Survey	PAValleyProteins	3.93E+00	27	NO
	Liquid	2008 Combustion Survey	NJNovartis	4.05E+00	28	NO
	Liquid	2008 Combustion Survey	TNConAgra	4.50E+00	29	NO
	Liquid	2008 Combustion Survey	DEEIDupontWilmington	4.83E+00	30	NO
	Liquid	2008 Combustion Survey	NYUofRochester	5.96E+00	31	NO
	Liquid	2008 Combustion Survey	OHPerstorpPolyols	6.75E+00	32	NO
	Liquid	2008 Combustion Survey	NJScheringPlough1681	7.47E+00	33	NO
	Liquid	2008 Combustion Survey	PAAltadisMcAdoo	8.00E+00	34	NO
	Liquid	2008 Combustion Survey	MIGMWillowRun	8.55E+00	35	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	VAMerckElkton	9.23E+00	36	NO
	Liquid	2008 Combustion Survey	NJHoffmanLaRoche	9.87E+00	37	NO
	Liquid	2008 Combustion Survey	NJHoffmanLaRoche	1.04E+01	38	NO
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	1.17E+01	39	NO
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	1.17E+01	40	NO
	Liquid	2008 Combustion Survey	CTYaleCentralPower	1.19E+01	41	NO
	Liquid	2008 Combustion Survey	NJPrinceton University	1.22E+01	42	NO
	Liquid	2008 Combustion Survey	CTUCONN-Storrs	1.23E+01	43	NO
	Liquid	2008 Combustion Survey	NYUofRochester	1.34E+01	44	NO
	Liquid	2008 Combustion Survey	PASanofiPastuerSwiftwater	1.43E+01	45	NO
	Liquid	2008 Combustion Survey	OHLubrizol	1.45E+01	46	NO
	Liquid	2008 Combustion Survey	NJScheringPlough1681	1.49E+01	47	NO
	Liquid	2008 Combustion Survey	MATextron	1.55E+01	48	NO
	Liquid	2008 Combustion Survey	NJNovartis	1.61E+01	49	NO
	Liquid	2008 Combustion Survey	NJPrinceton University	1.66E+01	50	NO
	Liquid	2008 Combustion Survey	PAAltadisMcAdoo	1.70E+01	51	NO
	Liquid	2008 Combustion Survey	NYUofRochester	1.88E+01	52	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	NJNovartis	1.90E+01	53	NO
	Liquid	2008 Combustion Survey	MOWUSMSt Louis	2.17E+01	54	NO
	Liquid	2008 Combustion Survey	VAMerckElkton	2.45E+01	55	NO
St. Mary Academy	Liquid	Operating Permit Review		2.60E+01	56	NO
	Liquid	2008 Combustion Survey	NJScheringPlough	2.81E+01	57	NO
2 Boilers	Liquid	Operating Permit Review		3.30E+01	58	NO
	Liquid	2008 Combustion Survey	NJMontclair2968	3.38E+01	59	NO
	Liquid	2008 Combustion Survey	MIGMWillow Run	3.55E+01	60	NO
	Liquid	2008 Combustion Survey	NJScheringPlough1681	3.84E+01	61	NO
	Liquid	2008 Combustion Survey	MIGMWillow Run	3.89E+01	62	NO
Pliant	Liquid	Operating Permit Review		4.20E+01	63	NO
11 Boilers	Liquid	Operating Permit Review		4.50E+01	64	NO
2 Boilers	Liquid	Operating Permit Review		4.50E+01	65	NO
7 Boilers	Liquid	Operating Permit Review		4.50E+01	66	NO
	Liquid	2008 Combustion Survey	NJNJAshland	4.59E+01	67	NO
	Liquid	2008 Combustion Survey	NJNJAshland	4.59E+01	68	NO
	Liquid	2008 Combustion Survey	NJNovartis	4.59E+01	69	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	TNBridgestoneLaVergne	4.60E+01	70	NO
	Liquid	2008 Combustion Survey	OHP&GMiamiValley	4.62E+01	71	NO
	Liquid	2008 Combustion Survey	OHP&GMiamiValley	4.62E+01	72	NO
	Liquid	2008 Combustion Survey	VADuPontFrontRoyal	4.85E+01	73	NO
EHV Weidman 3	Liquid	Operating Permit Review		5.00E+01	74	NO
EHV Weidman 3N	Liquid	Operating Permit Review		5.00E+01	75	NO
3 Boilers	Liquid	Operating Permit Review		5.00E+01	76	NO
	Liquid	2008 Combustion Survey	NJBristol-MyersSquibb1615	5.60E+01	77	NO
	Liquid	2008 Combustion Survey	VADuPontFrontRoyal	5.66E+01	78	NO
	Liquid	2008 Combustion Survey	NJUMDNewarkNJ	6.17E+01	79	NO
2 Boilers	Liquid	Operating Permit Review		6.20E+01	80	NO
	Liquid	2008 Combustion Survey	NJUMDNewarkNJ	6.66E+01	81	NO
	Liquid	2008 Combustion Survey	NJUMDNewarkNJ	8.31E+01	82	NO
6 Boilers	Liquid	Operating Permit Review		8.80E+01	83	NO
EHV Weidman 1	Liquid	Operating Permit Review		9.50E+01	84	NO
3 Boilers	Liquid	Operating Permit Review		9.50E+01	85	NO
	Liquid	2008 Combustion Survey	WASimpsonDoorCompany	1.00E+02	86	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Bunge Oils	Liquid	Operating Permit Review		1.00E+02	87	NO
	Liquid	2008 Combustion Survey	TNSIGroup	1.02E+02	88	NO
	Liquid	2008 Combustion Survey	TNSIGroup	1.02E+02	89	NO
	Liquid	2008 Combustion Survey	PABucknellUniversity	1.03E+02	90	NO
2 Boilers	Liquid	Operating Permit Review		1.05E+02	91	NO
	Liquid	2008 Combustion Survey	TNJackDaniels	1.10E+02	92	NO
	Liquid	2008 Combustion Survey	TNConAgra	1.11E+02	93	NO
	Liquid	2008 Combustion Survey	PANRGEnergyCenterPittsburgh	1.11E+02	94	NO
	Liquid	2008 Combustion Survey	PANRGEnergyCenterPittsburgh	1.11E+02	95	NO
	Liquid	2008 Combustion Survey	PANRGEnergyCenterPittsburgh	1.11E+02	96	NO
	Liquid	2008 Combustion Survey	NJMeridianHealth1656	1.12E+02	97	NO
	Liquid	2008 Combustion Survey	NJMeridianHealth1656	1.12E+02	98	NO
	Liquid	2008 Combustion Survey	NJMonmouthCountyReclamation	1.15E+02	99	NO
	Liquid	2008 Combustion Survey	NJNewWinCupMetuchen	1.29E+02	100	NO
	Liquid	2008 Combustion Survey	VAVCUMCVCampusSteamPlant	1.34E+02	101	NO
	Liquid	2008 Combustion Survey	VAVCUMCVCampusSteamPlant	1.34E+02	102	NO
	Liquid	2008 Combustion Survey	VAVCUMCVCampusSteamPlant	1.34E+02	103	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
Providence College	Liquid	Operating Permit Review		1.40E+02	104	NO
	Liquid	2008 Combustion Survey	NJMeridianHealth1656	1.49E+02	105	NO
	Liquid	2008 Combustion Survey	TNConAgra	1.56E+02	106	NO
Riverpoint Lace Works	Liquid	Operating Permit Review		1.90E+02	107	NO
	Liquid	2008 Combustion Survey	MAMultiLayerCoating	2.00E+02	108	NO
	Liquid	2008 Combustion Survey	MAMultiLayerCoating	2.00E+02	109	NO
	Liquid	2008 Combustion Survey	NJMontclair2968	2.06E+02	110	NO
	Liquid	2008 Combustion Survey	OHBluegrassMills	2.17E+02	111	NO
	Liquid	2008 Combustion Survey	OHBluegrassMills	2.17E+02	112	NO
	Liquid	2008 Combustion Survey	AKUnisea37	2.22E+02	113	NO
	Liquid	2008 Combustion Survey	ILACHFoodChampaign	2.57E+02	114	NO
	Liquid	2008 Combustion Survey	ILACHFoodChampaign	2.57E+02	115	NO
	Liquid	2008 Combustion Survey	ILACHFoodChampaign	2.57E+02	116	NO
	Liquid	2008 Combustion Survey	PACroda	3.00E+02	117	NO
	Liquid	2008 Combustion Survey	PADartContainer	4.00E+02	118	NO
	Liquid	2008 Combustion Survey	PADartContainer	4.00E+02	119	NO
	Liquid	2008 Combustion Survey	PAMackTrucks	4.00E+02	120	NO

APPENDIX A-1: Emission Test and Permit Data Ranked for MACT Floor Analysis According to Fuel Type

Table 2 - CO Fuel by Floor

Location	Fuel	Data Source	Facility ID	CO (ppm@ 3%O2)	Rank	In Top 12%?
	Liquid	2008 Combustion Survey	CAHitachiGST	4.00E+02	121	NO
	Liquid	2008 Combustion Survey	CAHitachiGST	4.00E+02	122	NO
	Liquid	2008 Combustion Survey	PAAshlandNevilleIsland	5.62E+02	123	NO
	Liquid	2008 Combustion Survey	PAAshlandNevilleIsland	8.22E+02	124	NO
	Liquid	2008 Combustion Survey	OHBluegrassMills	3.25E+03	125	NO

Appendix A-2: Emission Test and Permit Run Data Used for Hg MACT Floor Analysis

In top 12 pct?	MACT Floor FuelCat	FacilityID	CombustorID	TestID	TestDate_ common	Pollutant_ Name	Non-Detect?	Hg (lb/MMBtu)	ln(value)	Rank
YES	Coal	MASaintGobain	EU-523-01	Sample #1	3/8/2006	Mercury (Hg)		1.00E-06	-1.38E+01	1
YES	Coal	WIBlountGeneratingStation	Boiler 8	Sample #1	11/8/2006	Mercury (Hg)		1.46E-06	-1.34E+01	2
YES	Coal	WIBlountGeneratingStation	Boiler 8	Sample #2	11/8/2006	Mercury (Hg)		1.07E-06	-1.37E+01	2
YES	Coal	WIBlountGeneratingStation	Boiler 8	Sample #3	11/8/2006	Mercury (Hg)		1.68E-06	-1.33E+01	2
YES	Biomass	MIVikingEnergyofLincoln	Boiler1	Sample #1	8/23/2005	Mercury (Hg)	ND	3.57E-07	-1.48E+01	1
YES	Biomass	MIVikingEnergyofLincoln	Boiler1	Sample #2	8/24/2005	Mercury (Hg)	ND	3.54E-07	-1.49E+01	1
YES	Biomass	MIVikingEnergyofLincoln	Boiler1	Sample #3	8/25/2005	Mercury (Hg)	ND	3.54E-07	-1.49E+01	1

Appendix A-3: Emission Test and Permit Run Data Used for CO MACT Floor Analysis

In top 12 pct?	MACT Floor FuelCat	FacilityID	CombustorID	TestID	TestDate_ common	Pollutant_ Name	Non-Detect?	CO (ppm @ 3% O2)	ln(value)	Rank	Note
YES	Coal	WIProctorGamble	BoHo #6	Sample #1	3/18/2008	CO		1.21E+01	2.49E+00	1	
YES	Coal	MASaintGobain	EU-523-01	Sample #2	2/20/2008	CO		1.57E+02	5.06E+00	2	
YES	Coal	MASaintGobain	EU-523-01	Sample #1	2/7/2007	CO		1.55E+02	5.04E+00	2	
YES	Coal	ILWesternILUniv	Boiler #2	Sample #1	6/29/2000	CO		2.49E+02	5.52E+00	3	
YES	Coal	ILWesternILUniv	Boiler #2	Sample #2	6/29/2000	CO		2.68E+02	5.59E+00	3	
YES	Coal	ILWesternILUniv	Boiler #2	Sample #3	6/29/2000	CO		1.32E+02	4.88E+00	3	
YES	Biomass	WASimpsonDoor Company	EU-1	Sample #1	10/12/2006	CO		2.92E+01	3.37E+00	1	
YES	Biomass	Fuels for Schools Data	NCH	Run 1		CO		2.28E+01	3.13E+00	2	Values reported as ppm, standardized to 3% O2
YES	Biomass	Fuels for Schools Data	NCH	Run 2		CO		4.88E+01	3.89E+00	2	Values reported as ppm, standardized to 3% O2
YES	Biomass	Fuels for Schools Data	NCH	Run 3		CO		4.42E+01	3.79E+00	2	Values reported as ppm, standardized to 3% O2
YES	Biomass	Fuels for Schools Data	Thompson Falls	Run 1		CO		7.67E+01	4.34E+00	3	no fuel data in detail sheet, used average of reported f-factors with school data
YES	Biomass	Fuels for Schools Data	Thompson Falls	Run 2		CO		6.48E+01	4.17E+00	3	no fuel data in detail sheet, used average of reported f-factors with school data
YES	Biomass	Fuels for Schools Data	Thompson Falls	Run 3		CO		5.80E+01	4.06E+00	3	no fuel data in detail sheet, used average of reported f-factors with school data
YES	Biomass	Fuels for Schools Data	BHS	Run 1		CO		6.23E+00	1.83E+00	4	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	BHS	Run 2		CO		2.03E+00	7.06E-01	4	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	BHS	Run 3		CO		5.16E+00	1.64E+00	4	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	BHS	Run 4		CO		4.62E+00	1.53E+00	4	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	BHS	Run 5		CO		3.79E+02	5.94E+00	4	Site F-factor reported in detail sheet
YES	Biomass	ORColumbiaForestKlamathFalls	BLR-N	Sample #1	11/15/2007	CO		3.32E+01	3.50E+00	5	
YES	Biomass	ORColumbiaForestKlamathFalls	BLR-N	Sample #2	11/15/2007	CO		7.02E+01	4.25E+00	5	
YES	Biomass	ORColumbiaForestKlamathFalls	BLR-N	Sample #3	11/15/2007	CO		1.42E+02	4.95E+00	5	
YES	Biomass	ARTravisLumber Mansfield	Boiler No. 2	Sample #1	11/10/1994	CO		1.15E+02	4.74E+00	6	
YES	Biomass	ARTravisLumber Mansfield	Boiler No. 2	Sample #2	11/10/1994	CO		9.43E+01	4.55E+00	6	
YES	Biomass	ARTravisLumber Mansfield	Boiler No. 2	Sample #3	11/10/1994	CO		7.91E+01	4.37E+00	6	
YES	Biomass	Fuels for Schools Data	Council, ID	Run 1		CO		5.64E+01	4.03E+00	7	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	Council, ID	Run 2		CO		1.20E+02	4.79E+00	7	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	Council, ID	Run 3		CO		1.53E+02	5.03E+00	7	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	Council, ID	Run 4		CO		7.74E+01	4.35E+00	7	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	Council, ID	Run 5		CO		9.22E+01	4.52E+00	7	Site F-factor reported in detail sheet
YES	Biomass	Fuels for Schools Data	Council, ID	Run 6		CO		9.27E+01	4.53E+00	7	Site F-factor reported in detail sheet
YES	Biomass	ORDouglasCounty	HOG FUEL BOILER	Sample #1	9/7/2006	CO		6.51E+01	4.18E+00	8	
YES	Biomass	ORDouglasCounty	HOG FUEL BOILER	Sample #2	9/7/2006	CO		1.23E+02	4.81E+00	8	
YES	Biomass	ORDouglasCounty	HOG FUEL BOILER	Sample #3	9/7/2006	CO		1.23E+02	4.81E+00	8	
YES	Liquid	NJRebtex	Superior	Sample #1	7/22/2005	CO		6.43E-02	-2.74E+00	1	
YES	Liquid	WAEmeraldKalama	U-17	Sample #1	12/12/2006	CO		1.51E-01	-1.89E+00	2	
YES	Liquid	PABucknellUniversity	B-301	Sample #2	7/29/1998	CO		6.41E-01	-4.44E-01	3	
YES	Liquid	PASanofiPastuer Swiftwater	Boiler 1	Sample #1	3/16/2005	CO		6.50E-01	-4.31E-01	4	
YES	Liquid	PASanofiPastuer Swiftwater	Boiler 1	Sample #2	3/17/2005	CO		6.80E-01	-3.86E-01	4	
YES	Liquid	PASanofiPastuer Swiftwater	Boiler 1	Sample #3	3/17/2005	CO		6.00E-01	-5.11E-01	4	

Appendix A-3: Emission Test and Permit Run Data Used for CO MACT Floor Analysis

In top 12 pct?	MACT Floor FuelCat	FacilityID	CombustorID	TestID	TestDate_ common	Pollutant_ Name	Non-Detect?	CO (ppm @ 3% O2)	ln(value)	Rank	Note
YES	Liquid	NJUSGypsumCo	BOILER #1	Sample #1	10/19/2005	CO		6.56E-01	-4.21E-01	5	
YES	Liquid	NJUSGypsumCo	BOILER #1	Sample #2	10/19/2005	CO		6.05E-01	-5.03E-01	5	
YES	Liquid	NJUSGypsumCo	BOILER #1	Sample #3	10/19/2005	CO		7.85E-01	-2.42E-01	5	
YES	Liquid	NJRebtex	Kewanee	Sample #1	7/21/2005	CO		8.24E-01	-1.94E-01	6	
YES	Liquid	NJRebtex	Kewanee	Sample #2	7/21/2005	CO		7.98E-01	-2.26E-01	6	
YES	Liquid	NJRebtex	Kewanee	Sample #3	7/21/2005	CO		9.27E-01	-7.63E-02	6	
YES	Liquid	MATextron	CB1	Sample #1	4/9/2008	CO		1.00E+00	0.00E+00	7	
YES	Liquid	MATextron	CB1	Sample #3	4/9/2008	CO		1.00E+00	0.00E+00	7	
YES	Liquid	CTYaleSterling	SPB8	Sample #1	10/15/2004	CO		1.28E+00	2.49E-01	8	
YES	Liquid	CTYaleSterling	SPB8	Sample #2	10/15/2004	CO		1.41E+00	3.44E-01	8	
YES	Liquid	CTYaleSterling	SPB8	Sample #3	10/15/2004	CO		6.41E-01	-4.44E-01	8	
YES	Liquid	RIClariant	B2	Sample #1	2/12/2008	CO		7.16E-01	-3.34E-01	9	
YES	Liquid	RIClariant	B2	Sample #2	2/12/2008	CO		1.42E+00	3.53E-01	9	
YES	Liquid	RIClariant	B2	Sample #3	2/12/2008	CO		1.63E+00	4.87E-01	9	
YES	Liquid	NJHoffmanLaRoche	E1022, BOILER #7	Sample #1	1/17/2008	CO		1.29E+00	2.52E-01	10	
YES	Liquid	NJHoffmanLaRoche	E1022, BOILER #7	Sample #2	1/17/2008	CO		1.42E+00	3.47E-01	10	
YES	Liquid	NJHoffmanLaRoche	E1022, BOILER #7	Sample #3	1/17/2008	CO		1.29E+00	2.52E-01	10	
YES	Liquid	NJICLCarteret	No.3 Boiler	Sample #1	4/4/2006	CO	ND	1.40E+00	3.34E-01	11	
YES	Liquid	NJICLCarteret	No.3 Boiler	Sample #2	4/4/2006	CO	ND	1.42E+00	3.48E-01	11	
YES	Liquid	NJICLCarteret	No.3 Boiler	Sample #3	4/4/2006	CO	ND	1.42E+00	3.48E-01	11	
YES	Liquid	NJUSGypsumCo	BOILER #2	Sample #1	10/20/2005	CO		1.99E+00	6.90E-01	12	
YES	Liquid	NJUSGypsumCo	BOILER #2	Sample #2	10/21/2005	CO		1.20E+00	1.80E-01	12	
YES	Liquid	NJUSGypsumCo	BOILER #2	Sample #3	10/21/2005	CO		1.27E+00	2.42E-01	12	
YES	Liquid	CTYaleSterling	SPB9	Sample #1	10/21/2004	CO		2.82E+00	1.04E+00	13	
YES	Liquid	CTYaleSterling	SPB9	Sample #2	10/21/2004	CO		7.70E-01	-2.62E-01	13	
YES	Liquid	CTYaleSterling	SPB9	Sample #3	10/21/2004	CO		8.98E-01	-1.08E-01	13	
YES	Liquid	PASartomer	B-902	Sample #1	8/27/2008	CO		1.06E+00	5.73E-02	14	
YES	Liquid	PASartomer	B-902	Sample #3	8/27/2008	CO		2.12E+00	7.50E-01	14	
YES	Liquid	CTYaleSterling	SPB11	Sample #1	10/22/2004	CO		1.67E+00	5.11E-01	15	
YES	Liquid	CTYaleSterling	SPB11	Sample #2	10/22/2004	CO		1.80E+00	5.85E-01	15	
YES	Liquid	CTYaleSterling	SPB11	Sample #3	10/22/2004	CO		1.80E+00	5.85E-01	15	

Appendix B-1: UPL Calculated Emission Limits for Hg for Existing Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**Hg (lb/mmBtu)**	**Hg (lb/mmBtu)**
Coal		
No. of sources =	9	9
No. in MACT floor =	2	2
Avge of top 12% =	1.30E-06	-1.36E+01
Std Deviation of top 12% =	3.22E-07	2.47E-01
Skewness =	0.34	0.20
Kurtosis =	-3.62	-4.13
SE Skewness	1.22	1.22
Skewness Test	normal	normal
SE Kurtosis	2.45	2.45
Kurtosis Test	normal	normal
Number of test runs =	4	4
Number of test runs that contained non-detect values	0	0
Highest test run =	1.68E-06	-1.33E+01
99% t-statistic for UPL	4.54E+00	4.54E+00
99% t-statistic for UL	3.75E+00	3.75E+00
99% UPL of top 12% (test runs) =	2.42E-06	3.00E-06
99% UL of top 12% (test runs) =	2.51E-06	3.21E-06
Biomass		
No. of sources =	2	2
No. in MACT floor =	1	1
Avge of top 12% =	3.55E-07	-1.49E+01
Std Deviation of top 12% =	1.82E-09	5.13E-03
Skewness =	1.73	1.73
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	3	3
Highest test run =	3.57E-07	-1.48E+01
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top 12% (test runs) =	3.65E-07	3.66E-07
99% UL of top 12% (test runs) =	3.63E-07	3.63E-07

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix B-1: UPL Calculated Emission Limits for Hg for Existing Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**Hg (lb/mmBtu)**	**Hg (lb/mmBtu)**
Liquid		
No. of sources =	No data available, floor was set to be equivalent to MACT floor for existing boilers and process heaters at major sources	
No. in MACT floor =		
Avge of top 12% =		
Std Deviation of top 12% =		
Skewness =		
Kurtosis =		
SE Skewness		
Skewness Test		
SE Kurtosis		
Kurtosis Test		
Number of test runs =		
Number of test runs that contained non-detect values		
Highest test run =		
99% t-statistic for UPL		
99% t-statistic for UL		
99% UPL of top 12% (test runs) =		
99% UL of top 12% (test runs) =		

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix B-2: UPL Calculated Emission Limits for CO for Existing Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**CO (ppm @ 3% O2)**	**CO (ppm @ 3% O2)**
Coal		
No. of sources =	17	17
No. in MACT floor =	3	3
Avge of top 12% =	1.62E+02	4.76E+00
Std Deviation of top 12% =	9.21E+01	1.15E+00
Skewness =	-0.60	-2.11
Kurtosis =	0.50	4.80
SE Skewness	1.00	1.00
Skewness Test	normal	normal
SE Kurtosis	2.00	2.00
Kurtosis Test	normal	non-normal
Number of test runs =	6	6
Number of test runs that contained non-detect values	0	0
Highest test run =	2.68E+02	5.59E+00
99% t-statistic for UPL	3.36E+00	3.36E+00
99% t-statistic for UL	3.14E+00	3.14E+00
99% UPL of top 12% (test runs) =	3.81E+02	1.80E+03
99% UL of top 12% (test runs) =	4.52E+02	4.34E+03
Biomass		
No. of sources =	65	65
No. in MACT floor =	8	8
Avge of top 12% =	8.06E+01	3.92E+00
Std Deviation of top 12% =	7.35E+01	1.21E+00
Skewness =	2.64	-1.27
Kurtosis =	10.19	1.31
SE Skewness	0.47	0.47
Skewness Test	non-normal	normal
SE Kurtosis	0.94	0.94
Kurtosis Test	non-normal	normal
Number of test runs =	27	27
Number of test runs that contained non-detect values	0	0
Highest test run =	3.79E+02	5.94E+00
99% t-statistic for UPL	2.48E+00	2.48E+00
99% t-statistic for UL	2.47E+00	2.47E+00
99% UPL of top 12% (test runs) =	1.92E+02	3.12E+02
99% UL of top 12% (test runs) =	2.62E+02	1.00E+03

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix B-2: UPL Calculated Emission Limits for CO for Existing Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**CO (ppm @ 3% O2)**	**CO (ppm @ 3% O2)**
Liquid		
No. of sources =	125	125
No. in MACT floor =	15	15
Avge of top 12% =	1.14E+00	-3.41E-02
Std Deviation of top 12% =	5.56E-01	6.90E-01
Skewness =	0.68	-2.11
Kurtosis =	1.15	6.68
SE Skewness	0.40	0.40
Skewness Test	normal	normal
SE Kurtosis	0.81	0.81
Kurtosis Test	normal	non-normal
Number of test runs =	37	37
Number of test runs that contained non-detect values	3	3
Highest test run =	2.82E+00	1.04E+00
99% t-statistic for UPL	2.43E+00	2.43E+00
99% t-statistic for UL	2.43E+00	2.43E+00
99% UPL of top 12% (test runs) =	1.95E+00	2.65E+00
99% UL of top 12% (test runs) =	2.49E+00	5.17E+00

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix C-1: UPL Calculated Emission Limits for Hg at NEW Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**Hg (lb/mmBtu)**	**Hg (lb/mmBtu)**
Coal		
No. of sources =	1	1
No. in MACT floor =	1	1
Avge of top performing unit =	1.40E-06	-1.35E+01
Std Deviation of top performing unit =	3.07E-07	2.30E-01
Skewness =	-0.80	-1.04
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	0	0
Highest test run =	1.68E-06	-1.33E+01
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top performing unit (test runs) =	3.15E-06	5.09E-06
99% UL of top performing unit (test runs) =	2.80E-06	3.91E-06
Biomass		
No. of sources =	1	1
No. in MACT floor =	1	1
Avge of top performing unit =	3.55E-07	-1.49E+01
Std Deviation of top performing unit =	1.82E-09	5.13E-03
Skewness =	1.73	1.73
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	3	3
Highest test run =	3.57E-07	-1.48E+01
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top performing unit (test runs) =	3.65E-07	3.66E-07
99% UL of top performing unit (test runs) =	3.63E-07	3.63E-07

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix C-1: UPL Calculated Emission Limits for Hg at NEW Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**Hg (lb/mmBtu)**	**Hg (lb/mmBtu)**
Liquid		
No. of sources =	No data available, floor was set to be equivalent to MACT floor for existing boilers and process heaters at major sources	
No. in MACT floor =		
Avge of top performing unit =		
Std Deviation of top performing unit =		
Skewness =		
Kurtosis =		
SE Skewness		
Skewness Test		
SE Kurtosis		
Kurtosis Test		
Number of test runs =		
Number of test runs that contained non-detect values		
Highest test run =		
99% t-statistic for UPL		
99% t-statistic for UL		
99% UPL of top performing unit (test runs) =		
99% UL of top performing unit (test runs) =		

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix C-2: UPL Calculated Emission Limits for CO at NEW Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**CO (ppm @ 3% O2)**	**CO (ppm @ 3% O2)**
Coal		
No. of sources =	1	1
No. in MACT floor =	1	1
Avge of top performing unit =	2.16E+02	5.33E+00
Std Deviation of top performing unit =	7.40E+01	3.91E-01
Skewness =	-1.60	-1.66
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	0	0
Highest test run =	2.68E+02	5.59E+00
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top performing unit (test runs) =	6.37E+02	1.91E+03
99% UL of top performing unit (test runs) =	5.53E+02	1.22E+03
Biomass		
No. of sources =	1	1
No. in MACT floor =	1	1
Avge of top performing unit =	3.86E+01	3.60E+00
Std Deviation of top performing unit =	1.39E+01	4.15E-01
Skewness =	-1.53	-1.62
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	0	0
Highest test run =	4.88E+01	3.89E+00
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top performing unit (test runs) =	1.18E+02	3.87E+02
99% UL of top performing unit (test runs) =	1.02E+02	2.41E+02

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix C-2: UPL Calculated Emission Limits for CO at NEW Units

MACT Floor by Fuel Type

	Reported Values	LN(reported values)
Parameters	**CO (ppm @ 3% O2)**	**CO (ppm @ 3% O2)**
Liquid		
No. of sources =	1	1
No. in MACT floor =	1	1
Avge of top performing unit =	6.43E-01	-4.42E-01
Std Deviation of top performing unit =	4.04E-02	6.34E-02
Skewness =	-0.72	-0.80
Kurtosis =	#DIV/0!	#DIV/0!
SE Skewness	1.41	1.41
Skewness Test	normal	normal
SE Kurtosis	2.83	2.83
Kurtosis Test	#DIV/0!	#DIV/0!
Number of test runs =	3	3
Number of test runs that contained non-detect values	0	0
Highest test run =	6.80E-01	-3.86E-01
99% t-statistic for UPL	6.96E+00	6.96E+00
99% t-statistic for UL	4.54E+00	4.54E+00
99% UPL of top performing unit (test runs) =	8.73E-01	9.21E-01
99% UL of top performing unit (test runs) =	8.27E-01	8.57E-01

Yellow highlight indicates the distribution (either normal or lognormal)

Appendix D-1: Permitted Biomass Boilers in PA and WI with Mechanical Control Devices

Percent of Area Source boilers >10 mmBtu/hr with multiclone control:	92%

Wisconsin Dept. of Natural Resources Permit Database: List of Area Source Boilers firing Biomass

FACILITY ID	FACILITY NAME	DEVICE	SCC_5digit	Unit Type	Sector	Fuel	Fuel Category	Rated Heat Input Capacity (mmBtu/hr)	ControlCategory	Area Source Boilers (less than 10 mmBtu/hr Heat Input)	Area Source Boilers (greater than 10 mmBtu/hr Heat Input)	SIC Code
632105430	SCHROEDERS FLOWERS,INC.	B01	103009	External Combustion Boilers	Commercial /Institutional	Wood/Bark Waste	solidB	8		X		
241472770	FRANTZ COMPANY, INC.	B1	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	6.6		X		2421
632105430	PARK FALLS HIGH SCHOOL	B01	103009	External Combustion Boilers	Commercial /Institutional	Wood/Bark Waste	solidB	8.4	multiclone	X		
802036950	BAYSIDE TIMBER CORPORATION	B21	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	12			X	2421
125012360	WALNUT HOLLOW FARM	B04	103009	External Combustion Boilers	Commercial /Institutional	Wood/Bark Waste	solidB	11.3	multiclone		X	
603010870	BARRON SENIOR HIGH SCHOOL	B20	103009	External Combustion Boilers	Commercial /Institutional	Wood/Bark Waste	solidB	16.1	multiclone		X	
764123360	PUKALL LUMBER CO., INC.	B01	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	10	multiclone		X	2421
858009460	JOHNSON TIMBER CORPORATION	B20	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	12	multiclone		X	2421
610046690	NORTHWEST HARDWOODS-Dorchester	B21	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	15.7	multiclone		X	2421
627024970	FOREMOST FARMS USA	B24	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	18	multiclone		X	2022
764048780	NAGEL LUMBER CO INC	B20	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	52	multiclone		X	2421
851034800	BIEWER WISCONSIN SAWMILL	B20	102009	External Combustion Boilers	Industrial	Wood/Bark Waste	solidB	55.6	multiclone		X	2421

Appendix D-1: Permitted Biomass Boilers in PA and WI with Mechanical Control Devices

Pennsylvania Department of Environmental Protection: List of Area Source Boilers firing Biomass

Primary Facility Name	County Name	Fuel Category	Source Id	Source name	Rated Input mmBTU/Hr	ControlCategory	Area Source Boilers (less than 10 mmBtu/hr Heat Input)	Area Source Boilers (greater than 10 mmBtu/hr Heat Input)	Major Source by SIC	SIC	Sector
DEER PARK LUMBER/DEER PARK MFG PLT	Wyoming	solidB	31	WOODFIRED BOILER	8.7	cyclone	X			2421	Industrial
ALLEGHENY WOOD PRODUCTS	Clarion	solidB	31	WOOD FIRED BOILER	25	multiclone		X		2421	Industrial
PA DPW/WARREN STATE HOSP	Warren	solidB	31	BOILER: WOOD-FIRED	30	multiclone		X			Institutional
WEABER INC/SOUTH ANNVILLE TWP	Lebanon	solidB	31	BOILER	46	multiclone		X		2421	Industrial

Appendix D-2: Permitted Area Source Coal Boilers in PA with Mechanical Control Devices

Percent of Area Source boilers >10 mmBtu/hr with mechanical collector, cyclone, multiclone control: 47%

Pennsylvania Department of Environmental Protection: List of Area Source Boilers firing Coal

Primary Facility Name	County Name	Fuel Category	Source Id	Source name	Rated Input mmBTU/Hr	Control Category	Area Source Boilers (less than 10 mmBtu/hr Heat Input)	Area Source Boilers (greater than 10 mmBtu/hr Heat Input)	Major Source by SIC	Sector
PA DEPT OF MILITARY /FT INDIANTOWN GAP	Lebanon	solidC	032A	84 RES ANTHRACITE BOILERS	9.6		X			
CONEMAUGH VALLEY MEM/JOHNSTOWN	Cambria	solidC	031	CNB TRI FUEL BOILER 1	14.9	BRESLOVE SEPARATOR		X		Institutional
CONEMAUGH VALLEY MEM/JOHNSTOWN	Cambria	solidC	032	CNB TRI FUEL BOILER 2	14.9	BRESLOVE SEPARATOR		X		Institutional
GROVE CITY COLL/GROVE CITY		solidC	032	TRI-FUEL BOILER 233B	20.9			X		Institutional
GROVE CITY COLL/GROVE CITY		solidC	031	TRI-FUEL BOILER 234B	20.9			X		Institutional
PA DEPT OF CORR/GRATERFORD SCI	Montgomery	solidC	041	ANTHRACITE BOILER 1	21.2			X		Institutional
PA DEPT OF CORR/GRATERFORD SCI	Montgomery	solidC	042	ANTHRACITE BOILER 2	21.2			X		Institutional
PA DPW/ALLENTOWN STATE HOSP	Lehigh	solidC	031	KEELER BOILER	13.4	collector		X		Institutional
PA DPW/ALLENTOWN STATE HOSP	Lehigh	solidC	034	KEELER BOILER	13.4	collector		X		Institutional
PA DPW/ALLENTOWN STATE HOSP	Lehigh	solidC	032	KEELER BOILER	13.4	collector		X		Institutional
PA DPW/CLARKS SUMMIT STATE HOSP	Lackawanna	solidC	031	BOILER 1	24.6			X		Institutional
PA DPW/CLARKS SUMMIT STATE HOSP	Lackawanna	solidC	032	BOILER 2	24.6			X		Institutional
ST VINCENT COLL/LATROBE CAMPUS	Westmoreland	solidC	031	TRI-FUEL BOILER #1 - DOES NOT BURN OIL.	16.7	BRESLOVE SEPARATOR		X		Institutional
ST VINCENT COLL/LATROBE CAMPUS	Westmoreland	solidC	032	TRI-FUEL BOILER #2 - DOES NOT BURN OIL	16.7	BRESLOVE SEPARATOR		X		Institutional
SUSQUEHANNA UNIV/SELINSGROVE CAMPUS	Snyder	solidC	031	E KEELER BOILER 1	20			X		Institutional
SUSQUEHANNA UNIV/SELINSGROVE CAMPUS	Snyder	solidC	032	E KEELER BOILER 2	20			X		Institutional

Appendix D-3: Distribution of Control Devices at Area Source Boilers in the 2008 Combustion Survey

Table 1 - Small Area Source Boilers (< 10 mmBtu/hr)

Fuel Category	Control Device	Number of Units with Control Device	% of Total Units in Subcategory with Control Device	# of Units with Common Stack
Biomass 11 boilers	Cyclone or Multiclone	4	36%	0
	Cyclone or Multiclone/Electrified Filter Bed (EFB)	0	0%	0
	Electrostatic Precipitator	0	0%	0
	No HAP APCD Control	7	64%	2
	Venturi Scrubber	0	0%	0
	Wet Scrubber	0	0%	0
Coal 0 boilers	Cyclone or Multiclone	0	-	0
	Dry ScrubberElectrostatic Precipitator	0	-	0
	Electrostatic Precipitator	0	-	0
	Fabric Filter	0	-	0
	Fabric Filter/Dry Srubber (Lime Injection)/SNCR	0	-	0
	Fabric FilterDry Sorbent Injection	0	-	0
	Fabric FilterWet Scrubber	0	-	0
	No HAP APCD Control	0	-	0
	Venturi Scrubber	0	-	0
	Wet Scrubber	0	-	0
Liquid 113 boilers	Cyclone or Multiclone	0	0%	0
	Fabric Filter	0	0%	0
	No HAP APCD Control	113	100%	11
	Wet Scrubber	0	0%	0

Table 2 - Large (>= 10 mmBtu/hr) and Unknown Size Area Source Boilers

Fuel Category	Control Device	Number of Units with Control Device	% of Total Units in Subcategory with Control Device	# of Units with Common Stack
Biomass 93 boilers	Cyclone or Multiclone	43	46%	5
	Cyclone or Multiclone/Electrified Filter Bed (EFB)	2	2%	2
	Electrostatic Precipitator	27	29%	4
	No HAP APCD Control	18	19%	2
	Venturi Scrubber	1	1%	0
	Wet Scrubber	2	2%	0
Coal 97 boilers	Cyclone or Multiclone	16	16%	6
	Dry ScrubberElectrostatic Precipitator	1	1%	0
	Electrostatic Precipitator	19	20%	13
	Fabric Filter	28	29%	11
	Fabric Filter/Dry Srubber (Lime Injection)/SNCR	1	1%	0
	Fabric FilterDry Sorbent Injection	3	3%	0
	Fabric FilterWet Scrubber	1	1%	0
	No HAP APCD Control	20	21%	11
	Venturi Scrubber	5	5%	5
	Wet Scrubber	3	3%	2
Liquid 330 boilers	Cyclone or Multiclone	4	1%	1
	Fabric Filter	3	1%	0
	No HAP APCD Control	322	98%	78
	Wet Scrubber	1	0%	1

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
ARAnthonyTimberlandBearden	Babcock-Wilcox #1 (SN-02)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBearden	Babcock-Wilcox #2 (SN-03)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBearden	Hurst #4 (SN-22)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBearden	Hurst Hybrid #3 (SN-01)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBeirne	Boiler #1 (SN-13A)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBeirne	Boiler #2 (SN-13B)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandBeirne	Boiler #3 (SN-13C)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandMalvern	Wood-Fired Boiler #1 (SN-18)	Biomass	Cyclone or Multiclone
ARAnthonyTimberlandMalvern	Wood-Fired Boiler #2 (SN-19)	Biomass	Cyclone or Multiclone
ARArmstrongWarren	SN-13	Biomass	Cyclone or Multiclone
ARTravisLumberMansfield	Boiler No. 1	Biomass	Cyclone or Multiclone
ARTravisLumberMansfield	Boiler No. 2	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- BAT	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- FM	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- PLY	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- PM	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- RM	Biomass	Cyclone or Multiclone
IABertchCabinet	Boiler- TIM	Biomass	Cyclone or Multiclone
INKoetterWoodworking	EU-01C	Biomass	Cyclone or Multiclone
KYArmstrong	01	Biomass	Cyclone or Multiclone
KYArmstrong	02	Biomass	Cyclone or Multiclone
MNMarvin	Boiler 3, EU 012	Biomass	Cyclone or Multiclone
MNPolyFoam	EU003	Biomass	Cyclone or Multiclone
NCArmstrongStatesville	ES-B-2	Biomass	Cyclone or Multiclone
NCThomasvilleFurnitureC-M-W-SB	ESBL1	Biomass	Cyclone or Multiclone
NCThomasvilleFurnitureC-M-W-SB	ESBL3	Biomass	Cyclone or Multiclone
NCThomasvilleFurnitureLenoir	ESBL1	Biomass	Cyclone or Multiclone
OHHartzell	B101	Biomass	Cyclone or Multiclone
ORBlueMountainLumber	Wellons Wood Fired Boiler	Biomass	Cyclone or Multiclone
ORColumbiaForestKlamathFalls	BLR-S	Biomass	Cyclone or Multiclone
ORInterforPacificGilchrist	B-1	Biomass	Cyclone or Multiclone
ORInterforPacificGilchrist	B-2	Biomass	Cyclone or Multiclone
ORMalheurLumber	Boiler 1	Biomass	Cyclone or Multiclone
ORMalheurLumber	Boiler 2	Biomass	Cyclone or Multiclone

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
ORSouthCoastLumberBrookings	Wellons Hogged Fuel Boiler	Biomass	Cyclone or Multiclone
SCCouncilEnergyOrangeburg	Boiler 1	Biomass	Cyclone or Multiclone
SCCouncilEnergyOrangeburg	Boiler 2	Biomass	Cyclone or Multiclone
SCJohnstonLumberMill	06	Biomass	Cyclone or Multiclone
TNArmstrongHardwood	Boiler #4 - idle	Biomass	Cyclone or Multiclone
TNArmstrongHardwood	Boiler #5	Biomass	Cyclone or Multiclone
TNArmstrongHardwood	Boiler #6	Biomass	Cyclone or Multiclone
TNLaZBoyTN	72-0049-01	Biomass	Cyclone or Multiclone
TNLaZBoyTN	72-0049-02	Biomass	Cyclone or Multiclone
TXClemsa	BLR1	Biomass	Cyclone or Multiclone
TXClemsa	BLR2	Biomass	Cyclone or Multiclone
TXClemsa	HURSTBLR	Biomass	Cyclone or Multiclone
TXSniderIndustriesMarshall	BLR-13	Biomass	Cyclone or Multiclone
KYCoxInterior	WB1	Biomass	Cyclone or Multiclone/Electrified Filter Bed (EFB)
KYCoxInterior	WB2	Biomass	Cyclone or Multiclone/Electrified Filter Bed (EFB)
ARArmstrongWarren	SN-41	Biomass	Electrostatic Precipitator
IDPotlatchForestProductsCorpPostFalls	Sanderdust Fired Boiler	Biomass	Electrostatic Precipitator
IDStimsonLumberCoPriestRiver	HFB-1 (EPI)	Biomass	Electrostatic Precipitator
MEBoralexAshland	Boiler #1	Biomass	Electrostatic Precipitator
MEBoralexFortFairfield	Boiler #1	Biomass	Electrostatic Precipitator
MEBoralexShermanStacyville	Boiler #1	Biomass	Electrostatic Precipitator
MEGreenvilleSteamCo	1A	Biomass	Electrostatic Precipitator
MEWorcesterEnergy	Boiler 3	Biomass	Electrostatic Precipitator
MICadillacRenewableEnergy	Main Boiler	Biomass	Electrostatic Precipitator
MIGraylingGeneratingStation	Boiler1	Biomass	Electrostatic Precipitator
MIVikingEnergyMcBain	19313	Biomass	Electrostatic Precipitator
MIVikingEnergyofLincoln	Boiler1	Biomass	Electrostatic Precipitator
MNMarvin	Boiler 5, EU 014	Biomass	Electrostatic Precipitator
MNMarvin	Boiler 6, EU 015	Biomass	Electrostatic Precipitator
NYBoralexChateaugay	Boiler #1	Biomass	Electrostatic Precipitator
ORBiomassOneWhiteCity	NBLR1	Biomass	Electrostatic Precipitator
ORBiomassOneWhiteCity	SBLR1	Biomass	Electrostatic Precipitator
ORDouglasCounty	HOG FUEL BOILER	Biomass	Electrostatic Precipitator
ORStimsonLumberTillamook	Boiler 1	Biomass	Electrostatic Precipitator
ORStimsonLumberTillamook	Boiler 2	Biomass	Electrostatic Precipitator
TNArmstrongHardwood	Boiler #7	Biomass	Electrostatic Precipitator

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
TNJackDaniels	Boiler #6	Biomass	Electrostatic Precipitator
TNJackDaniels	Boiler #7	Biomass	Electrostatic Precipitator
WABoiseKettleFallsLumber	B1	Biomass	Electrostatic Precipitator
WAInterforPacificPortAngeles	BLR-3012	Biomass	Electrostatic Precipitator
WAPortAngelesHardwood	1	Biomass	Electrostatic Precipitator
WAStimsonLumber	Hog Fuel Boiler	Biomass	Electrostatic Precipitator
ARIdahoTimber	Wood Fired Boiler	Biomass	No HAP APCD Control
GASierraPineAdel	SPADBL01	Biomass	No HAP APCD Control
IDStimsonLumberCoPriestRiver	HFB-2 (Wellons)	Biomass	No HAP APCD Control
INJasperDesk	UB 1	Biomass	No HAP APCD Control
INKoetterWoodworking	EU-01A	Biomass	No HAP APCD Control
INKoetterWoodworking	EU-01B	Biomass	No HAP APCD Control
MEWorcesterEnergy	Boiler 1	Biomass	No HAP APCD Control
MEWorcesterEnergy	Boiler 2	Biomass	No HAP APCD Control
MOArmstrong1278	1000 HP Wood Fired Boiler	Biomass	No HAP APCD Control
MOArmstrong1278	150 HP Wood Fired Boiler	Biomass	No HAP APCD Control
MOArmstrong1278	350 HP Wood Fired Boiler	Biomass	No HAP APCD Control
MOImperial Products Royal Oak	EP24	Biomass	No HAP APCD Control
MSArmstrongVicksburg	Hurst Boiler #1	Biomass	No HAP APCD Control
MSArmstrongVicksburg	Hurst Boiler #2	Biomass	No HAP APCD Control
MSOrleansFurnitureColumbia	Boiler	Biomass	No HAP APCD Control
MSTriCWood	Kewanee	Biomass	No HAP APCD Control
ORCollinsPineCoLakeview	Boiler 1	Biomass	No HAP APCD Control
ORCollinsPineCoLakeview	Boiler 2	Biomass	No HAP APCD Control
ORColumbiaForestKlamathFalls	BLR-N	Biomass	No HAP APCD Control
SCCarolinaFurnitureWorks	001	Biomass	No HAP APCD Control
SCCarolinaFurnitureWorks	003	Biomass	No HAP APCD Control
SCIFCOSystems	ACD	Biomass	No HAP APCD Control
WASimpsonDoorCompany	EU-1	Biomass	No HAP APCD Control
WVArmstrongHardwoodFlooringWV	Boiler 01	Biomass	No HAP APCD Control
WVArmstrongHardwoodFlooringWV	Boiler 02	Biomass	No HAP APCD Control
GARayonierWood317	PB01	Biomass	Venturi Scrubber
IDBAFRexburg	Kipper Boiler	Biomass	Wet Scrubber
ORPacificWoodLaminatesBrookings	Riley Hogged Fuel Boiler (PH2)	Biomass	Wet Scrubber
INCrawfordsvilleElectric	Boiler #5	Coal	Cyclone or Multiclone

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
INGriffinIndustries	Boiler 02	Coal	Cyclone or Multiclone
INMuscatatuckUTC	Boiler 2	Coal	Cyclone or Multiclone
MITRWSaginaw	EUBOILER3	Coal	Cyclone or Multiclone
MNWillmarMunicipal	EU 003	Coal	Cyclone or Multiclone
NCThomasvilleFurnitureC-M-W-SB	ESBL2	Coal	Cyclone or Multiclone
NCThomasvilleFurnitureLenoir	ESBL2	Coal	Cyclone or Multiclone
PARieterAuto	034	Coal	Cyclone or Multiclone
PARieterAuto	035	Coal	Cyclone or Multiclone
VAMohawkLees	B7	Coal	Cyclone or Multiclone
WIHillsFarmMadison	600332	Coal	Cyclone or Multiclone
WIHillsFarmMadison	600336	Coal	Cyclone or Multiclone
WIUWRiverFalls	B0001853	Coal	Cyclone or Multiclone
WIUWRiverFalls	B0001854	Coal	Cyclone or Multiclone
WIUWSuperior	B1826	Coal	Cyclone or Multiclone
WIUWSuperior	B1827	Coal	Cyclone or Multiclone
ILSouthernIllinoisPowerCoop	Marion Unit 04	Coal	Dry ScrubberElectrostatic Precipitator
IAMidAmericanEnergyRiverside393	Boilers 7 & 8	Coal	Electrostatic Precipitator
INCrawfordsvilleElectric	Boiler #6	Coal	Electrostatic Precipitator
INLawrenceburgDistillers	EU-96, # 6 Boiler	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER1	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER11	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER12	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER13	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER14	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER2	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER3	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER4	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER5	Coal	Electrostatic Precipitator
MIEckertMooresStationLansing	EUBOILER6	Coal	Electrostatic Precipitator
MIEricksonStationLansing	Erickson Main Boiler	Coal	Electrostatic Precipitator
NYAESGreenidgeDresden	Boiler 4	Coal	Electrostatic Precipitator
NYAESGreenidgeDresden	Boiler 5	Coal	Electrostatic Precipitator

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
WIBlountGeneratingStation	Boiler 7	Coal	Electrostatic Precipitator
WIBlountGeneratingStation	Boiler 8	Coal	Electrostatic Precipitator
WIBlountGeneratingStation	Boiler 9	Coal	Electrostatic Precipitator
AKClearAirForceStation	EU ID 1	Coal	Fabric Filter
AKClearAirForceStation	EU ID 2	Coal	Fabric Filter
AKClearAirForceStation	EU ID 3	Coal	Fabric Filter
CACAPortlandCementColton	Cogen	Coal	Fabric Filter
COWNClarkStation	Unit 1	Coal	Fabric Filter
COWNClarkStation	Unit 2	Coal	Fabric Filter
GAMohawk	BL06	Coal	Fabric Filter
GAMohawk	BL07	Coal	Fabric Filter
ILWesternILUniv	Boiler #2	Coal	Fabric Filter
ILWesternILUniv	Boiler #3	Coal	Fabric Filter
INFritoLay	CP-10A	Coal	Fabric Filter
MASaintGobain	EU-523-01	Coal	Fabric Filter
MNOrderofStBenedict	EU004 Boiler 4	Coal	Fabric Filter
NELonDWrightStation	6B	Coal	Fabric Filter
NELonDWrightStation	7B	Coal	Fabric Filter
OHCollegeofWooster	B003	Coal	Fabric Filter
OHDenisonUniversity	B&W Boiler (B001)	Coal	Fabric Filter
OHKyklosBearing	B001	Coal	Fabric Filter
OHKyklosBearing	B002	Coal	Fabric Filter
TNTennesseeTech	B-01	Coal	Fabric Filter
TNTennesseeTech	B-05	Coal	Fabric Filter
VAUofRichmond	#1	Coal	Fabric Filter
VAUofRichmond	#2	Coal	Fabric Filter
VAUofRichmond	#3	Coal	Fabric Filter
VAUofRichmond	#4	Coal	Fabric Filter
WIWinnebagoMHI	600426	Coal	Fabric Filter
WIWinnebagoMHI	625719	Coal	Fabric Filter
WIWinnebagoMHI	625720	Coal	Fabric Filter
NYAESGreenidgeDresden	Boiler 6	Coal	Fabric Filter/Dry Srubber (Lime Injection)/SNCR
ILSouthernIllinoisPowerCoop	Marion Unit 123	Coal	Fabric FilterDry Sorbent Injection
INGriffinIndustries	Boiler 01	Coal	Fabric FilterDry Sorbent Injection
KYConstellationSpiritsBardstown	Boiler 2	Coal	Fabric FilterDry Sorbent Injection
KYUnionUnderwear	2	Coal	Fabric FilterWet Scrubber
INMuscatatuckUTC	Boiler 4	Coal	No HAP APCD Control
INStJoseph	Boiler #1 266 HP Erie City Boiler	Coal	No HAP APCD Control
INStJoseph	Boiler #2 375 HP Keeler Boiler	Coal	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
INStJoseph	Boiler #3 400 HP Wicks Boiler	Coal	No HAP APCD Control
MNOrderofStBenedict	EU001 Boiler 1	Coal	No HAP APCD Control
MNOrderofStBenedict	EU002 Boiler 2	Coal	No HAP APCD Control
MNWillmarMunicipal	EU 002	Coal	No HAP APCD Control
PAEriecoke	#1	Coal	No HAP APCD Control
PAEriecoke	#2	Coal	No HAP APCD Control
PALockheedMartin	36	Coal	No HAP APCD Control
PALockheedMartin	38	Coal	No HAP APCD Control
WICapitolHPMadison	600328	Coal	No HAP APCD Control
WICapitolHPMadison	600340	Coal	No HAP APCD Control
WINorthernWisconsinCenterCippewaFalls	600618	Coal	No HAP APCD Control
WINorthernWisconsinCenterCippewaFalls	600619	Coal	No HAP APCD Control
WINorthernWisconsinCenterCippewaFalls	600644	Coal	No HAP APCD Control
WIUWPlattevilleCentralHeating	B0001057 (#3 Boiler)	Coal	No HAP APCD Control
WIUWPlattevilleCentralHeating	B0001058 (#2 Boiler)	Coal	No HAP APCD Control
WIUWStoutMenmon	600611	Coal	No HAP APCD Control
WIUWStoutMenmon	600623	Coal	No HAP APCD Control
OHWausauPaperTowel	No. 1 Boiler	Coal	Venturi Scrubber
OHWausauPaperTowel	No. 2 Boiler	Coal	Venturi Scrubber
OHWausauPaperTowel	No. 3 Boiler	Coal	Venturi Scrubber
OHWausauPaperTowel	No. 4 Boiler	Coal	Venturi Scrubber
WIProctorGamble	BoHo #6	Coal	Venturi Scrubber
COWesternSugarCo-op	B&W Coal Boiler #1	Coal	Wet Scrubber
COWesternSugarCo-op	B&W Coal Boiler #2	Coal	Wet Scrubber
OHCantonForge	B001	Coal	Wet Scrubber
CTPfizer	Permit # 0001	Liquid	Cyclone or Multiclone
MAMultiLayerCoating	NB2-1	Liquid	Cyclone or Multiclone
MAMultiLayerCoating	NB2-2	Liquid	Cyclone or Multiclone
WIUWRiverFalls	B0001911	Liquid	Cyclone or Multiclone
GAMohawk	BL03	Liquid	Fabric Filter
GAMohawk	BL04	Liquid	Fabric Filter
GAMohawk	BL05	Liquid	Fabric Filter
AKAlaskanBrewingCo	Cleaver-Brooks Boiler	Liquid	No HAP APCD Control
AKAlaskanBrewingCo	McKenna Boiler	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 14 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 14 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 141 Drill Rig Boiler 1	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
AKBPXATDR	Doyon 141 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 15 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 15 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 16 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 16 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 19 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Doyon 19 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Doyon Arctic Fox Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Doyon Arctic Fox Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 14E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 14E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 16E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 16E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 17E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 17E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 18E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 18E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 19E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 19E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 22E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 22E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 245 Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 245 Boiler 2	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
AKBPXATDR	Nabors Drill Rig 27E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 27E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 28E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 28E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 2ES Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 2ES Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 33E Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 33E Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 3S Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 3S Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 429 Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 429 Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 4ES Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 4ES Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 7ES Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 7ES Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 9ES Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nabors Drill Rig 9ES Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nordic 1 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nordic 1 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nordic 2 Drill Rig Boiler 1	Liquid	No HAP APCD Control
AKBPXATDR	Nordic 2 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKBPXATDR	Nordic 3 Drill Rig Boiler 1	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
AKBPXATDR	Nordic 3 Drill Rig Boiler 2	Liquid	No HAP APCD Control
AKClearAirForceStation	EU ID 23	Liquid	No HAP APCD Control
AKClearAirForceStation	EU ID 24	Liquid	No HAP APCD Control
AKClearAirForceStation	EU ID 34	Liquid	No HAP APCD Control
AKCookInletPipeline-DriftRiver	EU ID 1	Liquid	No HAP APCD Control
AKCookInletPipeline-DriftRiver	EU ID 2	Liquid	No HAP APCD Control
AKCookInletPipeline-DriftRiver	EU ID 3	Liquid	No HAP APCD Control
AKCookInletPipeline-DriftRiver	Small Crude Oil Boiler #1	Liquid	No HAP APCD Control
AKCookInletPipeline-DriftRiver	Small Crude Oil Boiler #2	Liquid	No HAP APCD Control
AKHeclaGreensCreekJuneau	Volcano Boiler	Liquid	No HAP APCD Control
AKHeclaGreensCreekJuneau	WB-01 Boiler	Liquid	No HAP APCD Control
AKHeclaGreensCreekJuneau	WB-02 Boiler	Liquid	No HAP APCD Control
AKHeclaGreensCreekJuneau	WB-03 Boiler	Liquid	No HAP APCD Control
AKMarathonKenai11	Rig Boiler	Liquid	No HAP APCD Control
AKPeakOilfield	CB 5000 1	Liquid	No HAP APCD Control
AKPeakOilfield	CB 5000 2	Liquid	No HAP APCD Control
AKPeakOilfield	Model 200	Liquid	No HAP APCD Control
AKPeakOilfield	Model 400	Liquid	No HAP APCD Control
AKUnisea37	EU ID 1	Liquid	No HAP APCD Control
AKUnisea37	EU ID 10	Liquid	No HAP APCD Control
AKUnisea37	EU ID 11	Liquid	No HAP APCD Control
AKUnisea37	EU ID 12	Liquid	No HAP APCD Control
AKUnisea37	EU ID 13	Liquid	No HAP APCD Control
AKUnisea37	EU ID 15	Liquid	No HAP APCD Control
AKUnisea37	EU ID 2	Liquid	No HAP APCD Control
AKUnisea37	EU ID 23	Liquid	No HAP APCD Control
AKUnisea37	EU ID 24	Liquid	No HAP APCD Control
AKUnisea37	EU ID 4	Liquid	No HAP APCD Control
AKUnisea37	EU ID 5	Liquid	No HAP APCD Control
AKUnisea37	EU ID 9	Liquid	No HAP APCD Control
ALBFGoodrich	T108	Liquid	No HAP APCD Control
ALBFGoodrich	T16493	Liquid	No HAP APCD Control
ALBFGoodrich	T16501	Liquid	No HAP APCD Control
CAHitachiGST	Source 307 - Boiler 2	Liquid	No HAP APCD Control
CAHitachiGST	Source 320 - Boiler 1	Liquid	No HAP APCD Control
CAHitachiGST	Source 5 - Boiler 5	Liquid	No HAP APCD Control
COClearSpringRanch	1	Liquid	No HAP APCD Control
COClearSpringRanch	2	Liquid	No HAP APCD Control
COClearSpringRanch	3	Liquid	No HAP APCD Control
COClearSpringRanch	4	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
CTJacobsVehicleSystemInc	EMU-020 / (S/N OL05317)	Liquid	No HAP APCD Control
CTJacobsVehicleSystemInc	EMU-021 / (S/N OL05318)	Liquid	No HAP APCD Control
CTUCONN-Storrs	EMU-011	Liquid	No HAP APCD Control
CTUCONN-Storrs	EMU-012	Liquid	No HAP APCD Control
CTUCONN-Storrs	EMU-013	Liquid	No HAP APCD Control
CTUCONN-Storrs	EMU-017	Liquid	No HAP APCD Control
CTUCONN-Storrs	EMU-558	Liquid	No HAP APCD Control
CTYaleSterling	4 Small #2 Fuel Oil Boilers <10MMBTU/Hr	Liquid	No HAP APCD Control
CTYaleSterling	SPB5	Liquid	No HAP APCD Control
CTYaleSterling	SPB6	Liquid	No HAP APCD Control
CTYaleSterling	SPB7	Liquid	No HAP APCD Control
DEEIDupontWilmington	Boiler #1	Liquid	No HAP APCD Control
DEEIDupontWilmington	Boiler #2	Liquid	No HAP APCD Control
DEEIDupontWilmington	Boiler #3	Liquid	No HAP APCD Control
DEEIDupontWilmington	Boiler #4	Liquid	No HAP APCD Control
DEEIDupontWilmington	Boiler #6	Liquid	No HAP APCD Control
GApowerpartners	B001	Liquid	No HAP APCD Control
GApowerpartners	B002	Liquid	No HAP APCD Control
GARhodiaIncWinder	BR01	Liquid	No HAP APCD Control
GARhodiaIncWinder	BR02	Liquid	No HAP APCD Control
GASpringsGlobalGriffin	#1 BOILER CLEVER BROOKS #5585	Liquid	No HAP APCD Control
GASpringsGlobalGriffin	#3 BOILER	Liquid	No HAP APCD Control
GASpringsGlobalGriffin	#5 Nebraska	Liquid	No HAP APCD Control
IAJohn Deere-Waterloo	6130-03	Liquid	No HAP APCD Control
IARockwellCollinsCedarRapids	105-069	Liquid	No HAP APCD Control
IARockwellCollinsCedarRapids	105-193	Liquid	No HAP APCD Control
IARockwellCollinsCedarRapids	106-150	Liquid	No HAP APCD Control
IAStLukes	B-4	Liquid	No HAP APCD Control
IAStLukes	B-5	Liquid	No HAP APCD Control
IAStLukes	B-6	Liquid	No HAP APCD Control
IL3MCordova	Boiler #1	Liquid	No HAP APCD Control
IL3MCordova	Boiler #2	Liquid	No HAP APCD Control
IL3MCordova	Boiler #3	Liquid	No HAP APCD Control
ILACHFoodChampaign	#2 Boiler	Liquid	No HAP APCD Control
ILACHFoodChampaign	#4 Boiler	Liquid	No HAP APCD Control
ILACHFoodChampaign	#5 Boiler	Liquid	No HAP APCD Control
ILExelonGeneration	1AS01B Unit 1 Aux Boiler	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
ILExelonGeneration	2AS01B Unit 2 Aux Boiler	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-1	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-2	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-3	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-4	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-5	Liquid	No HAP APCD Control
ILOlinCorpEastAlton	B-6	Liquid	No HAP APCD Control
ILWesternILUniv	Boiler #5	Liquid	No HAP APCD Control
ILWesternILUniv	Boiler #6	Liquid	No HAP APCD Control
ILWesternILUniv	Boiler #7	Liquid	No HAP APCD Control
INBFGoodrich	Boiler #1	Liquid	No HAP APCD Control
INBFGoodrich	Boiler #2	Liquid	No HAP APCD Control
INBFGoodrich	Boiler #3	Liquid	No HAP APCD Control
INBFGoodrich	Boiler #5	Liquid	No HAP APCD Control
INBHMMEnergyIMCCentralEnergyPlant	1	Liquid	No HAP APCD Control
INBHMMEnergyIMCCentralEnergyPlant	2	Liquid	No HAP APCD Control
INConopcoIncUnileverHammond	Boiler 4	Liquid	No HAP APCD Control
INConopcoIncUnileverHammond	Hydrotherm #2	Liquid	No HAP APCD Control
INConopcoIncUnileverHammond	Powerhouse Boiler 1	Liquid	No HAP APCD Control
INCovanceLabsGreenfield	254-1	Liquid	No HAP APCD Control
INCovanceLabsGreenfield	254-2	Liquid	No HAP APCD Control
INCovanceLabsGreenfield	254-3	Liquid	No HAP APCD Control
INCovanceLabsGreenfield	254-4	Liquid	No HAP APCD Control
INCPConnersville	Boiler 1	Liquid	No HAP APCD Control
INDukeEnergyNoblesville799	Heating Boiler	Liquid	No HAP APCD Control
INFoamexFortWayne	138706	Liquid	No HAP APCD Control
INFoamexFortWayne	138707	Liquid	No HAP APCD Control
INGoodSamaritnHospital	SEU2	Liquid	No HAP APCD Control
INGoodSamaritnHospital	SEU3	Liquid	No HAP APCD Control
INMuscatatuckUTC	Boiler 1A	Liquid	No HAP APCD Control
INMuscatatuckUTC	Boiler 3	Liquid	No HAP APCD Control
KYUnionUnderwear	1	Liquid	No HAP APCD Control
MDViennaPowerOperations	V-20	Liquid	No HAP APCD Control
MIGMPTWarren	#1 Boiler	Liquid	No HAP APCD Control
MIGMPTWarren	#2 Boiler	Liquid	No HAP APCD Control
MIGMPTWarren	#3 Boiler	Liquid	No HAP APCD Control
MIGMPTWarren	#4 Boiler	Liquid	No HAP APCD Control
MIGMPTWarren	#5 Boiler	Liquid	No HAP APCD Control
MIWesternMichiganUniversity	EUBOILER9	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
MNWaldorfCorp	EU001 (Boiler #1)	Liquid	No HAP APCD Control
MNWaldorfCorp	EU002 (Boiler #2)	Liquid	No HAP APCD Control
MNWaldorfCorp	EU003 (Boiler #3)	Liquid	No HAP APCD Control
MNWillmarMunicipal	EU 004	Liquid	No HAP APCD Control
MO3MSpringfield	EU0010 Boiler #1	Liquid	No HAP APCD Control
MO3MSpringfield	EU0020 Boiler #2	Liquid	No HAP APCD Control
MOImperial Products Royal Oak	EP27	Liquid	No HAP APCD Control
MSCooperTire1340	Cleaver-Brooks Boiler	Liquid	No HAP APCD Control
MSCooperTire1340	Springfield Boiler	Liquid	No HAP APCD Control
NCAllensCanning1414	ES-1	Liquid	No HAP APCD Control
NCAllensCanning1414	ES-2	Liquid	No HAP APCD Control
NCBridgestoneWilson	No. 1 Boiler	Liquid	No HAP APCD Control
NCBridgestoneWilson	No. 2 Boiler	Liquid	No HAP APCD Control
NCNCSU	ES-01	Liquid	No HAP APCD Control
NCNCSU	ES-02	Liquid	No HAP APCD Control
NCNCSU	ES-03	Liquid	No HAP APCD Control
NCNCSU	ES-04	Liquid	No HAP APCD Control
NCNCSU	ES-12	Liquid	No HAP APCD Control
NCNCSU	ES-13	Liquid	No HAP APCD Control
NCNCSU	ES-14	Liquid	No HAP APCD Control
NCNCSU	ES-27	Liquid	No HAP APCD Control
NCNCSU	ES-28	Liquid	No HAP APCD Control
NCNCSU	ES-31	Liquid	No HAP APCD Control
NCNCSU	ES-32	Liquid	No HAP APCD Control
NCNCSU	ES-39	Liquid	No HAP APCD Control
NCNCSU	ES-41	Liquid	No HAP APCD Control
NCNCSU	ES-42	Liquid	No HAP APCD Control
NCNCSU	ES-45	Liquid	No HAP APCD Control
NCNCSU	SEE WORKSHEETS	Liquid	No HAP APCD Control
NCRFMICRO	ESB31	Liquid	No HAP APCD Control
NCRFMICRO	ESB32	Liquid	No HAP APCD Control
NCThomasvilleFurnitureLenoir	ESBL3	Liquid	No HAP APCD Control
NCVopakRiverRd	ES-15	Liquid	No HAP APCD Control
NCVopakRiverRd	ES-21	Liquid	No HAP APCD Control
NCWadeMfg	B-1	Liquid	No HAP APCD Control
NHDartmouthCollege	EU 1 Boiler 1	Liquid	No HAP APCD Control
NHDartmouthCollege	EU 2 Boiler 2 - New	Liquid	No HAP APCD Control
NHDartmouthCollege	EU 3 Boiler 3	Liquid	No HAP APCD Control
NHDartmouthCollege	EU 4 Boiler 4	Liquid	No HAP APCD Control
NHPhillipsExeter	Boiler #3	Liquid	No HAP APCD Control
NHPhillipsExeter	Boiler #5	Liquid	No HAP APCD Control
NHPhillipsExeter	Boiler #6	Liquid	No HAP APCD Control
NJBristol-MyersSquibb1615	PAB-1 and PAB-2	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
NJButlerPrinting	U1- Leo's Bldg. Power Boiler	Liquid	No HAP APCD Control
NJButlerPrinting	U-24 Cleaver Brooks Process Boiler	Liquid	No HAP APCD Control
NJHoffmanLaRoche	E1026, BOILER #11	Liquid	No HAP APCD Control
NJHomasote	Boiler # 7	Liquid	No HAP APCD Control
NJICLCarteret	No.3 Boiler	Liquid	No HAP APCD Control
NJMcGuireAFB	Boiler #1	Liquid	No HAP APCD Control
NJMcGuireAFB	Boiler #2	Liquid	No HAP APCD Control
NJMcGuireAFB	Boiler #3	Liquid	No HAP APCD Control
NJMcGuireAFB	Boiler #4	Liquid	No HAP APCD Control
NJMcWilliamsForge	Main Boiler	Liquid	No HAP APCD Control
NJMeridianHealth1656	E1	Liquid	No HAP APCD Control
NJMeridianHealth1656	E2	Liquid	No HAP APCD Control
NJMeridianHealth1656	E3	Liquid	No HAP APCD Control
NJMonmouthCountyReclamation	U5	Liquid	No HAP APCD Control
NJMontclair2968	Aux Boiler	Liquid	No HAP APCD Control
NJMontclair2968	Temporary Boiler	Liquid	No HAP APCD Control
NJNationalMfg	Burnham	Liquid	No HAP APCD Control
NJNationalMfg	Whirl-Power	Liquid	No HAP APCD Control
NJNewWinCupMetuchen	Boiler #1	Liquid	No HAP APCD Control
NJNJAshland	E1001	Liquid	No HAP APCD Control
NJNJAshland	E1002	Liquid	No HAP APCD Control
NJNovartis	105	Liquid	No HAP APCD Control
NJOrtho-ClinicalDiagnostics	6801 (Keeler - West)	Liquid	No HAP APCD Control
NJRebtex	Kewanee	Liquid	No HAP APCD Control
NJRebtex	Superior	Liquid	No HAP APCD Control
NJStarGlo Industries	Cleaver Brooks	Liquid	No HAP APCD Control
NJStarGlo Industries	Cyclotherm - 1	Liquid	No HAP APCD Control
NJStarGlo Industries	Cyclotherm - 2	Liquid	No HAP APCD Control
NJSunocoNewark	IS4-Boilers for Office Heat-4 < 1 MMBtu/hr each	Liquid	No HAP APCD Control
NJVeolia	NJ 00005076 95	Liquid	No HAP APCD Control
NJWilliamSteinenMfg	H B Smith	Liquid	No HAP APCD Control
NJWilliamSteinenMfg	Kewanee	Liquid	No HAP APCD Control
NYAMRIRennselaer	07E01	Liquid	No HAP APCD Control
NYBarkerBros	Steam Boiler 1666 - Oil	Liquid	No HAP APCD Control
NYBASFPeerskill	B24 Boiler	Liquid	No HAP APCD Control
NYBigSixTowers	000B1	Liquid	No HAP APCD Control
NYBigSixTowers	000B2	Liquid	No HAP APCD Control
NYBigSixTowers	000B3	Liquid	No HAP APCD Control
NYBronxLebanonFulton1727	FR1	Liquid	No HAP APCD Control
NYBronxLebanonFulton1727	FR2	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
NYBronxLebanonFulton1727	FR3	Liquid	No HAP APCD Control
NYBronxLebanonFulton1727	FT1	Liquid	No HAP APCD Control
NYBronxLebanonFulton1727	FT2	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC1	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC2	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC3	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC4	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC5	Liquid	No HAP APCD Control
NYBronxLebanonGrandConcourse1726	GC6	Liquid	No HAP APCD Control
NYBronxPsychiatric	00S01	Liquid	No HAP APCD Control
NYBronxPsychiatric	00S02	Liquid	No HAP APCD Control
NYBronxPsychiatric	00S03	Liquid	No HAP APCD Control
NYBuffaloStateCollege	0001A	Liquid	No HAP APCD Control
NYBuffaloStateCollege	0001B	Liquid	No HAP APCD Control
NYBuffaloStateCollege	0001C	Liquid	No HAP APCD Control
NYBuffaloStateCollege	0001D	Liquid	No HAP APCD Control
NYInterfaceSolutions	# 5 Boiler	Liquid	No HAP APCD Control
NYKerryBioScience	Boiler 1	Liquid	No HAP APCD Control
NYKerryBioScience	Boiler 2	Liquid	No HAP APCD Control
NYKerryBioScience	Boiler 3	Liquid	No HAP APCD Control
NYKinderMorganLiquids	L-76656	Liquid	No HAP APCD Control
NYKinderMorganLiquids	L-76657	Liquid	No HAP APCD Control
NYUofRochester	0BLR3	Liquid	No HAP APCD Control
NYUofRochester	0BLR9	Liquid	No HAP APCD Control
OHAlcoaClevelandWorks	Boiler #8 (B008)	Liquid	No HAP APCD Control
OHAlcoaClevelandWorks	Boiler #9 (B009)	Liquid	No HAP APCD Control
OHBluegrassMills	B004	Liquid	No HAP APCD Control
OHBluegrassMills	B005	Liquid	No HAP APCD Control
OHBluegrassMills	B006	Liquid	No HAP APCD Control
OHCantonForge	B003	Liquid	No HAP APCD Control
OHDP&LJMStaurtStation	Unit 5	Liquid	No HAP APCD Control
OHDP&LKillen	B002	Liquid	No HAP APCD Control
OHDP&LKillen	B003	Liquid	No HAP APCD Control
OHLubrizol	B003	Liquid	No HAP APCD Control
OHP&GMiamiValley	B001 - boiler #1	Liquid	No HAP APCD Control
OHP&GMiamiValley	B001- Boiler #2	Liquid	No HAP APCD Control
OHP&GMiamiValley	B004	Liquid	No HAP APCD Control
OHP&GMiamiValley	B005	Liquid	No HAP APCD Control
OHPerstorpPolyols	B001	Liquid	No HAP APCD Control
OHTitanTire	B003	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
OHVeyanceTechnologies	B001	Liquid	No HAP APCD Control
OHVeyanceTechnologies	B004	Liquid	No HAP APCD Control
OHVeyanceTechnologies	B005	Liquid	No HAP APCD Control
OHWestLorainPlant	B003 auxiliary boiler A	Liquid	No HAP APCD Control
OHWestLorainPlant	B006 auxiliary boiler B	Liquid	No HAP APCD Control
ORHJHeinz	Boiler 7	Liquid	No HAP APCD Control
ORHJHeinz	Boiler 8	Liquid	No HAP APCD Control
ORVigor	National Bd # 6553	Liquid	No HAP APCD Control
ORWestLinn	B1	Liquid	No HAP APCD Control
PAAltadisMcAdoo	031 Boiler 1	Liquid	No HAP APCD Control
PAAltadisMcAdoo	034 Boiler 4	Liquid	No HAP APCD Control
PAAltadisMcAdoo	035 Boiler 5	Liquid	No HAP APCD Control
PAArmstrngWorld-Lancaster	Boiler #1	Liquid	No HAP APCD Control
PAArmstrngWorld-Lancaster	Boiler #2	Liquid	No HAP APCD Control
PAArmstrngWorld-Lancaster	Boiler #3	Liquid	No HAP APCD Control
PAAshlandNevilleIsland	B401	Liquid	No HAP APCD Control
PAAshlandNevilleIsland	B403	Liquid	No HAP APCD Control
PABucknellUniversity	B-037	Liquid	No HAP APCD Control
PACalumetPenreco	#1 BOILER	Liquid	No HAP APCD Control
PACalumetPenreco	#2 BOILER	Liquid	No HAP APCD Control
PACalumetPenreco	#3 BOILER	Liquid	No HAP APCD Control
PACarlisleTire	Brooks D52	Liquid	No HAP APCD Control
PACarlisleTire	BrooksD34	Liquid	No HAP APCD Control
PACroda	003	Liquid	No HAP APCD Control
PACroda	008	Liquid	No HAP APCD Control
PADartContainer	Boiler #1: ID: L78071	Liquid	No HAP APCD Control
PADartContainer	Boiler #2: ID: L84268	Liquid	No HAP APCD Control
PADDSPNewCumberland	031 Erie Boiler #1, Bldg. 86	Liquid	No HAP APCD Control
PADDSPNewCumberland	032 Erie Boiler #2, Bldg. 86	Liquid	No HAP APCD Control
PADDSPNewCumberland	033 Erie Boiler #3, Bldg. 86	Liquid	No HAP APCD Control
PADDSPNewCumberland	034 Trane Boiler #4, Bldg. 86	Liquid	No HAP APCD Control
PADel MonteBloomsburg	Cleaver Brooks Boiler #1 (031)	Liquid	No HAP APCD Control
PADel MonteBloomsburg	Cleaver Brooks Boiler #2 (032)	Liquid	No HAP APCD Control
PADel MonteBloomsburg	Cleaver Brooks Boiler #4 (034)	Liquid	No HAP APCD Control
PADel MonteBloomsburg	Cleaver Brooks Boiler #5 (035)	Liquid	No HAP APCD Control
PAHaleyPaint	031Boiler 1	Liquid	No HAP APCD Control
PAKovatch	Ford Service	Liquid	No HAP APCD Control
PAKovatch	Plant 1, 031	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
PAKovatch	Plant 1, standby	Liquid	No HAP APCD Control
PAKovatch	Plant 10	Liquid	No HAP APCD Control
PAKovatch	Plant 3, 032	Liquid	No HAP APCD Control
PAKovatch	Plant 4, 033	Liquid	No HAP APCD Control
PAKovatch	Plant 7, 034	Liquid	No HAP APCD Control
PAKovatch	Plant 7, 035	Liquid	No HAP APCD Control
PAKovatch	Plant 8	Liquid	No HAP APCD Control
PAMackTrucks	34	Liquid	No HAP APCD Control
PAMerisol	Boiler #4	Liquid	No HAP APCD Control
PANevilleChem	B013 - Boiler 6	Liquid	No HAP APCD Control
PANRGEnergyCenterPittsburgh	B001	Liquid	No HAP APCD Control
PANRGEnergyCenterPittsburgh	B002	Liquid	No HAP APCD Control
PANRGEnergyCenterPittsburgh	B003	Liquid	No HAP APCD Control
PANRGHarrisburg	Boiler #12	Liquid	No HAP APCD Control
PANRGHarrisburg	Boiler #13	Liquid	No HAP APCD Control
PANRGHarrisburg	Boiler #14	Liquid	No HAP APCD Control
PANRGHarrisburg	Boiler #15	Liquid	No HAP APCD Control
PAPPGIndustriesCarlisle	Orr & Sembower Boiler 1, Source ID 031	Liquid	No HAP APCD Control
PAPPGIndustriesCarlisle	Orr & Sembower Boiler 2, Source ID 032	Liquid	No HAP APCD Control
PAPPGIndustriesCarlisle	Orr & Sembower Boiler 3, Source ID 033	Liquid	No HAP APCD Control
PAPQChester	2 Furnace	Liquid	No HAP APCD Control
PAPQChester	4 Furnace	Liquid	No HAP APCD Control
PAPQChester	Cleaver Brooks Boiler	Liquid	No HAP APCD Control
PARieterAuto	032	Liquid	No HAP APCD Control
PARieterAuto	033	Liquid	No HAP APCD Control
PARohmHaasSpringHouse	Boiler 1	Liquid	No HAP APCD Control
PARohmHaasSpringHouse	Boiler 2	Liquid	No HAP APCD Control
PARohmHaasSpringHouse	Boiler 3	Liquid	No HAP APCD Control
PARohmHaasSpringHouse	Boiler 4	Liquid	No HAP APCD Control
PASamAdamsBrewingCo	031 - Boiler 1	Liquid	No HAP APCD Control
PASamAdamsBrewingCo	032 - Boiler 2	Liquid	No HAP APCD Control
PASamAdamsBrewingCo	033 - Boiler 3	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 1	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 10	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 2	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 3	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 6	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 7	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 8	Liquid	No HAP APCD Control
PASanofiPastuerSwiftwater	Boiler 9	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
PASartomer	B-902	Liquid	No HAP APCD Control
PASealedAirModena	031 Boiler #1	Liquid	No HAP APCD Control
PASealedAirReading	031 Boiler #1	Liquid	No HAP APCD Control
PASealedAirReading	033 Boiler #3	Liquid	No HAP APCD Control
PASuperiorTubeCoCollegeville	031 B1	Liquid	No HAP APCD Control
PASuperiorTubeCoCollegeville	032 B2	Liquid	No HAP APCD Control
PAValleyProteins	B-1	Liquid	No HAP APCD Control
PAValleyProteins	B-2	Liquid	No HAP APCD Control
SCCopeStationSC	AB-1	Liquid	No HAP APCD Control
SCCRBard	B01	Liquid	No HAP APCD Control
SCCRBard	B02	Liquid	No HAP APCD Control
SCCryovac	BL04	Liquid	No HAP APCD Control
SCCryovac	BL05	Liquid	No HAP APCD Control
SCGatesCorp2292	EU 01	Liquid	No HAP APCD Control
SCGatesCorp2292	EU 02	Liquid	No HAP APCD Control
SCIP-2301	B-1	Liquid	No HAP APCD Control
SCMillikenCedarHillPlant	BL01	Liquid	No HAP APCD Control
SCMillikenCedarHillPlant	BL02	Liquid	No HAP APCD Control
SCTeknorApexCarolinaCoFountainInn	Boiler 1	Liquid	No HAP APCD Control
SCWatereeStation	AXB1	Liquid	No HAP APCD Control
SCWilliamsStation	AXB1	Liquid	No HAP APCD Control
SCWilliamsStation	AXB2	Liquid	No HAP APCD Control
TNBridgestoneLaVergne	B1	Liquid	No HAP APCD Control
TNBridgestoneLaVergne	B2	Liquid	No HAP APCD Control
TNBridgestoneLaVergne	B3	Liquid	No HAP APCD Control
TNConAgra	Boiler #3 (50.3 MM BTU/hr)	Liquid	No HAP APCD Control
TNConAgra	Boiler #4 (50.3 MM BTU/hr)	Liquid	No HAP APCD Control
TNConAgra	Boiler #6 (30.3 MM BTU/hr)	Liquid	No HAP APCD Control
TNJackDaniels	Boiler #8	Liquid	No HAP APCD Control
TNRohmHaasChemicalsLLC	Boiler 4	Liquid	No HAP APCD Control
TNRohmHaasChemicalsLLC	Boiler 5	Liquid	No HAP APCD Control
TNSIGroup	FH 9001-A	Liquid	No HAP APCD Control
TNSIGroup	FH 9001-B	Liquid	No HAP APCD Control
TXSamsungSemi	Boiler 1	Liquid	No HAP APCD Control
TXSamsungSemi	Boiler 2	Liquid	No HAP APCD Control
TXSamsungSemi	Boiler 3	Liquid	No HAP APCD Control
TXSamsungSemi	Boiler 4	Liquid	No HAP APCD Control
TXSamsungSemi	Boiler 5	Liquid	No HAP APCD Control
VADuPontFrontRoyal	PH-B1	Liquid	No HAP APCD Control
VADuPontFrontRoyal	PH-B2	Liquid	No HAP APCD Control

Appendix D-4: Control Device Configurations Reported for Area Source Boilers in the 2008 Combustion Survey

Facility ID	Unit ID	Fuel Category	Control Device
VAMerckElkton	B-4	Liquid	No HAP APCD Control
VAMohawkLees	B5	Liquid	No HAP APCD Control
VAMohawkLees	B6	Liquid	No HAP APCD Control
WAEmeraldKalama	U-17	Liquid	No HAP APCD Control
WAFortLewisArmy	1034	Liquid	No HAP APCD Control
WAFortLewisArmy	1036	Liquid	No HAP APCD Control
WAFortLewisArmy	1037	Liquid	No HAP APCD Control
WAFortLewisArmy	11D47	Liquid	No HAP APCD Control
WAFortLewisArmy	14A51	Liquid	No HAP APCD Control
WASimpsonDoorCompany	EU-3	Liquid	No HAP APCD Control
WICelluTissueNeenah	Boiler No. 1	Liquid	No HAP APCD Control
WICelluTissueNeenah	Boiler No. 2	Liquid	No HAP APCD Control
WICelluTissueNeenah	Boiler No. 3	Liquid	No HAP APCD Control
WIHurdWindows&DoorsMedford	Main Boiler - B20	Liquid	No HAP APCD Control
WIMuleHideMfg	B21	Liquid	No HAP APCD Control
WINorthernWisconsinCenterCippewaFalls	600608	Liquid	No HAP APCD Control
WIUWStoutMenmon	1082431	Liquid	No HAP APCD Control
WIUWStoutMenmon	604683	Liquid	No HAP APCD Control
WIWausauBrokaw	Boiler #5	Liquid	No HAP APCD Control
WVKoppersFollansbee	Boiler #2	Liquid	No HAP APCD Control
OHCantonForge	B002	Liquid	Wet Scrubber

Appendix E-1: PM Emission Data Reported at Area Source Boilers in the 2008 Combustion Survey

FacilityID	UnitID	Control Device	10% Fuel Category	Average Emission Test Result (lb/mmBtu)	Number of Test Runs in Average	Below NSPS Limit (GACT)?
IDPotlatchForestProductsCorpPostFalls	Sanderdust Fired Boiler	Electrostatic Precipitator	Biomass	2.11E-03	3	yes
MEBoralexAshland	Boiler #1	Electrostatic Precipitator	Biomass	2.81E-03	3	yes
WABoiseKettleFallsLumber	B1	Electrostatic Precipitator	Biomass	3.56E-03	3	yes
MEBoralexFortFairfield	Boiler #1	Electrostatic Precipitator	Biomass	5.05E-03	3	yes
WAStimsonLumber	Hog Fuel Boiler	Electrostatic Precipitator	Biomass	7.52E-03	1	yes
MICadillacRenewableEnergy	Main Boiler	Electrostatic Precipitator	Biomass	2.33E-02	3	yes
ORInterforPacificGilchrist	B-2	Cyclone or Multiclone	Biomass	5.81E-02	3	no
IDStimsonLumberCoPriestRiver	HFB-1 (EPI)	Electrostatic Precipitator	Biomass	6.88E-02	2	no
ORInterforPacificGilchrist	B-1	Cyclone or Multiclone	Biomass	8.01E-02	3	no
ARTravisLumberMansfield	Boiler No. 2	Cyclone or Multiclone	Biomass	1.04E-01	3	no
IDBAFRexburg	Kipper Boiler	Wet Scrubber	Biomass	1.30E-01	6	no
ORMalheurLumber	Boiler 1	Cyclone or Multiclone	Biomass	1.53E-01	6	no
ORMalheurLumber	Boiler 2	Cyclone or Multiclone	Biomass	1.57E-01	6	no
ARTravisLumberMansfield	Boiler No. 1	Cyclone or Multiclone	Biomass	1.64E-01	3	no
GARayonierWood317	PB01	Venturi Scrubber	Biomass	1.83E-01	6	no
WASimpsonDoorCompany	EU-1	No HAP APCD Control	Biomass	1.98E-01	1	no
MSArmstrongVicksburg	Hurst Boiler #1	No HAP APCD Control	Biomass	2.28E-01	1	no
MSArmstrongVicksburg	Hurst Boiler #2	No HAP APCD Control	Biomass	2.28E-01	1	no
MNMarvin	Boiler 3, EU 012	Cyclone or Multiclone	Biomass	3.03E-01	3	no

Appendix E-1: PM Emission Data Reported at Area Source Boilers in the 2008 Combustion Survey

FacilityID	UnitID	Control Device	10% Fuel Category	Average Emission Test Result (lb/mmBtu)	Number of Test Runs in Average	Below NSPS Limit (GACT)?
TNArmstrongHardwood	Boiler #5	Cyclone or Multiclone	Biomass	3.07E-01	3	no
NYAESGreenidgeDresden	Boiler 6	Fabric Filter/Dry Srubber (Lime Injection)/SNCR	Coal	1.00E-04	3	yes
WIBlountGeneratingStation	Boiler 7	Electrostatic Precipitator	Coal	8.13E-03	3	yes
PAEriecoke	#2	No HAP APCD Control	Coal	1.10E-02	3	yes
OHDenisonUniversity	B&W Boiler (B001)	Fabric Filter	Coal	1.63E-02	3	yes
KYConstellationSpiritsBardstown	Boiler 2	Fabric FilterDry Sorbent Injection	Coal	2.08E-02	3	yes
OHCantonForge	B001	Wet Scrubber	Coal	4.67E-02	3	no
WIWinnebagoMHI	600426	Fabric Filter	Coal	4.87E-02	3	no
WIBlountGeneratingStation	Boiler 9	Electrostatic Precipitator	Coal	7.03E-02	3	no
COWesternSugarCo-op	B&W Coal Boiler #1	Wet Scrubber	Coal	7.46E-02	3	no
COWesternSugarCo-op	B&W Coal Boiler #2	Wet Scrubber	Coal	7.46E-02	3	no
INCrawfordsvilleElectric	Boiler #6	Electrostatic Precipitator	Coal	7.67E-02	3	no
WIBlountGeneratingStation	Boiler 8	Electrostatic Precipitator	Coal	1.04E-01	3	no
MITRWSaginaw	EUBOILER3	Cyclone or Multiclone	Coal	1.67E-01	3	no
INMuscatatuckUTC	Boiler 4	No HAP APCD Control	Coal	1.81E-01	3	no
PAEriecoke	#1	No HAP APCD Control	Coal	2.72E-01	1	no
WIUWRiverFalls	B0001854	Cyclone or Multiclone	Coal	3.28E-01	3	no
WICapitolHPMadison	600328	No HAP APCD Control	Coal	3.70E-01	3	no
WICapitolHPMadison	600340	No HAP APCD Control	Coal	3.93E-01	3	no
INCrawfordsvilleElectric	Boiler #5	Cyclone or Multiclone	Coal	3.96E-01	3	no

Appendix E-1: PM Emission Data Reported at Area Source Boilers in the 2008 Combustion Survey

FacilityID	UnitID	Control Device	10% Fuel Category	Average Emission Test Result (lb/mmBtu)	Number of Test Runs in Average	Below NSPS Limit (GACT)?
MNOrderofSt Benedict	EU001 Boiler 1	No HAP APCD Control	Coal	4.13E-01	3	no
MNOrderofSt Benedict	EU002 Boiler 2	No HAP APCD Control	Coal	4.77E-01	3	no
WINorthern WisconsinCe nterCippewa Falls	600618	No HAP APCD Control	Coal	5.13E-01	3	no
OHCantonFo rge	B002	Wet Scrubber	Coal	7.70E-01	3	no
NJScheringP lough	Boiler #5	No HAP APCD Control	Liquid	1.37E-04	3	yes
NJScheringP lough1681	Boiler No. 5	No HAP APCD Control	Liquid	6.73E-04	3	yes
NJPrinceton University	Aux Boiler 2	No HAP APCD Control	Liquid	1.00E-03	3	yes
NJScheringP lough1681	Boiler No. 4	No HAP APCD Control	Liquid	1.01E-03	3	yes
IAJohn Deere-Waterloo	6130-03	No HAP APCD Control	Liquid	1.83E-03	1	yes
OHAlcoaCle velandWorks	Boiler #8 (B008)	No HAP APCD Control	Liquid	2.56E-03	3	yes
OHAlcoaCle velandWorks	Boiler #9 (B009)	No HAP APCD Control	Liquid	3.85E-03	3	yes
NJPrinceton University	Aux Boiler 1	No HAP APCD Control	Liquid	4.00E-03	3	yes
NJNovartis	98	No HAP APCD Control	Liquid	4.28E-03	3	yes
NJNovartis	121	No HAP APCD Control	Liquid	4.40E-03	3	yes
NJNovartis	94	No HAP APCD Control	Liquid	5.54E-03	3	yes
NJMontclair2 968	Aux Boiler	No HAP APCD Control	Liquid	6.24E-03	3	yes
VAMerckElkt on	B-8	No HAP APCD Control	Liquid	1.17E-02	3	yes
VAMerckElkt on	B-7	No HAP APCD Control	Liquid	1.33E-02	3	yes
NJRebtex	Kewanee	No HAP APCD Control	Liquid	1.49E-02	3	yes
NJRebtex	Superior	No HAP APCD Control	Liquid	1.49E-02	3	yes
NJUSGypsu mCo	BOILER #2	No HAP APCD Control	Liquid	1.98E-02	3	yes
NJHoffmanL aRoche	E1022, BOILER #7	No HAP APCD Control	Liquid	2.10E-02	3	yes

Appendix E-1: PM Emission Data Reported at Area Source Boilers in the 2008 Combustion Survey

FacilityID	UnitID	Control Device	10% Fuel Category	Average Emission Test Result (lb/mmBtu)	Number of Test Runs in Average	Below NSPS Limit (GACT)?
NJUSGypsumCo	BOILER #1	No HAP APCD Control	Liquid	2.16E-02	3	yes
NJUSGypsumCo	BOILER #3	No HAP APCD Control	Liquid	2.19E-02	3	yes
NJHoffmanLaRoche	E1023, BOILER #8	No HAP APCD Control	Liquid	2.47E-02	3	yes
NJHoffmanLaRoche	E1024, BOILER #9	No HAP APCD Control	Liquid	2.87E-02	3	yes
ORWestLinn	B1	No HAP APCD Control	Liquid	5.83E-02	3	no
MNWaldorfCorp	EU002 (Boiler #2)	No HAP APCD Control	Liquid	6.00E-02	3	no
NYBigSixTowers	000B1	No HAP APCD Control	Liquid	6.13E-02	3	no
MNWaldorfCorp	EU003 (Boiler #3)	No HAP APCD Control	Liquid	6.20E-02	3	no
NYBuffaloStateCollege	0001D	No HAP APCD Control	Liquid	7.51E-02	3	no
NYBuffaloStateCollege	0001B	No HAP APCD Control	Liquid	7.53E-02	3	no
NYBuffaloStateCollege	0001A	No HAP APCD Control	Liquid	1.10E-01	3	no
NYBuffaloStateCollege	0001C	No HAP APCD Control	Liquid	1.25E-01	3	no
OHCantonForge	B003	No HAP APCD Control	Liquid	1.43E-01	3	no
OHLubrizol	B003	No HAP APCD Control	Liquid	1.91E-01	3	no

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	comments	test date	load	vol. flow	moisture	f-factor	total pm	method	time	PM filterable
Bismarck, MT	low fire	3/12/2008	0.9	378	4.96	9242	0.23	5/202	48	
Bismarck, MT	low fire	3/12/2008	1	356	8.98	9242	0.198	5/202	48	
Bismarck, MT	low fire	3/12/2008	1.13	366	8.19	9242	0.182	5/202	48	
Bismarck, MT	high fire	3/12/2008	1.5	454	7.84	9242	0.169	5/202	48	
Bismarck, MT	high fire	3/12/2008	1.38	468	7.46	9242	0.098	5/202	48	
BHS	mill end chips	2/22/08	5.5	1611	14.8	9616	0.197	5	60	
BHS	mill end chips	2/22/08	7.6	1821	16.6	9616	0.189	5	60	
BHS	mill end chips	2/22/08	6.5	1743	16.4	9616	0.174	5	60	
Townsend, MT	high fire	2/21/2008	0.56	431	3.56	9739	0.255	5/202	48	
BHS	bole tree chips	2/21/08	4.5	1380	18.7	9674	0.24	5	75	
BHS	bole tree chips	2/21/08	3.9	1505	12.8	9674	0.221	5	65	
Townsend, MT	high fire	2/21/2008	0.64	446	3.15	9739	0.186	5/202	48	
Townsend, MT	high fire	2/21/2008	0.64	443	3.16	9739	0.179	5/202	48	
Townsend, MT	low fire	2/20/2008	0.39	453	2.23	9739	0.576	5/202	48	
Townsend, MT	low fire	2/20/2008	0.4	464	1.95	9739	0.341	5/202	48	
Townsend, MT	low fire	2/20/2008	0.4	462	2.08	9739	0.289	5/202	48	
Darby, MT	high fire	2/14/2008	2.78	996	13.86	9399	0.174	5/202	48	
Darby, MT	high fire	2/14/2008	2.57	914	22.33	9399	0.173	5/202	48	
Darby, MT	high fire	2/14/2008	2.04	880	21.41	9399	0.17	5/202	48	
Darby, MT	low fire	2/13/2008	1.76	550	10.53	9399	0.215	5/202	48	
Victor, MT	high fire	2/13/2008	2.28	776	12.27	9399	0.212	5/202	48	
Darby, MT	low fire	2/13/2008	1.77	515	10.58	9399	0.208	5/202	48	
Victor, MT	high fire	2/13/2008	2.69	746	11.57	9399	0.173	5/202	48	
Victor, MT	low fire	2/12/2008	1.04	503	12.59	9399	0.161	5/202	48	
Victor, MT	low fire	2/12/2008	0.99	507	12.61	9399	0.118	5/202	48	
Dillon, MT	high fire	12/8/07	8.45	3062	11.54	10399				
Dillon, MT	high fire	12/7/07	8.54	3101	11.78	10399				
Dillon, MT	high fire	12/6/07	5.41	1997	12.18	10399				
Dillon, MT	low fire	10/26/07	2.07	1433	8.42	10399				
Dillon, MT	low fire	10/25/07	2.14	1492	9.34	10399				
Dillon, MT	low fire	10/24/07	6	2219	8.4	10399				
NCH	system optimized	8/23/07	8.3	1950	15.2	8900	0.335	5/202	64	0.13
NCH	system optimized	8/23/07	8.9	2100	15	8900	0.319	5/202	64	0.16
NCH	system optimized	8/23/07	9.2	2135	15.6	8900	0.27	5/202	64	0.16
Council, ID	high fire - PM	3/29/2007	2.46	696		9401				
Council, ID	normal fire - PAH	3/29/2007	2.66			9086				
Council, ID	normal fire - PAH	3/29/2007	1.77			9048				
Council, ID	normal fire - PAH	3/29/2007	2.01			8887				
Council, ID	normal fire - formaldehyde	3/29/2007	2.29			9086				
Council, ID	normal fire - formaldehyde	3/29/2007	2.165			9086				
Council, ID	normal fire - formaldehyde	3/29/2007	2.21			9086				
Council, ID	normal fire - metals	3/29/2007	2.97			9086				
Council, ID	normal fire - metals	3/29/2007	1.96			9048				
Council, ID	normal fire - metals	3/29/2007	2.04			8887				
Council, ID	normal fire - boiler upset	3/28/2007	2.32	489		8991	1.148	5/202	60	1.061
Council, ID	high fire - PM	3/28/2007	2.70	627		9215	0.711	5/202	60	0.67
Council, ID	normal fire - PM	3/28/2007	1.96	588		8991	0.324	5/202	60	0.298
Council, ID	high fire - PM	3/28/2007	2.70	641		9215	0.321	5/202	60	0.294
Council, ID	high fire - PM	3/28/2007	2.70	516		9215	0.293	5/202	60	0.262
Council, ID	normal fire - PM	3/28/2007	2.53	584		8991	0.239	5/202	60	0.219

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	pm 2.5	method	time	PM condensables	method	time	Nox	method	time	CO	method
Bismarck, MT			0.19	CTM040	48				0.316	7E	48	0.518	10
Bismarck, MT			0.165	CTM040	48				0.285	7E	48	0.318	10
Bismarck, MT			0.15	CTM040	48				0.273	7E	48	0.226	10
Bismarck, MT			0.169	CTM040	48				0.287	7E	48	0.132	10
Bismarck, MT			0.098	CTM040	48				0.29	7E	48	0.26	10
BHS						0.011	202	60				0.0028	10
BHS						0.007	202	60				0.0011	10
BHS						0.008	202	60				0.0025	10
Townsend, MT			0.093	CTM040	48				0.15	7E	48	1.26	10
BHS						0.011	202	75				0.002	10
BHS						0.012	202	65				0.13	10
Townsend, MT			0.098	CTM040	48				0.16	7E	48	0.93	10
Townsend, MT			0.078	CTM040	48				0.15	7E	48	0.98	10
Townsend, MT			0.241	CTM040	48				0.18	7E	48	2.77	10
Townsend, MT			0.148	CTM040	48				0.15	7E	48	2.8	10
Townsend, MT			0.14	CTM040	48				0.14	7E	48	2.68	10
Darby, MT			0.086	CTM040	48				0.138	7E	48	0.276	10
Darby, MT			0.095	CTM040	48				0.138	7E	48	0.285	10
Darby, MT			0.091	CTM040	48				0.172	7E	48	0.367	10
Darby, MT			0.117	CTM040	48				0.117	7E	48	0.218	10
Victor, MT			0.105	CTM040	48				0.137	7E	48	0.15	10
Darby, MT			0.142	CTM040	48				0.11	7E	48	0.224	10
Victor, MT			0.094	CTM040	48				0.121	7E	48	0.254	10
Victor, MT			0.119	CTM040	48				0.154	7E	48	0.401	10
Victor, MT			0.075	CTM040	48				0.151	7E	48	0.49	10
Dillon, MT			0.161	CTM040	100		202	100	0.173	7E	100	0.269	10
Dillon, MT			0.185	CTM040	100		202	100	0.22	7E	100	0.274	10
Dillon, MT			0.172	CTM040	90		202	90	0.118	7E	90	0.279	10
Dillon, MT			0.182	CTM040	73	0.025	202	73	0.31	7E	73	0.14	10
Dillon, MT			0.179	CTM040	61	0.016	202	61	0.2	7E	61	0.079	10
Dillon, MT			-	CTM040	60	-	202	60	0.11	7E	60	0.038	10
NCH	5	64				0.20	202	64				*16.8 ppm*	10
NCH	5	64				0.16	202	64				*36 ppm*	10
NCH	5	64				0.11	202	64				*32.9 ppm*	10
Council, ID			0.14	CTM040/202	60								
Council, ID													
Council, ID													
Council, ID													
Council, ID													
Council, ID													
Council, ID													
Council, ID													
Council, ID													
Council, ID	5	60	1.95	CTM040/202	60	0.087	202	60					
Council, ID	5	60	0.121	CTM040/202	60	0.041	202	60					
Council, ID	5	60	0.25	CTM040/202	60	0.026	202	60					
Council, ID	5	60	0.126	CTM040/202	60	0.027	202	60					
Council, ID	5	60				0.031	202	60					
Council, ID	5	60	0.204	CTM040/202	60	0.02	202	60					

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	time	CO2	method	time	O2	method	time	SO2	method	time	formaldehyd	method	time	benzene
Bismarck, MT	48	7.75	3A	48	13.25	3A	48							
Bismarck, MT	48	9.11	3A	48	11.89	3A	48							
Bismarck, MT	48	9.99	3A	48	11.01	3A	48							
Bismarck, MT	48	10.75	3A	48	10.25	3A	48							
Bismarck, MT	48	9.59	3A	48	11.41	3A	48							
BHS	60	11	3A	60	9.4	3A	60							
BHS	60	13.4	3A	60	7	3A	60							
BHS	60	11.9	3A	60	8.5	3A	60							
Townsend, MT	48	5	3A	48	16.5	3A	48							
BHS	75	10.7	3A	75	9.9	3A	75							
BHS	65	8.3	3A	65	12.2	3A	65							
Townsend, MT	48	5	3A	48	16	3A	48							
Townsend, MT	48	5	3A	48	16	3A	48							
Townsend, MT	48	5	3A	48	18	3A	48							
Townsend, MT	48	5	3A	48	18	3A	48							
Townsend, MT	48	5	3A	48	18	3A	48							
Darby, MT	48	9.25	3A	48	11.75	3A	48							
Darby, MT	48	9.3	3A	48	11.7	3A	48							
Darby, MT	48	7.7	3A	48	13.3	3A	48							
Darby, MT	48	10.6	3A	48	10.4	3A	48							
Victor, MT	48	9.7	3A	48	11.3	3A	48							
Darby, MT	48	11.33	3A	48	9.67	3A	48							
Victor, MT	48	11.9	3A	48	9.1	3A	48							
Victor, MT	48	6.9	3A	48	14.1	3A	48							
Victor, MT	48	6.5	3A	48	14.5	3A	48							
Dillon, MT	100	8.3	3A	100	10.8	3A	100							
Dillon, MT	100	8.3	3A	100	10.8	3A	100							
Dillon, MT	90	8.3	3A	90	11	3A	90							
Dillon, MT	73	5.2	3A	73	15.7	3A	73							
Dillon, MT	61	5.2	3A	61	15.7	3A	61							
Dillon, MT	60	9.8	3A	60	11.1	3A	60							
NCH	64	13.0%	3	64	7.7%	3A	64							
NCH	64	13.0%	3	64	7.7%	3A	64							
NCH	64	13.1%	3	64	7.6%	3A	64							
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID											0.0008	323	60	
Council, ID											0.0013	323	60	
Council, ID											0.0009	323	60	
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID														
Council, ID														

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	Acrolein	method	time	Acetaldehyd	method	time	dioxin/furan	method	time	hex chrome
Bismarck, MT												
Bismarck, MT												
Bismarck, MT												
Bismarck, MT												
Bismarck, MT												
BHS												
BHS												
BHS												
Townsend, MT												
BHS												
BHS												
Townsend, MT												
Townsend, MT												
Townsend, MT												
Townsend, MT												
Townsend, MT												
Darby, MT												
Darby, MT												
Darby, MT												
Darby, MT												
Victor, MT												
Darby, MT												
Victor, MT												
Victor, MT												
Victor, MT												
Dillon, MT												
Dillon, MT												
Dillon, MT												
Dillon, MT												
Dillon, MT												
Dillon, MT												
NCH												
NCH												
NCH												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	metals meth	time	silver	barium	beryllium	cadmium	Cr total	copper	manganese
Bismarck, MT											
Bismarck, MT											
Bismarck, MT											
Bismarck, MT											
Bismarck, MT											
BHS											
BHS											
BHS											
Townsend, MT											
BHS											
BHS											
Townsend, MT											
Townsend, MT											
Townsend, MT											
Townsend, MT											
Townsend, MT											
Darby, MT											
Darby, MT											
Darby, MT											
Darby, MT											
Victor, MT											
Darby, MT											
Victor, MT											
Victor, MT											
Victor, MT											
Dillon, MT											
Dillon, MT											
Dillon, MT											
Dillon, MT											
Dillon, MT											
Dillon, MT											
NCH											
NCH											
NCH											
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID								1.76E-05	1.54E-05		
Council, ID								5.75E-06	5.40E-06		
Council, ID								2.55E-07	2.55E-07		
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID											
Council, ID											

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	zinc	arsenic	nickel	lead	selenium	PAH method	time	Total PAH	napthalene
Bismarck, MT									
Bismarck, MT									
Bismarck, MT									
Bismarck, MT									
Bismarck, MT									
BHS									
BHS									
BHS									
Townsend, MT									
BHS									
BHS									
Townsend, MT									
Townsend, MT									
Townsend, MT									
Townsend, MT									
Townsend, MT									
Darby, MT									
Darby, MT									
Darby, MT									
Darby, MT									
Victor, MT									
Darby, MT									
Victor, MT									
Victor, MT									
Victor, MT									
Dillon, MT									
Dillon, MT									
Dillon, MT									
Dillon, MT									
Dillon, MT									
Dillon, MT									
NCH									
NCH									
NCH									
Council, ID									
Council, ID									6.86E-06
Council, ID									1.15E-05
Council, ID									9.55E-06
Council, ID									
Council, ID									
Council, ID									
Council, ID		bdl	1.60E-05						
Council, ID		bdl	6.12E-06						
Council, ID		7.96E-06	5.31E-07						
Council, ID									
Council, ID									
Council, ID									
Council, ID									
Council, ID									
Council, ID									

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	2-methylnapthalene	Acenaphthe	2-chloronapthalene	Acenaphthylene	fluorene	phenanthrene	anthracene
Bismarck, MT							
Bismarck, MT							
Bismarck, MT							
Bismarck, MT							
Bismarck, MT							
BHS							
BHS							
BHS							
Townsend, MT							
BHS							
BHS							
Townsend, MT							
Townsend, MT							
Townsend, MT							
Townsend, MT							
Townsend, MT							
Darby, MT							
Darby, MT							
Darby, MT							
Darby, MT							
Victor, MT							
Darby, MT							
Victor, MT							
Victor, MT							
Victor, MT							
Dillon, MT							
Dillon, MT							
Dillon, MT							
Dillon, MT							
Dillon, MT							
Dillon, MT							
NCH							
NCH							
NCH							
Council, ID							
Council, ID					2.97E-06	4.40E-06	
Council, ID					5.60E-06	7.32E-06	
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							
Council, ID							

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	fluoranthene	pyrene	benzo(a)anthracene	chrysene	perylene	benzo(b)fluoranthene
Bismarck, MT						
Bismarck, MT						
Bismarck, MT						
Bismarck, MT						
Bismarck, MT						
BHS						
BHS						
BHS						
Townsend, MT						
BHS						
BHS						
Townsend, MT						
Townsend, MT						
Townsend, MT						
Townsend, MT						
Townsend, MT						
Darby, MT						
Darby, MT						
Darby, MT						
Darby, MT						
Victor, MT						
Darby, MT						
Victor, MT						
Victor, MT						
Victor, MT						
Dillon, MT						
Dillon, MT						
Dillon, MT						
Dillon, MT						
Dillon, MT						
Dillon, MT						
NCH						
NCH						
NCH						
Council, ID						
Council, ID		3.37E-06				
Council, ID		1.58E-05				
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						
Council, ID						

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	benzo(k)fluoranthene	benzo(a)pyrene	benso(e)pyrene	benzo(g,h,i)perylene	Indeno(1,2,3,cd)pyrene
Bismarck, MT					
Bismarck, MT					
Bismarck, MT					
Bismarck, MT					
Bismarck, MT					
BHS					
BHS					
BHS					
Townsend, MT					
BHS					
BHS					
Townsend, MT					
Townsend, MT					
Townsend, MT					
Townsend, MT					
Townsend, MT					
Darby, MT					
Darby, MT					
Darby, MT					
Darby, MT					
Victor, MT					
Darby, MT					
Victor, MT					
Victor, MT					
Victor, MT					
Dillon, MT					
Dillon, MT					
Dillon, MT					
Dillon, MT					
Dillon, MT					
Dillon, MT					
NCH					
NCH					
NCH					
Council, ID					
Council, ID					
Council, ID					
Council, ID					
Council, ID					
Council, ID					
Council, ID					
Council, ID					
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Council, ID					
Council, ID					
Council, ID					
Council, ID					
Council, ID					

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	dibenz(a,h)anthracene
Bismarck, MT	
Bismarck, MT	
Bismarck, MT	
Bismarck, MT	
Bismarck, MT	
BHS	
BHS	
BHS	
Townsend, MT	
BHS	
BHS	
Townsend, MT	
Townsend, MT	
Townsend, MT	
Townsend, MT	
Townsend, MT	
Darby, MT	
Darby, MT	
Darby, MT	
Darby, MT	
Victor, MT	
Darby, MT	
Victor, MT	
Victor, MT	
Victor, MT	
Dillon, MT	
Dillon, MT	
Dillon, MT	
Dillon, MT	
Dillon, MT	
Dillon, MT	
NCH	
NCH	
NCH	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	comments	test date	load	vol. flow	moisture	f-factor	total pm	method	time	PM filterable
Council, ID	normal fire - Nox/CO	3/28/2007	1.96			8991				
Council, ID	normal fire - Nox/CO	3/28/2007	2.66			8991				
Council, ID	normal fire - Nox/CO	3/28/2007	1.72			8991				
Council, ID	high fire - all but PM	3/27/2007	2.46			8951				
Council, ID	high fire - all but PM	3/27/2007	2.46			9401				
Council, ID	high fire - all but PM	3/27/2007	2.46			9417				
NCH		2/1/07	11.4	2443	18.2	9190				0.089
NCH	process upset	2/1/07	8.6	2810	15.6	9190				0.160
NCH		2/1/07	5.7	2053	18	9190				0.087
CVU	system optimized	12/21/05	5.71	1642	15.3	9843	0.289	5	64	0.28
CVU	system optimized	12/21/05	5.46	1329	16.7	9843	0.258	5	64	0.26
CVU	system optimized	12/21/05	6.69	1414	19	9843	0.25	5	64	0.24
CVU	optimized for firing rates	12/20/05	6.44	1502	18.5	9843	0.358	5	64	0.35
CVU	system optimized	12/20/05	6.97	1487	21.1	9843	0.319	5	64	0.31
CVU	system optimized	12/20/05	7.36	1478	20.5	9843	0.319	5	64	0.31
Thompson Falls		4/29/04	high fire	355						*0.142*
Thompson Falls		4/29/04	high fire	355						*0.153*
Thompson Falls		4/29/04	high fire	361						*0.132*
Darby		Apr-04	75%	964	10.7					0.2493
Darby		Apr-04	75%	920	11.3					0.20666
Darby		Apr-04	75%	787	11					0.168
MWCC		1/22/03	10.1	3328	13.41					0.161
MWCC		1/22/03	10.3	3419	10.56					0.174
MWCC		1/22/03	12.4	3719	15.54					0.147
MWCC		1/22/03	9.4	3120	14.39					0.172
VT Tubbs	dry wood fuel	1/15/98	5.45	1672			0.2	5		
VT Tubbs	dry wood fuel	1/15/98	5.5	1520			0.18	5		
VT Tubbs	dry wood fuel	1/15/98	5.11	1205			0.17	5		
Brattleboro, VT	CoreSeparator inlet	1/7/1997	6.4	1601	18.88					0.112
Brattleboro, VT	CoreSeparator outlet	1/7/1997	6.4	1658	19.33					0.059
Brattleboro, VT	CoreSeparator inlet	1/6/1997	6.2	1594	20.25					0.25
Brattleboro, VT	CoreSeparator outlet	1/6/1997	6.2	1664	19.71					0.072
Brattleboro, VT	CoreSeparator inlet	1/2/1997	6.2	1445	21.53					0.155
Brattleboro, VT	CoreSeparator outlet	1/2/1997	6.2	1350	21.12					0.078
Hazen Union	formaldehyde/benzene	3/25/95	1.02	324	13.25	9416				
Hazen Union	Cr +6	3/24/95	1.04	318	13.02	9416				
Hazen Union	formaldehyde/benzene	3/24/95	0.99	303	13.26	9416				
Hazen Union	formaldehyde/benzene	3/24/95	1.19	338	13.38	9416				
Hazen Union	PM/metals	3/23/95	0.85	303	11.82	9416				0.09605
Hazen Union	Cr +6	3/23/95	0.9	289	12.55	9416				
Hazen Union	Cr +6	3/23/95	1.09	321	13.51	9416				
Hazen Union	PAH/dioxin/furan/NOx/CO	3/22/95	0.87	309	13.84	9416				
Hazen Union	PM/metals	3/22/95	0.89	296	11.95	9416				0.1062
Hazen Union	PM/metals	3/22/95	0.97	315	12.87	9416				0.09106
Hazen Union	PAH/dioxin/furan/NOx/CO	3/21/95	1.38	360	14.26	9416				
Hazen Union	PAH/dioxin/furan/NOx/CO	3/21/95	0.78	318	13.02	9416				
Green Acres	PAH/dioxin/furan/NOx/CO	3/11/95	1.36	621	7.77	9891				
Green Acres	PAH/dioxin/furan/NOx/CO	3/10/95	1.48	619	7.29	9891				
Green Acres	PAH/dioxin/furan/NOx/CO	3/10/95	1.87	640	8.35	9891				
Green Acres	formaldehyde/benzene	3/9/95	1.23	610	7.63	9891				

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	pm 2.5	method	time	PM condensables	method	time	Nox	method	time	CO	method
Council, ID									0.17			0.02	
Council, ID									0.17			0.05	
Council, ID									0.34			0.07	
Council, ID									0.38	7E	60	0.04	10
Council, ID									0.43	7E	60	0.05	10
Council, ID									0.42	7E	60	0.05	10
NCH	5	60											
NCH	5	155											
NCH	5	60											
CVU	5	64										*303*	10
CVU	5	64										*118*	10
CVU	5	64										*1019*	10
CVU	5	64										*20.5*	10
CVU	5	64										*14.1*	10
CVU	5	64										*97.5*	10
Thompson Falls	5	60							*0.199*	7E	60	*0.037*	10
Thompson Falls	5	60							*0.194*	7E	60	*0.031*	10
Thompson Falls	5	60							*0.198*	7E	60	*0.028*	10
Darby	5	60							0.179	7E	60	*134.65*	10
Darby	5	60							0.167	7E	60	*134.45*	10
Darby	5	60							0.141	7E	60	*117.07*	10
MWCC	5								0.184			0.108	10
MWCC	5								0.186			0.066	10
MWCC	5								0.174			0.147	10
MWCC	5								0.178			0.089	10
VT Tubbs												0.65	10
VT Tubbs												0.48	10
VT Tubbs												0.41	10
Brattleboro, VT	5	135											
Brattleboro, VT	5	135											
Brattleboro, VT	5	137											
Brattleboro, VT	5	137											
Brattleboro, VT	5	180											
Brattleboro, VT	5	180											
Hazen Union													
Hazen Union													
Hazen Union													
Hazen Union													
Hazen Union	5	180											
Hazen Union													
Hazen Union													
Hazen Union									0.213	7E	254	0.435	10
Hazen Union	5	180											
Hazen Union	5	180											
Hazen Union									0.21	7E	215	1.425	10
Hazen Union									0.21	7E	277	0.847	10
Green Acres									0.139	7E	223	2.267	10
Green Acres									0.156	7E	181	1.989	10
Green Acres									0.142	7E	239	2.114	10
Green Acres													

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	time	CO2	method	time	O2	method	time	SO2	method	time	formaldehyd	method	time	benzene
Council, ID		9.2			11.2									
Council, ID		10.9			9.5									
Council, ID		11.7			8.4									
Council, ID	60	13.3	3A	60	6.7	3A	60				0.0012	323	60	
Council, ID	60	13.3	3A	60	6.7	3A	60				0.0008	323	60	
Council, ID	60	13.1	3A	60	6.8	3A	60				0.0009	323	60	
NCH		14.0%			6.0%						1.80E-08	430	60	
NCH		9.0%			11.0%						2.40E-08	430	150	
NCH		7.7%			12.0%						3.60E-08	430	60	
CVU	64	11.6%	3	64	9.0%	3A	64							
CVU	64	13.7%	3	64	6.9%	3A	64							
CVU	64	16.2%	3	64	4.7%	3A	64							
CVU	64	14.4%	3	64	6.3%	3A	64							
CVU	64	15.8%	3	64	4.9%	3A	64							
CVU	64	16.9%	3	64	3.8%	3A	64							
Thompson Falls	60	11.90%	3	60	8.40%	3A	60							
Thompson Falls	60	11.90%	3	60	8.50%	3A	60							
Thompson Falls	60	11.90%	3	60	8.40%	3A	60							
Darby	60													
Darby	60													
Darby	60													
MWCC		9.5			11.2									
MWCC		9.3			11.2									
MWCC		10.3			10.1									
MWCC		9.3			11.2									
VT Tubbs														
VT Tubbs														
VT Tubbs														
Brattleboro, VT		11.88	3	135	8.51	3	135							
Brattleboro, VT		11.88	3	135	8.51	3	135							
Brattleboro, VT		10.68	3	137	8.94	3	137							
Brattleboro, VT		10.68	3	137	8.94	3	137							
Brattleboro, VT		14.25	3	180	6.04	3	180							
Brattleboro, VT		14.25	3	180	6.04	3	180							
Hazen Union		9.8%	3	120	10.8%	3A	120					430	120	2.12E-06
Hazen Union		10.3%	3	120	10.4%	3A	120							
Hazen Union		10.2%	3	120	10.4%	3A	120					430	120	1.69E-04
Hazen Union		10.8%	3	120	9.6%	3A	120					430	120	2.12E-06
Hazen Union		8.6%	3	180	12.0%	3A	180							
Hazen Union		9.4%	3	120	11.0%	3A	120							
Hazen Union		10.4%	3	120	10.0%	3A	120							
Hazen Union	254	8.6%	3	240	8.6%	3A	240							
Hazen Union		9.0%	3	180	11.4%	3A	180							
Hazen Union		9.5%	3	180	11.1%	3A	180							
Hazen Union	215	11.9%	3	240	8.3%	3A	240							
Hazen Union	277	7.0%	3	240	8.0%	3A	240							
Green Acres	223	7.3%	3	240	13.1%	3A	240							
Green Acres	181	8.0%	3	240	13.1%	3A	240							
Green Acres	239	9.1%	3	240	11.8%	3A	240							
Green Acres		6.5%	3	120	14.0%	3A	120				3.57E-03	430	120	1.29E-04

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	Acrolein	method	time	Acetaldehyd	method	time	dioxin/furan	method	time	hex chrome
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
Council, ID												
NCH			2.44E-07	430	60	3.50E-08	430	60				
NCH			1.94E-04	430	150	4.70E-08	430	150				
NCH			5.18E-07	430	60	7.10E-08	430	60				
CVU												
CVU												
CVU												
CVU												
CVU												
CVU												
Thompson Falls												
Thompson Falls												
Thompson Falls												
Darby												
Darby												
Darby												
MWCC												
MWCC												
MWCC												
MWCC												
VT Tubbs												
VT Tubbs												
VT Tubbs												
Brattleboro, VT												
Brattleboro, VT												
Brattleboro, VT												
Brattleboro, VT												
Brattleboro, VT												
Brattleboro, VT												
Hazen Union	18	120										
Hazen Union												8.83E-07
Hazen Union	18	120										
Hazen Union	18	120										
Hazen Union												
Hazen Union												8.03E-07
Hazen Union												8.25E-07
Hazen Union									6.48E-12	23	240	
Hazen Union												
Hazen Union												
Hazen Union									1.13E-11	23	240	
Hazen Union									1.18E-11	23	240	
Green Acres									4.15E-12	23	240	
Green Acres									2.16E-11	23	240	
Green Acres									8.1E-12	23	240	
Green Acres	18	120										

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	metals meth	time	silver	barium	beryllium	cadmium	Cr total	copper	manganese
Council, ID											
Council, ID											
Council, ID											
Council, ID								2.80E-05	3.87E-05		
Council, ID								7.76E-05	8.05E-05		
Council, ID								1.27E-07	1.27E-07		
NCH											
NCH											
NCH											
CVU											
CVU											
CVU											
CVU											
CVU											
CVU											
Thompson Falls											
Thompson Falls											
Thompson Falls											
Darby											
Darby											
Darby											
MWCC											
MWCC											
MWCC											
MWCC											
VT Tubbs											
VT Tubbs											
VT Tubbs											
Brattleboro, VT											
Brattleboro, VT											
Brattleboro, VT											
Brattleboro, VT											
Brattleboro, VT											
Brattleboro, VT											
Hazen Union											
Hazen Union	425	120									
Hazen Union											
Hazen Union											
Hazen Union			29	180	1.62E-06	3.62E-05	2.68E-07	4.03E-06	6.97E-06	4.40E-05	8.64E-05
Hazen Union	425	120									
Hazen Union	425	120									
Hazen Union											
Hazen Union			29	180	1.54E-06	4.02E-05	1.35E-07	3.75E-06	8.64E-06	5.28E-05	9.21E-05
Hazen Union			29	180	1.38E-06	3.55E-05	1.07E-07	4.00E-06	3.91E-06	4.99E-05	8.86E-05
Hazen Union											
Hazen Union											
Green Acres											
Green Acres											
Green Acres											
Green Acres											

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	zinc	arsenic	nickel	lead	selenium	PAH method	time	Total PAH	napthalene
Council, ID									
Council, ID									
Council, ID									
Council, ID		9.10E-06	2.69E-05			0010	120		7.85E-06
Council, ID		6.21E-06	8.23E-05			0011	120		2.23E-06
Council, ID		3.95E-06	2.64E-07			0012	120		1.32E-06
NCH									
NCH									
NCH									
CVU									
CVU									
CVU									
CVU									
CVU									
CVU									
Thompson Falls									
Thompson Falls									
Thompson Falls									
Darby									
Darby									
Darby									
MWCC									
MWCC									
MWCC									
MWCC									
VT Tubbs									
VT Tubbs									
VT Tubbs									
Brattleboro, VT									
Brattleboro, VT									
Brattleboro, VT									
Brattleboro, VT									
Brattleboro, VT									
Brattleboro, VT									
Hazen Union									
Hazen Union									
Hazen Union									
Hazen Union									
Hazen Union	8.79E-04	4.95E-07	3.04E-06	2.27E-05	6.46E-07				
Hazen Union									
Hazen Union									
Hazen Union						429	240	4.55E-04	1.05E-04
Hazen Union	1.07E-03	6.88E-07	5.02E-06	2.66E-05	6.17E-07				
Hazen Union	7.80E-04	5.29E-07	2.65E-06	2.08E-05	5.53E-07				
Hazen Union						429	240	2.90E-04	3.05E-05
Hazen Union						429	240	1.88E-03	8.82E-05
Green Acres						429	240	2.43E-04	1.27E-04
Green Acres						429	240	2.23E-04	1.36E-04
Green Acres						429	240	2.51E-04	1.15E-04
Green Acres									

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	2-methylnapthalene	Acenaphthe	2-chloronapthalene	Acenaphthylene	fluorene	phenanthrene	anthracene
Council, ID							
Council, ID							
Council, ID							
Council, ID						7.29E-06	
Council, ID							
Council, ID							
NCH							
NCH							
NCH							
CVU							
CVU							
CVU							
CVU							
CVU							
CVU							
Thompson Falls							
Thompson Falls							
Thompson Falls							
Darby							
Darby							
Darby							
MWCC							
MWCC							
MWCC							
MWCC							
VT Tubbs							
VT Tubbs							
VT Tubbs							
Brattleboro, VT							
Brattleboro, VT							
Brattleboro, VT							
Brattleboro, VT							
Brattleboro, VT							
Brattleboro, VT							
Hazen Union							
Hazen Union							
Hazen Union							
Hazen Union							
Hazen Union							
Hazen Union							
Hazen Union							
Hazen Union	2.88E-06	2.06E-07	1.25E-08	3.10E-05	1.24E-06	1.31E-04	3.62E-06
Hazen Union							
Hazen Union							
Hazen Union	9.54E-06	2.43E-07	2.35E-08	2.47E-05	1.11E-06	1.15E-04	1.53E-06
Hazen Union	2.72E-05	9.46E-07	4.12E-08	5.55E-04	6.35E-06	5.47E-04	3.76E-05
Green Acres	1.52E-05	1.01E-06	5.91E-09	3.17E-05	8.51E-07	2.94E-05	2.78E-06
Green Acres	1.23E-05	7.85E-07	5.71E-09	2.61E-05	6.24E-07	2.10E-05	1.31E-06
Green Acres	1.21E-05	4.68E-07	3.93E-09	4.20E-05	3.93E-07	2.97E-05	3.23E-06
Green Acres							

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	fluoranthene	pyrene	benzo(a)anthracene	chrysene	perylene	benzo(b)fluoranthene
Council, ID						
Council, ID						
Council, ID						
Council, ID	7.85E-06					
Council, ID						
Council, ID						
NCH						
NCH						
NCH						
CVU						
CVU						
CVU						
CVU						
CVU						
CVU						
Thompson Falls						
Thompson Falls						
Thompson Falls						
Darby						
Darby						
Darby						
MWCC						
MWCC						
MWCC						
MWCC						
VT Tubbs						
VT Tubbs						
VT Tubbs						
Brattleboro, VT						
Brattleboro, VT						
Brattleboro, VT						
Brattleboro, VT						
Brattleboro, VT						
Brattleboro, VT						
Hazen Union						
Hazen Union						
Hazen Union						
Hazen Union						
Hazen Union						
Hazen Union						
Hazen Union						
Hazen Union	6.70E-05	5.76E-05	4.48E-06	1.49E-05	4.89E-07	1.31E-05
Hazen Union						
Hazen Union						
Hazen Union	4.61E-05	3.85E-05	1.73E-06	8.62E-06	1.28E-07	4.96E-06
Hazen Union	1.72E-04	1.47E-04	4.26E-05	4.92E-05	7.81E-06	5.72E-05
Green Acres	1.03E-05	8.90E-06	1.09E-06	3.18E-06	1.77E-07	3.70E-06
Green Acres	8.04E-06	7.06E-06	7.43E-07	2.53E-06	6.94E-08	2.59E-06
Green Acres	1.41E-05	1.22E-05	2.77E-06	3.74E-06	3.79E-07	4.68E-06
Green Acres						

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	benzo(k)fluoranthene	benzo(a)pyrene	benso(e)pyrene	benzo(g,h,i)perylene	Indeno(1,2,3,cd)pyrene
Council, ID					
Council, ID					
Council, ID					
Council, ID				1.51E-06	
Council, ID					
Council, ID					
NCH					
NCH					
NCH					
CVU					
CVU					
CVU					
CVU					
CVU					
CVU					
Thompson Falls					
Thompson Falls					
Thompson Falls					
Darby					
Darby					
Darby					
MWCC					
MWCC					
MWCC					
MWCC					
VT Tubbs					
VT Tubbs					
VT Tubbs					
Brattleboro, VT					
Brattleboro, VT					
Brattleboro, VT					
Brattleboro, VT					
Brattleboro, VT					
Brattleboro, VT					
Hazen Union					
Hazen Union					
Hazen Union					
Hazen Union					
Hazen Union					
Hazen Union					
Hazen Union					
Hazen Union	2.57E-06	3.74E-06	8.95E-06	3.79E-06	2.96E-06
Hazen Union					
Hazen Union					
Hazen Union	1.04E-06	8.54E-07	3.38E-06	9.69E-07	7.70E-07
Hazen Union	8.84E-06	3.57E-05	3.48E-05	3.85E-05	4.57E-06
Green Acres	8.79E-07	7.27E-07	2.45E-06	2.29E-06	1.57E-06
Green Acres	5.89E-07	4.63E-07	1.53E-06	8.48E-07	6.38E-07
Green Acres	8.69E-07	1.78E-06	3.16E-06	2.65E-06	1.62E-06
Green Acres					

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	dibenz(a,h)anthracene
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
Council, ID	
NCH	
NCH	
NCH	
CVU	
CVU	
CVU	
CVU	
CVU	
CVU	
Thompson Falls	
Thompson Falls	
Thompson Falls	
Darby	
Darby	
Darby	
MWCC	
MWCC	
MWCC	
MWCC	
VT Tubbs	
VT Tubbs	
VT Tubbs	
Brattleboro, VT	
Brattleboro, VT	
Brattleboro, VT	
Brattleboro, VT	
Brattleboro, VT	
Brattleboro, VT	
Hazen Union	
Hazen Union	
Hazen Union	
Hazen Union	
Hazen Union	
Hazen Union	
Hazen Union	
Hazen Union	2.65E-07
Hazen Union	
Hazen Union	
Hazen Union	6.18E-08
Hazen Union	2.06E-05
Green Acres	1.55E-07
Green Acres	6.94E-08
Green Acres	1.74E-07
Green Acres	

Appendix F-1: Area Source Boiler Emission

Data from Fuels for Schools Program

Location	comments	test date	load	vol. flow	moisture	f-factor	total pm	method	time	PM filterable
Green Acres	formaldehyde/benzene	3/9/95	1.23	611	7.53	9891				
Green Acres	formaldehyde/benzene	3/9/95	1.23	611	7.55	9891				
Green Acres	Cr +6	3/8/95	0.49	485	8.04	9891				
Green Acres	Cr +6	3/8/95	0.59	538	7.3	9891				
Green Acres	Cr +6	3/8/95	0.49	539	8.24	9891				
Green Acres	PM/metals	3/7/95	1.18	702	6.4	9891				0.1444
Green Acres	PM/metals	3/7/95	1.44	644	8.14	9891				0.1005
Green Acres	PM/metals	3/6/95	1.09	657	7.65	9891				0.1151
			mmbtu/h	dscfm	%	dscf/mmbtu	lb/mmbtu		min	lb/mmbtu
AP-42						9240				0.33
AP-42						9240				0.56
AP-42						9240				0.4
AP-42						9240				0.22
AP-42						9240				0.35
AP-42						9240				0.3

Appendix F-1: Area Source Boiler Emission

Data from Fuels for Schools Program

Location	method	time	pm 2.5	method	time	PM condensables	method	time	Nox	method	time	CO	method
Green Acres													
Green Acres													
Green Acres													
Green Acres													
Green Acres													
Green Acres	5	180											
Green Acres	5	180											
Green Acres	5	180											
		min	lb/mmbtu		min	lb/mmbtu		min	lb/mmbtu		min	lb/mmbtu	
AP-42			0.25			0.017			0.22			0.6	
AP-42			0.43						0.22				
AP-42			0.31						0.49				
AP-42			0.12						0.22				
AP-42			0.19						0.22				
AP-42			0.16						0.49				

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	time	CO2	method	time	O2	method	time	SO2	method	time	formaldehyd	method	time	benzene
Green Acres		6.5%	3	120	14.0%	3A	120				4.16E-04	430	120	3.04E-06
Green Acres		6.5%	3	120	14.0%	3A	120				1.59E-04	430	120	3.04E-06
Green Acres		2.9%	3	85	17.5%	3A	85							
Green Acres		3.0%	3	125	17.2%	3A	125							
Green Acres		2.8%	3	134	17.8%	3A	134							
Green Acres		5.4%	3	180	15.1%	3A	180							
Green Acres		7.2%	3	180	13.2%	3A	180							
Green Acres		5.6%	3	180	15.2%	3A	180							
	min	%		min	%		min	lb/mmbtu		min	lb/mmbtu		min	lb/mmbtu
AP-42								0.025			4.40E-03			4.20E-03
AP-42								0.025						
AP-42								0.025						
AP-42								0.025						
AP-42								0.025						
AP-42								0.025						

Appendix F-1: Area Source Boiler Emission

Data from Fuels for Schools Program

Location	method	time	Acrolein	method	time	Acetaldehyd	method	time	dioxin/furan	method	time	hex chrome
Green Acres	18	120										
Green Acres	18	120										
Green Acres												1.36E-06
Green Acres												1.99E-06
Green Acres												5.82E-07
Green Acres												
Green Acres												
Green Acres												
		min	lb/mmbtu		min	lb/mmbtu		min	lb/mmbtu		min	lb/mmbtu
AP-42			4.00E-03			8.30E-04						3.50E-06
AP-42												
AP-42												
AP-42												
AP-42												
AP-42												

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	method	time	metals meth	time	silver	barium	beryllium	cadmium	Cr total	copper	manganese
Green Acres											
Green Acres											
Green Acres	425	85									
Green Acres	425	125									
Green Acres	425	134									
Green Acres			29	180	1.96E-06	1.12E-04	2.59E-07	1.23E-05	2.49E-05	4.83E-05	7.25E-04
Green Acres			29	180	3.12E-06	8.40E-05	1.17E-07	1.09E-05	1.81E-05	4.96E-05	4.28E-04
Green Acres			29	180	2.97E-06	1.25E-04	3.77E-07	3.02E-05	3.61E-05	9.36E-05	5.19E-04
		min		min	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu
AP-42					1.70E-03	1.70E-04	1.10E-06	4.10E-06	2.10E-05	4.90E-05	1.60E-03
AP-42											
AP-42											
AP-42											
AP-42											
AP-42											

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	zinc	arsenic	nickel	lead	selenium	PAH method	time	Total PAH	napthalene
Green Acres									
Green Acres									
Green Acres									
Green Acres									
Green Acres									
Green Acres	7.49E-04	3.27E-06	1.49E-05	4.76E-05	1.15E-06				
Green Acres	4.98E-04	2.42E-06	1.83E-05	4.00E-05	3.14E-06				
Green Acres	5.92E-04	2.28E-06	3.02E-05	6.73E-05	5.07E-06				
	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu		min	lb/mmbtu	lb/mmbtu
AP-42	4.20E-04	2.20E-05	3.30E-05	4.80E-05	2.80E-06			1.25E-04	9.70E-05
AP-42									
AP-42									
AP-42									
AP-42									
AP-42									

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	2-methylnapthalene	Acenaphthe	2-chloronapthalene	Acenaphthylene	fluorene	phenanthrene	anthracene
Green Acres							
Green Acres							
Green Acres							
Green Acres							
Green Acres							
Green Acres							
Green Acres							
Green Acres							
	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu
AP-42	1.60E-07	9.10E-07	2.40E-09	5.00E-06	3.40E-06	7.00E-06	3.00E-06
AP-42							
AP-42							
AP-42							
AP-42							
AP-42							

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	fluoranthene	pyrene	benzo(a)anthracene	chrysene	perylene	benzo(b)fluoranthene
Green Acres						
Green Acres						
Green Acres						
Green Acres						
Green Acres						
Green Acres						
Green Acres						
Green Acres						
	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu
AP-42	1.60E-06	3.70E-06	6.50E-08	3.80E-08	5.20E-10	1.00E-07
AP-42						
AP-42						
AP-42						
AP-42						
AP-42						

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	benzo(k)fluoranthene	benzo(a)pyrene	benso(e)pyrene	benzo(g,h,i)perylene	Indeno(1,2,3,cd)pyrene
Green Acres					
Green Acres					
Green Acres					
Green Acres					
Green Acres					
Green Acres					
Green Acres					
Green Acres					
	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu	lb/mmbtu
AP-42	3.60E-08	2.60E-06	2.60E-09	9.30E-08	8.70E-08
AP-42					
AP-42					
AP-42					
AP-42					
AP-42					

Appendix F-1: Area Source Boiler Emission
Data from Fuels for Schools Program

Location	dibenz(a,h)anthracene
Green Acres	
Green Acres	
Green Acres	
Green Acres	
Green Acres	
Green Acres	
Green Acres	
Green Acres	
	lb/mmbtu
AP-42	9.10E-09
AP-42	
AP-42	
AP-42	
AP-42	
AP-42	