

operate the emission controls, and secondary emissions include the criteria pollutant emissions (PM, CO, NO_x, SO₂) from utilities that generate the electricity, as well as the indirect emissions associated with alternatives to compliance (e.g., Hg emissions from landfilling).

We estimated secondary environmental and energy impacts for a series of model existing HMIWI—large, medium, small non-rural, and small rural units. Table 1 shows the basis for the development of the parameters for these model HMIWI (e.g., incinerator charge rate, stack gas flow rate, incinerator operating hours, and concentrations) that we developed. Table 2 presents a summary of the model impacts for each emission control. The following sections discuss how we estimated the model impacts for each emission control and present the range of model impacts.

A. Packed-Bed Wet Scrubbers

Packed-bed wet scrubbers are especially effective at reducing emissions of acid gases such as HCl, and also provide limited control of PM, metals, and SO₂ (if present at high enough concentrations). Impacts are presented for each model HMIWI in Table 3.

We estimated the wastewater impacts associated with using a packed-bed wet scrubber (as shown in the following equation) by calculating the amount of sewage disposal for a packed-bed wet scrubber, in gallons per year (gpy):

Wastewater impacts (gpy) = blowdown rate (gallons per minute [gpm]) x 60 minutes per hour (min/hr) x operating hours per year (hr/yr)

The sewage disposal calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI and a memo update.^{4,5} The equation for blowdown rate is presented in Table 3. As shown in Table 3, the wastewater impacts associated with using a packed-bed scrubber range from 47 to 6,533 gpy.

We estimated the energy impacts associated with using a packed-bed wet scrubber (as shown in the following equation) by calculating the amount of electricity needed to operate the wet scrubber and converting that amount to million British thermal units per year (MM Btu/yr).

Energy impacts (MM Btu/yr) = [0.000181 x gas flow rate (actual cubic feet per minute [acfm]) x pressure drop (assumed 15 inches of water [in. H₂O]) + 0.000289 x water circulation rate (gpm) x water head (assumed 60 feet of H₂O)] x operating hours per year (hr/yr) x 1 Btu/0.000292875 kilowatt-hour (kWh) x 1 MM Btu/10⁶ Btu

The electricity calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI and a memo update.^{4,5} The equations for actual gas flow rate and water circulation are presented in Table 3. As shown in Table 3, the energy impacts associated with using a packed-bed wet scrubber range from 12 to 287 MM Btu/yr.

We estimated the secondary emissions, in pounds per year (lb/yr), by multiplying the energy impacts by emission factors for PM, CO, NO_x, and SO₂ for electricity production based on the projected generation mix for the year 2015.⁶ We derived the PM, CO, NO_x, and SO₂ emission factors from new source performance standards (NSPS), AP-42 emission factors, and Clean Air Markets emission factors. We chose the 2015 projection from the latest version of EPA's

Integrated Planning Model (IPM Version 3.0) because it is closest to the 2014 compliance date for existing sources for the revised HMIWI requirements. The projected mix is as follows: 53 percent coal, 21 percent oil and natural gas, 17 percent nuclear, 6 percent hydroelectric, 2 percent renewable, and 1 percent other.⁶ We attributed no secondary air impacts to nuclear, hydroelectric, or renewable energy generation. The secondary air impacts for “other” were assumed to be equivalent to those for natural gas.

We adjusted the NO_x and SO₂ emission factors to account for expected reductions in NO_x and SO₂ emissions by 2015, based on Clean Air Interstate Rule (CAIR) requirements—i.e., 61 percent NO_x reduction (for solid and liquid/gas fuels) and 70 percent SO₂ reduction (for solid fuels). We estimated the secondary emissions as follows:

Secondary PM emissions (lb/yr) = energy impacts (MM Btu/yr) x [NSPS limit for coal-fired utility boilers (0.03 lb PM/MM Btu) x 53% electricity generation using coal + AP-42 emission factor for oil/gas-fired turbines (1.9 lb PM/MM cubic feet [ft³]) / 1,020 MM Btu/MM ft³ of natural gas x 22% electricity generation using oil/natural gas or “other”]^{7,8}

Secondary CO emissions (lb/yr) = energy impacts (MM Btu/yr) x [AP-42 emission factor for coal-fired utility boilers (5 lb CO/ton bituminous coal) / 26 MM Btu/ton bituminous coal x 53% electricity generation using coal + AP-42 emission factor for natural gas (84 lb CO/MM ft³) / 1,020 MM Btu/MM ft³ of natural gas x 22% electricity generation using oil/natural gas or “other”]^{8,9}

Secondary NO_x emissions (lb/yr) = energy impacts (MM Btu/yr) x [Clean Air Markets emission factor for coal-fired utility boilers (0.25 lb NO_x/MM Btu) x (100% - 61%) + AP-42 emission factor for oil/gas-fired turbines (100 lb NO_x/MM ft³) / 1,020 MM Btu/MM ft³ natural gas x (100% - 61%) x 22% electricity generation using oil/natural gas or “other”]^{8,10,11}

Secondary SO₂ emissions (lb/yr) = energy impacts (MM Btu/yr) x [Clean Air Markets emission factor for coal-fired utility boilers (0.737 lb SO₂/MM Btu) x (100% - 70%) + AP-42 emission factor for oil/gas-fired turbines (0.6 lb SO₂/MM ft³) / 1,020 MM Btu/MM ft³ natural gas x 22% electricity generation using oil/natural gas or “other”]^{8,10,11}

As shown in Table 3, the secondary emissions associated with using a packed-bed wet scrubber range from 0.2 to 4.7 lb/yr of PM, 1.5 to 34 lb/yr of CO, 0.7 to 17 lb/yr of NO_x, and 1.4 to 34 lb/yr of SO₂.

B. Fabric Filters

Fabric filters can be used to improve the PM (and associated particulate metals) emission control at HMIWI. Table 4 presents the impacts estimated for fabric filters for each model HMIWI.

We estimated the solid waste impacts associated with using a fabric filter (as shown in the following equation) by calculating the amount of dust disposal, in tons per year (tpy).

Dust disposal (tpy) = PM inlet concentration (grains per dry standard cubic foot [gr/dscf]) x gas flow rate (dry standard cubic feet per minute [dscfm]) x 60 minutes per hour (min/hr) x 1 lb/7,000 gr x 1 ton/2,000 lb x operating hours per year (hr/yr)

The dust disposal calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI.⁴ As shown in Table 4, the solid waste impacts associated with using a fabric filter range from 0.06 to 10 tpy.

We estimated the energy impacts associated with using a fabric filter (as shown in the following equation) by calculating the amount of electricity needed to operate the fabric filter and converting that amount to MM Btu/yr.

Energy impacts (MM Btu/yr) = 0.746 kilowatts/horsepower (kW/hp) x horsepower (hp) x operating hours per year (hr/yr) x 1 Btu/0.000292875 kWh x 1 MM Btu/10⁶ Btu

The electricity calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI.⁴ The equation for horsepower is presented in Table 4. As shown in Table 4, the energy impacts associated with using a fabric filter range from 32 to 537 MM Btu/yr.

We estimated the secondary emissions by multiplying the energy impacts by the aforementioned PM, CO, NO_x, and SO₂ emission factors and projected generation mix for 2015. As shown in Table 4, the secondary emissions associated with using a fabric filter range from 0.5 to 8.8 lb/yr of PM, 3.7 to 64 lb/yr of CO, 1.9 to 32 lb/yr of NO_x, and 3.7 to 63 lb/yr of SO₂.

C. Dry Scrubbers

A dry scrubber can be used in concert with a fabric filter to reduce emissions of PM, as well as emissions of acid gases such as HCl. The predominant type of dry system used at HMIWI is a dry sorbent injection system followed by a fabric filter (DIFF). Table 5 presents the impacts estimated for DIFF for each model HMIWI.

We estimated the solid waste impacts associated with using DIFF (as shown in the following equation) by calculating the amount of dust disposal (in tpy).

Dust disposal (tpy) = [(PM inlet concentration (gr/dscf) x gas flow rate (dscfm) x 60 min/hr x 1 lb/7,000 gr) + (HCl inlet concentration (parts per million by volume, dry basis [ppmvd]) x gas flow rate (dscfm) x 60 min/hr x 2.86E-7 lb/dscf)] x 1 ton/2,000 lb x operating hours per year (hr/yr)

The dust disposal calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI and a memo update.^{4,12} As shown in Table 5, the solid waste impacts associated with using a DIFF range from 1.8 to 194 tpy.

We estimated the energy impacts associated with using a DIFF using the same equation as that used for fabric filters, with the same results, as shown in Table 5. We estimated the secondary emissions by multiplying these energy impacts by the aforementioned PM, CO, NO_x, and SO₂ emission factors and projected generation mix for 2015. As shown in Table 5, we estimated the secondary emissions associated with using a DIFF to be the same as those associated with using only a fabric filter.

D. Secondary Chamber Retrofits

Secondary chamber retrofits, which include retrofitting the incinerator with a larger secondary chamber (with a longer gas residence time, e.g., 2 seconds) and operating it at a higher temperature (e.g. 1800°F), can achieve greater reductions in emissions of combustion-related pollutants such as CO and CDD/CDF. Table 6 presents the impacts estimated for secondary chamber retrofits for each model HMIWI.

We estimated the energy impacts associated with secondary chamber retrofits (as shown in the following equations) by calculating the amount of natural gas fired (in million cubic feet per year [MM ft³/yr]) and converting that amount to MM Btu/yr.

$$\text{Natural gas (MM Btu/yr)} = 0.32 \text{ Btu/lb/}^\circ\text{F} \times 28.5 \text{ lb/lb-mole} \times (1800 - 1700^\circ\text{F}) \text{ temperature increase} \times \text{lb-mole}/385 \text{ ft}^3 \times \text{ft}^3/1,000 \text{ Btu} \times \text{gas flow rate (dscfm)}/0.9 \times 60 \text{ min/hr} \times \text{operating hours per year (hr/yr)} \times 1 \text{ MM ft}^3/10^6 \text{ ft}^3 \times 1,000 \text{ MM Btu/MM ft}^3$$

The natural gas calculation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI and a memo update.^{4,13} As shown in Table 6, the energy impacts associated with secondary chamber retrofits range from 142 to 3,790 MM Btu/yr.

We estimated the secondary emissions associated with secondary chamber retrofits (as shown in the following equations) by multiplying the amount of additional natural gas by the AP-42 emission factors for PM, CO, NO_x, and SO₂ associated with natural gas-fired boilers.

$$\text{Secondary PM emissions (lb/yr)} = \text{natural gas (MM ft}^3\text{/yr)} \times \text{AP-42 emission factor (1.9 lb PM/MM ft}^3\text{)}^8$$

$$\text{Secondary CO emissions (lb/yr)} = \text{natural gas (MM ft}^3\text{/yr)} \times \text{AP-42 emission factor (84 lb CO/MM ft}^3\text{)}^8$$

$$\text{Secondary NO}_x \text{ emissions (lb/yr)} = \text{natural gas (MM ft}^3\text{/yr)} \times \text{AP-42 emission factor (100 lb NO}_x\text{/MM ft}^3\text{)}^8$$

$$\text{Secondary SO}_2 \text{ emissions (lb/yr)} = \text{natural gas (MM ft}^3\text{/yr)} \times \text{AP-42 emission factor (0.6 lb SO}_2\text{/MM ft}^3\text{)}^8$$

As shown in Table 6, the secondary emissions associated with secondary chamber retrofits range from 0.3 to 7.2 lb/yr of PM, 12 to 318 lb/yr of CO, 14 to 379 lb/yr of NO_x, and 0.09 to 2.3 lb/yr of SO₂.

E. Selective Noncatalytic Reduction

In an SNCR system, a nitrogen-based reducing agent, or reagent, such as ammonia or urea, is injected into the post-combustion flue gas through nozzles mounted on the wall of the combustion unit; SNCR is based on the chemical reduction of the NO_x molecule into molecular nitrogen (N₂) and water vapor (H₂O).¹⁴ SNCR systems have been used for NO_x emission control on combustion units such as industrial boilers, electric utility steam generators, thermal incinerators, and municipal solid waste energy recovery facilities.¹⁴ NO_x reductions of 45 percent or higher are estimated for HMIWI using SNCR systems.¹⁵ Table 7 presents the impacts estimated for SNCR for each model HMIWI.

When an SNCR system is installed on an HMIWI, the thermal efficiency of the HMIWI is reduced, so more waste has to be incinerated in order to maintain the efficiency; the incineration of more waste results in more ash to be disposed of as solid waste.¹⁴ We estimated the solid waste impacts associated with using SNCR systems (as shown in the following equation) by calculating the additional ash that would be generated (in tpy).

Ash generated (tpy) = [Heat of vaporization of water at 310°F (900 Btu/lb) x NO_x reagent mass flow rate (1.69 lb/hr) x (1 / 0.1% NO_x reagent - 1) / HMI waste heating value (8,500 Btu/lb)] x 1 ton/2,000 lb x operating hours per year (hr/yr)

The ash generation calculation is based on algorithms in the *OAQPS Control Cost Manual*.¹⁴ As shown in Table 7, the solid waste impacts associated with using an SNCR system range from 1.3 to 5.4 tpy.

We estimated the energy impacts associated with using SNCR systems (as shown in the following equation) by calculating the amount of electricity and converting that amount to MM Btu/yr. The electricity calculation is based on algorithms in the *OAQPS Control Cost Manual*.¹⁴

Energy impacts (MM Btu/yr) = 0.47 x kW [inlet NO_x concentration (0.28 lb/MM Btu) x incinerator charge rate (lb waste/hr) x heating value (assumed 8,500 Btu/lb waste) x 1 MM Btu/10⁶ Btu / 9.5] x 1 Btu/0.000292875 kWh x 1 MM Btu/10⁶ Btu x operating hours per year (hr/yr)

The algorithms are dependent on the NO_x concentration at the inlet to the SNCR system, which we estimated to be 0.28 lb/million Btu (MM Btu), based on the average of the NO_x concentration data for currently operating HMIWI. We estimated the NO_x concentration for each HMIWI (as shown in the following equation) using baseline emissions estimates developed in a separate memorandum.¹⁶

NO_x concentration (lb/MM Btu) = NO_x baseline emissions (lb/yr) / [operating hours per year (hr/yr) x incinerator charge rate (lb waste/hr) x heating value (8,500 Btu/lb waste)] x 10⁶ Btu/MM Btu

As shown in Table 7, the energy impacts associated with using SNCR systems range from 0.08 to 3.6 MM Btu/yr. We estimated the secondary emissions by multiplying these energy impacts by the aforementioned PM, CO, NO_x, and SO₂ emission factors and projected generation mix for 2015. As shown in Table 7, the secondary emissions associated with using SNCR systems are very low, ranging from 0.001 to 0.06 lb/yr of PM, 0.009 to 0.4 lb/yr of CO, 0.005 to 0.2 lb/yr of NO_x, and 0.009 to 0.4 lb/yr of SO₂.

F. Activated Carbon Injection System

Injecting activated carbon before the fabric filter has been demonstrated to improve the removal efficiency of both Hg and CDD/CDF from HMIWI.⁴ Table 8 presents the impacts estimated for ACI systems for each model HMIWI.

We estimated the solid waste impacts associated with using ACI systems (as shown in the following equation) by calculating the amount of dust disposal (in tpy). The dust disposal equation is based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI.⁴

Dust disposal = 0.00127 x gas flow rate (dscfm) x 1 ton/2,000 lb x operating hours per year (hr/yr)

The factor of 0.00127 in the equation is based on an ACI rate capable of producing a carbon concentration of 338 milligrams per dry standard cubic meter (mg/dscm), which is expected to achieve reductions of 90 percent for Hg and 98 percent for CDD/CDF relative to inlet levels.⁴ As shown in Table 8, the solid waste impacts associated with using ACI systems range from 0.6 to 15 tpy.

G. Incremental Controls

In some instances, it may not be necessary to install a new control system to achieve the emissions reductions necessary to meet the emission levels associated with the control options. An incremental reduction in emissions may be achieved by simply increasing the amount of caustic used in the wet scrubber; increasing the flow of lime, sodium bicarbonate (NaHCO₃), or activated carbon prior to the fabric filter; increasing wet scrubber horsepower; increasing the amount of NO_x reagent injected into the post-combustion flue gas; or increasing the amount of natural gas used in the incinerator. Table 9 presents the model impacts for each of these incremental control measures, and the following sections discuss how we estimated the model impacts for each of the controls.

1. Increase caustic. One strategy to reduce acid gas emissions such as HCl further is to increase the amount of caustic used in the wet scrubber to react with and neutralize the acid gases in the gas stream. The addition of caustic is assumed to sufficiently reduce emissions without requiring any changes to the wet scrubber. We estimated the wastewater impacts associated with the addition of caustic using the same equation for sewage disposal employed for packed-bed wet scrubbers, and obtained the same results for the four model HMIWI, as shown in Table 9.

2. Increase lime/sodium bicarbonate flow. Emissions of acid gases such as HCl may be reduced further by increasing the feed rate of lime or NaHCO₃ prior to the fabric filter. We estimated the solid waste impacts associated with increasing the flow of lime and NaHCO₃ (as shown in the following equations) by calculating the amount of dust disposal (in tpy).

Lime dust disposal (tpy) = [HCl inlet concentration (ppmvd)] x [gas flow rate (dscfm)] x [60 min/hr] x [2.86E-7 lb/dscf] x [1 ton/2,000 lb] x [operating hours per year (hr/yr)]

NaHCO₃ dust disposal (tpy) = [HCl inlet concentration (ppmvd)] x [gas flow rate (dscfm)] x [60 min/hr] x [2.10E-7 lb/dscf] x [1 ton/2,000 lb] x [operating hours per year (hr/yr)]

The dust disposal calculations are based on algorithms in the *Model Plant Description and Control Cost Report* for HMIWI and a memo update.^{4,12} As shown in Table 9, the solid waste impacts range from 1.7 to 183 tpy with an increase in lime flow and 1.2 to 135 tpy with an increase in NaHCO₃ flow.

3. Increase activated carbon flow. As noted previously, injecting activated carbon before the fabric filter has been demonstrated to improve the removal efficiency of both Hg and CDD/CDF from HMIWI.⁴ We estimated the solid waste impacts associated with increasing

activated carbon flow using the same equation for dust disposal employed for ACI systems, and obtained the same results for the four model HMIWI, as shown in Table 9.

4. Increase NO_x reagent. As noted previously, one strategy to reduce NO_x emissions further is to increase the amount of NO_x reagent, such as ammonia or urea, used in SNCR systems. Because the addition of NO_x reagent reduces the thermal efficiency of the HMIWI, more waste must be incinerated to maintain the efficiency, resulting in the generation of additional ash.¹⁴ We estimated the additional ash, disposed of as solid waste, using the same equation employed for SNCR systems, and obtained the same results for the four model HMIWI, as shown in Table 9.

5. Increase scrubber horsepower. One strategy to reduce PM emissions further is to increase the PM collection efficiency of the wet scrubber by increasing its pressure drop, which increases the energy demand (horsepower) of the scrubber system, specifically the fan and pump. We estimated the energy impacts associated with increasing scrubber horsepower based on fan and pump electricity equations for wet scrubbers in the Model Plant Description and Control Cost Report for HMIWI and a memo update.^{4,5} As shown in Table 9, the energy impacts associated with increasing scrubber horsepower range from 71 to 1,490 MM Btu/yr. We estimated the secondary emissions by multiplying these energy impacts by the aforementioned PM, CO, NO_x, and SO₂ emission factors and projected generation mix for 2015. As shown in Table 9, the secondary emissions associated with increasing scrubber horsepower range from 0.3 to 7.2 lb/yr of PM, 12 to 318 lb/yr of CO, 14 to 379 lb/yr of NO_x, and 0.09 to 2.3 lb/yr of SO₂.

6. Increase natural gas use. One strategy to reduce CO and CDD/CDF emissions further is to increase the amount of natural gas fired in the secondary chamber and consequently increase the temperature in the secondary chamber. Carbon monoxide is a product of incomplete combustion, and increasing the temperature in the secondary chamber should subsequently increase the degree of combustion in the chamber; higher temperatures in the secondary chamber should also contribute to the decomposition of CDD/CDF compounds.¹⁷ Combustion can be improved in other ways (e.g., tuning up burners or improving mixing in the secondary chamber), but for purposes of this memorandum, analyses were conservatively based on increased natural gas use. We estimated the energy impacts and secondary emissions associated with firing additional natural gas using the same equations employed for secondary chamber retrofits, and obtained the same results for the four model HMIWI, as shown in Table 9.

H. Autoclave/Landfill

In some instances, the cost to comply with the re-developed HMIWI regulation may lead some facilities (e.g., hospitals) to switch to other waste treatment and disposal methods, such as onsite steam sterilization (autoclaving), chemical treatment (e.g., ozone, electropyrolysis, chlorine compounds, alkali agents), or thermal treatment (e.g., plasma arc, microwave technologies). Mechanical systems (e.g., shredding, compacting) could also be used in combination with these systems, as applicable. This section discusses the model impacts associated with the most highly available and widely used alternative to compliance—autoclaving the waste, followed by landfilling of the autoclaved waste. Tables 10 and 11 present the model impacts associated with autoclaving and landfilling.

1. Energy impacts. We estimated the energy impacts associated with using an autoclave (as shown in the following equation) by taking vendor estimates of sterilizer steam usage (lb/hr of steam) and sterilizer/compactor electricity usage (kWh/hr of electricity) and converting those estimates to MM Btu/yr.¹⁸

Energy impacts (MM Btu/yr) = [Sterilizer steam usage (lb steam/hr) x (922 Btu/lb steam) x (1 MM Btu/10⁶ Btu) x (operating hours per year [hr/yr])] + [sterilizer/compactor electrical usage (kWh/hr) x (1 Btu/0.000292875 kWh) x (1 MM Btu/10⁶ Btu) x (operating hours per year [hr/yr])]

As shown in Table 10, the energy impacts associated with using an autoclave range from 38 to 1,107 MM Btu/yr.

2. Environmental impacts. In public comments on the December 2008 HMIWI re-proposal, one commenter argued that steam sterilization can result in the release of uncontrolled Hg vapors from the autoclaving process, so any HMI waste displaced from their facility to autoclaves would result in an increase in Hg emissions from the autoclaves. The commenter suggested that EPA assess these potential impacts before adopting the final HMIWI rule.¹⁹

We agree with the commenter that autoclaving the HMI waste has some environmental impacts. Those impacts include HAP emissions (such as Hg) from autoclaving, wastewater discharge to the sewer, landfilling of the autoclaved waste, secondary emissions from autoclaving and landfilling, and the presence of untreated pharmaceuticals in the environment.

Because the pollutants released from autoclaving are the same as those that enter the autoclave in the waste, one way to address concerns about autoclave HAP emissions would be for facilities to conduct proper waste segregation (such as segregation of mercury-containing waste) prior to autoclaving the waste. There are currently insufficient HAP emissions data for autoclaves to accurately quantify these impacts, but emissions are not expected to be significant.^{20,21}

We estimated the wastewater impacts associated with using an autoclave (as shown in the following equation) by taking vendor estimates of sterilizer steam usage (lb/hr of steam) and converting those estimates to gallons per year (gpy), assuming that all of the water used in the process is discharged (none recycled):¹⁸

Wastewater impacts (gpy) = sterilizer steam usage (lb steam/hr) x density of water (8.3 lb/gal) x operating hours per year (hr/yr)

As shown in Table 10, the model wastewater impacts associated with using an autoclave range from 4,610 to 141,123 gpy.

Two other commenters on the HMIWI re-proposal argued that autoclaving does not achieve the degree of volume reduction that can be achieved with incineration and results in the depletion of landfill space.^{22,23} We estimated the solid waste impacts associated with landfilling the autoclaved waste (as opposed to landfilling the incinerated waste) using the following equation, assuming HMIWI typically operate at two-thirds of capacity and assuming a 90 percent reduction in solid waste with incineration:

Solid waste (tpy) = autoclaved waste landfilled [incinerator capacity x 67% operating factor] x [operating hours per year (hr/yr)] - incinerated waste landfilled [incinerator capacity x 67% operating factor] x [100% - 90% reduction in solid waste] x [operating hours per year (hr/yr)] x [1 ton/2,000 lb]

As shown in Table 11, the model solid waste impacts range from 57 to 2,714 tpy.

We estimated the PM, CO, NO_x, and SO₂ secondary emissions associated with autoclaving by multiplying the autoclave energy impacts by the aforementioned PM, CO, NO_x, and SO₂ emission factors and projected generation mix for 2015. As shown in Table 10, the secondary emissions associated with using an autoclave range from 0.6 to 18 lb/yr of PM, 4.5 to 132 lb/yr of CO, 2.3 to 67 lb/yr of NO_x, and 4.5 to 130 lb/yr of SO₂.

We estimated the methane (CH₄) and Hg secondary emissions associated with landfilling the autoclaved waste using a series of equations from AP-42, as shown in Table 11.²⁴ The CH₄ emissions are expected to be controlled and range from 0.3 to 16 tpy. Although Hg emissions from landfills are expected to be uncontrolled, the emissions are estimated to be minimal, ranging from 1.81E-05 to 8.67E-04 lb/yr.

One commenter on the HMIWI re-proposal pointed out another environmental impact associated with landfilling the autoclaved waste—landfill leachate.²² Although data are limited, Toxicity Characteristics Leachate Procedure (TCLP) tests conducted on HMI waste treated by one autoclave indicate results far below the regulatory threshold for metals and organics.²¹ The commenter also noted the impact on waste transportation traffic from transporting the autoclaved waste, but we have insufficient data to conduct a quantitative analysis of such an impact.²²

Because autoclaving only disinfects the waste and does not destroy it, the wastewater generated from autoclaving pharmaceutical-containing waste would include the active ingredients from these pharmaceuticals. As a result, increased burden would be placed on publicly owned treatment plants, which may not have the required treatment technologies to treat waters with high concentrations of pharmaceuticals. In addition, these pharmaceuticals could have ecosystem effects.²⁵ No specific estimates are available on the concentrations of active pharmaceutical ingredients (APIs) in autoclave wastewater discharges, or their impact on ecosystems.

Because APIs from most pharmaceuticals are not expected to be affected by autoclave treatment, landfilling of autoclaved waste containing pharmaceuticals is not expected to be significantly different than disposing of the unused pharmaceuticals in municipal waste. It should be noted that a survey of commercial HMIWI clients found that 90 percent of the clients use red bags for disposal of unused pharmaceuticals, indicating a clear preference for disposing of pharmaceuticals as biohazard waste and not general municipal waste.²⁵ As with wastewater, we have no specific estimates about the amount of APIs in autoclaved solid waste.

Although air emissions from autoclave treatment would include any compounds volatilized from the waste, we are not aware of any testing of APIs in autoclave emissions.²⁵ Also, as noted previously, autoclave emissions are not believed to be significant.²⁰ One option to address concerns about pharmaceuticals in the air, water, or solid waste would be to segregate waste such as pharmaceuticals prior to autoclaving.

III. Nationwide Impacts

A. MACT Floor

To determine nationwide secondary impacts for all 57 HMIWI currently operating, we first compared average emission estimates for each pollutant and each HMIWI currently operating to the MACT floor emission limits (or the applicable 1997 emission limits, if more stringent) to determine which HMIWI would be impacted for a particular pollutant, and by how much. Then, we determined the type of emission control needed to bring the HMIWI into compliance with the emission limit. For example, if an HMIWI equipped with a DIFF was impacted for HCl by a substantial amount (e.g., over 50 percent), then we determined that a packed-bed scrubber should be installed to bring the HMIWI into compliance with the HCl limit. If the HCl impact was minimal, we determined that a less stringent control (e.g., adding more lime to the DIFF) would be sufficient. We took this approach with each pollutant individually, and compared the results across all pollutants to determine the best combination of emission controls needed to bring the HMIWI into compliance with all of the applicable emission limits. See Table 12 for this list of emission controls.

Once we determined the best combination of emission controls, we assigned the model secondary impacts associated with those emission controls to the impacted HMIWI, based on which HMIWI size category (large, medium, small non-rural, small rural) the impacted HMIWI belonged. For example, we applied large model secondary impacts associated with packed-bed scrubbers and ACI systems to a large HMIWI that needs to install those emission controls to comply with the HCl and CDD/CDF emission limits. The model secondary impacts that we applied included the wastewater impacts, energy impacts, and secondary emissions associated with packed-bed scrubbers and the solid waste impacts associated with ACI systems. Table 12 show the secondary impacts estimates we applied to each HMIWI at the MACT floor and presents estimated nationwide totals. The MACT floor totals in Table 12 show nationwide energy impacts of 32,500 MM Btu/yr (9,500 megawatt-hours per year [MWh/yr]); nationwide solid waste impacts of 3,800 tpy; nationwide wastewater impacts of 86,000 gpy; and nationwide secondary emissions of 8,000 lb/yr (including 280 lb/yr of PM, 3,300 lb/yr of CO, 2,700 lb/yr of NO_x, and 1,800 lb/yr of SO₂).

B. Beyond the Floor

We also used the approach described above to estimate secondary impacts for the BTF options, except that for the BTF options, we took into consideration the type of control assigned at the MACT floor in determining the type of BTF control. For example, if an HMIWI is impacted for HCl at the MACT floor and we determine that a packed-bed scrubber is necessary, then if the HMIWI is also impacted for HCl under the more stringent BTF option, the incremental control to achieve the BTF HCl limit would be to use more caustic in the packed-bed scrubber. See Table 13 for the list of emission controls determined to be necessary to bring HMIWI into compliance beyond the floor. Table 13 also shows the secondary impacts estimates applied to each HMIWI beyond the floor and presents estimated nationwide totals. The BTF totals in Table 13 show nationwide energy impacts of 8,800 MM Btu/yr (2,600 MWh/yr); nationwide solid waste impacts of 1,100 tpy; nationwide wastewater impacts of 170,000 gpy; and nationwide secondary emissions

of 1,800 lb/yr (including 38 lb/yr of PM, 790 lb/yr of CO, 830 lb/yr of NO_x, and 180 lb/yr of SO₂).

C. Autoclave/Landfill

We also assigned the secondary impacts associated with the primary alternative to compliance (i.e., autoclaving and landfilling the waste) to each HMIWI, so we could compare the impacts for this alternative option to the impacts for each HMIWI at the floor and beyond the floor. See Table 14 for the nationwide autoclave/landfill impacts. As shown in Table 14, autoclave/landfill energy impacts are approximately 42,400 MM Btu/yr (12,400 MWh/yr); wastewater impacts are approximately 5.4 million gpy; solid waste impacts are approximately 15,100 tpy; autoclave secondary emissions are approximately 13,300 lb/yr (including 700 lb/yr of PM, 5,000 lb/yr of CO, 2,600 lb/yr of NO_x, and 5,000 lb/yr of SO₂); and landfill secondary emissions are approximately 600 tpy (including 600 tpy of CH₄ and 0.03 lb/yr of Hg). Compared to the MACT floor totals, the autoclave/landfill option has 1.3 times the energy impacts, 63 times the wastewater impacts, 3.9 times the solid waste impacts, and 1.7 times the secondary emissions (PM, CO, NO_x, and SO₂ only). The difference is slightly less when BTF impacts are added to the MACT floor impacts; the autoclave/landfill option has 1.03 times the energy impacts, 21 times the wastewater impacts, 3.0 times the solid waste impacts, and 1.4 times the secondary emissions (PM, CO, NO_x, and SO₂ only).

Table 15 presents a nationwide secondary impacts summary, which includes the energy impacts, solid waste impacts, wastewater impacts, and secondary emissions associated with complying with the MACT floor, BTF, and autoclave/landfill options.

IV. References

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Table 1. Basis for Model HMIWI Parameters

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)	Operating hours (hr/yr)	HCl (ppmvd)	HCl % reduction	HCl unc. (ppmvd)	PM (gr/dscf)	PM % reduction	PM unc. (gr/dscf)
1	1	Bristol-Myers Squibb Co.		Wallingford	CT	L	E	FF	1,000	1,648	2,072	65.7			0.00180	99%	0.180
5	5	Merck & Company, Inc.		Rahway	NJ	L	E	DIFF	799	7,346	4,321	0.780			0.00330	99%	0.330
15	15-1	Curtis Bay Energy	Unit 1	Baltimore	MD	L	E	DIFF	7,083	27,698	8,736	85.2	93.19%	1,251	0.00823	99%	0.823
15	15-2	Curtis Bay Energy	Unit 2	Baltimore	MD	L	E	DIFF	7,083	30,578	8,736	76.9	92.27%	994	0.00407	99%	0.407
36	36-1	Merck & Company, Inc.	Unit 2	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	2,000	5,235	865	4.22			0.00156	99%	0.156
36	36-2	Merck & Company, Inc.	Unit 5	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	3,045	8,119	5,753	3.75			0.00255	99%	0.255
40	40	Charleston Area Medical Center, General Hospital		Charleston	WV	L	E	DIFF	1,000	4,323	1,248	26.6			0.00106	99%	0.106
42	42	Stericycle, Inc.		Apopka	FL	L	E	DIFF	1,900	7,008	7,951	27.1			0.00203	99%	0.203
51	51	Lakeland Regional Medical Center		Lakeland	FL	L	E	DIFF	750	3,323	6,247	2.68			0.00254	99%	0.254
60	60-1	BMWNC, Inc.	Unit 1	Matthews, Inc.	NC	L	E	DIFF	1,500	6,763	7,456	38.8	96.24%	1,031	0.00504	99%	0.504
84	84	Mayo Clinic, Waste Management Facility		Rochester	MN	L	E	DIFF	2,000	6,516	6,240	15.2	96.93%	497	0.0137	99%	1.367
87	87	MedCentral Health System, Mansfield Hospital		Mansfield	OH	L	E	DIFF	600	2,351	3,120	24.8			0.00357	99%	0.357
109	109	Healthcare Environmental Services Inc.		Fargo	ND	L	E	DIFF	1,686	4,478	1,872	72.5			0.00611	99%	0.611
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	Anahuac	TX	L	N	DIFF	4,167	10,031	7,896	11.0	98.76%	888	0.00702	99%	0.702
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	Anahuac	TX	L	N	DIFF	4,167	9,028	7,896	5.30	99.11%	594	0.00947	99%	0.947
29	29	Hamot Medical Center		Erie	PA	L	E	DIFF/WS	1,060	3,701	2,080	16.6			0.00174	99%	0.174
55	55	St. Joseph's Hospital		Tampa	FL	L	E	DIFF/WS	1,500	3,347	8,008	12.5			0.00111	99%	0.111
110	110	Stericycle, Inc.		North Salt Lake	UT	L	E	DI-ESP/WS	1,935	6,291	7,309	3.93			0.00449	99%	0.449
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		Greenville	NC	L	N	HEPA/CA/WS	1,000	3,124	625	1.58	99.996%	43,053	0.00323	99%	0.323
20	20-1	Fort Detrick	Unit 5	Fort Detrick	MD	L	E	WS	1,000	2,424	1,300	0.190			0.00721	85%	0.048
20	20-2	Fort Detrick	Unit 6	Fort Detrick	MD	L	E	WS	1,000	2,308	1,300	0.353			0.00775	85%	0.052
43	43	Boca Raton Community Hospital		Boca Raton	FL	L	E	WS	730	2,078	8,736	0.986			0.0104	85%	0.069
44	44	Bethesda Memorial Hospital		Boynton Beach	FL	L	E	WS	1,000	4,537	3,024	0.608			0.00960	85%	0.064
46	46	Holy Cross Hospital		Fort Lauderdale	FL	L	E	WS	1,300	3,378	2,964	1.18			0.0103	85%	0.069
48	48	Memorial Regional Hospital		Hollywood	FL	L	E	WS	1,800	4,568	4,992	1.02			0.00973	85%	0.065
54	54	Bayfront Medical Center		St. Petersburg	FL	L	E	WS	1,500	2,898	3,352	0.947			0.00543	85%	0.036
59	59-1	Stericycle, Inc.	Unit 1	Haw River	NC	L	E	WS	1,911	4,002	8,400	4.24			0.00714	85%	0.048
59	59-2	Stericycle, Inc.	Unit 2	Haw River	NC	L	E	WS	1,911	3,917	8,400	3.88			0.0102	85%	0.068
65	65-1	Stericycle, Inc.	Unit 1	Clinton	IL	L	E	WS	1,500	3,304	7,665	1.12			0.00921	85%	0.061
65	65-2	Stericycle, Inc.	Unit 2	Clinton	IL	L	E	WS	1,500	3,125	7,558	1.43			0.00878	85%	0.059
71	71	Loyola University Medical Center		Maywood	IL	L	E	WS	1,650	3,526	4,800	2.22			0.0105	85%	0.070
77	77	Parkview Hospital		Fort Wayne	IN	L	E	WS	1,200	2,766	8,395	2.68	99.29%	380	0.0109	85%	0.073
94	94	Stericycle, Inc.		Warren	OH	L	E	WS	1,400	2,737	7,904	0.661			0.00617	85%	0.041
98	98-1	University of Texas Medical Branch		Galveston	TX	L	E	WS	1,500	4,534	5,328	2.12			0.0147	85%	0.098

Table 1. Basis for Model HMIWI Parameters

FACID	UNITID	Facility name	Unit number	City	State	Category	New/existing	APCD code	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)	Operating hours (hr/yr)	HCl (ppmvd)	HCl % reduction	HCl unc. (ppmvd)	PM (gr/dscf)	PM % reduction	PM unc. (gr/dscf)
106	106	Stericycle, Inc.		Kansas City	KS	L	E	WS	1,500	3,590	8,760	0.567			0.00828	85%	0.055
130	130	Department of Veterans Affairs Medical Center		Miami	FL	L	E	WS	1,000	6,422	4,160	8.32	99%	832	0.0111	85%	0.074
						Avg L			1,500	3,959	5,997	3.82	98.8%	888	0.007		0.108
						Avg L, dry						24.83	96.6%	0.004			
38	38	Wilkes-Barre General Hospital		Wilkes-Barre	PA	M	N	DIFF	400	2,063	4,472	8.95	95%	179	0.00399	99%	0.399
63	63	St. Jude Children's Research Hospital		Memphis	TN	M	E	DIFF	500	2,333	1,050	27.5	95%	551	0.00505	99%	0.505
95	95	St. Joseph's Hospital		Marshfield	WI	M	E	DIFF	500	1,634	1,404	5.27	95%	105	0.00294	99%	0.294
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		Baltimore	MD	M	E	WS	500	1,972	1,440	0.708	99%	71	0.0126	85%	0.084
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		Baltimore	MD	M	E	WS	320	1,890	1,350	1.39	99%	139	0.0294	85%	0.196
18	18	Franklin Square Hospital Center		Baltimore	MD	M	E	WS	500	2,999	5,408	1.48	99%	148	0.0256	85%	0.170
21	21	Washington County Hospital		Hagerstown	MD	M	E	WS	500	1,834	2,496	6.26	99%	626	0.0197	85%	0.131
25	25	Holy Spirit Hospital		Camp Hill	PA	M	E	WS	500	1,702	3,944	0.736	99%	74	0.0164	85%	0.110
30	30	Riddle Memorial Hospital		Media	PA	M	E	WS	500	1,730	2,920	2.10	99%	210	0.0124	85%	0.083
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		State College	PA	M	E	WS	500	2,117	1,022	1.27	99%	127	0.0239	85%	0.159
41	41	Thomas Memorial Hospital		South Charleston	WV	M	E	WS	470	1,526	2,080	2.62	99%	262	0.0261	85%	0.174
47	47	Malcolm Randall Veterans Affairs Medical Center		Gainesville	FL	M	E	WS	495	1,645	1,664	4.69	99%	469	0.0173	85%	0.115
81	81	South Bend Medical Foundation		South Bend	IN	M	E	WS	470	2,325	2,028	12.3	99%	1,230	0.01159	85%	0.077
82	82	Good Samaritan Hospital		Vincennes	IN	M	E	WS	500	1,352	2,574	1.58	99%	158	0.0137	85%	0.091
88	88	Medina General Hospital		Medina	OH	M	E	WS	300	1,153	3,016	3.29	99%	329	0.0267	85%	0.178
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	Hamilton	MT	M	E	WS	500	1,790	1,248	0.455	99%	46	0.0216	85%	0.144
111	111	Wyoming Medical Center		Casper	WY	M	E	WS	400	1,505	989	1.17	99%	117	0.00336	85%	0.022
						Avg M			500	1,790	2,028	2.10		158	0.016		0.144
						Avg M, dry						8.95		0.004			
86	86	Fairfield Medical Center		Lancaster	OH	S	E	WS	95	1,095	5,018	1.03	99%	103	0.0137	85%	0.091
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	Atlanta	GA	S	N	WS	120	715	2,920	1.30	99%	130	0.00760	85%	0.051
						Avg S			108	905	3,969	1.16		116	0.011		0.071
115	115	Kona Community Hospital		Kealahou	HI	SR	E	CC	200	684	1,430	135		135	0.0128		0.0128
116	116	Yukon-Kuskokwim Delta Regional Hospital		Bethel	AK	SR	E	CC	50	559	1,560	298		298	0.0162		0.0162
						Avg SR			125	621	1,495	216		216	0.015		0.015

Notes:

1. Assumed values are highlighted in yellow.
2. For dry APCD, 95% HCl control assumed based on average % HCl control (96.59%) for several of the HMIWI in database equipped with dry APCD, and 99% PM control assumed based on % Pb and Cd control (99.6% and 99.2%) for a recently shutdown HMIWI (Northwest Hospital Center) equipped with a dry APCD.
3. For wet APCD, 99% HCl control assumed based on % HCl control (99.29%) for an HMIWI in database equipped with a wet APCD, and 85% PM control assumed based on % Pb and Cd control (87.2% and 88.4%) for a recently shutdown HMIWI (Northwest Hospital Center) equipped with a dry APCD.
4. For all units, 85% Hg control assumed based on median % Hg control (87.6%) for three HMIWI in database.

Table 1. Basis for Model HMIWI Parameters

FACID	UNITID	Facility name	Unit number	City	State	Category	NO _x (lb/yr)	NO _x (lb/hr)	NO _x (lb/lb waste)	NO _x (lb/MMBtu)
1	1	Bristol-Myers Squibb Co.		Wallingford	CT	L	2,273	1.10	0.0011	0.13
5	5	Merck & Company, Inc.		Rahway	NJ	L	19,121	4.43	0.0055	0.65
15	15-1	Curtis Bay Energy	Unit 1	Baltimore	MD	L	226,518	25.93	0.0037	0.43
15	15-2	Curtis Bay Energy	Unit 2	Baltimore	MD	L	237,734	27.21	0.0038	0.45
36	36-1	Merck & Company, Inc.	Unit 2	West Point (Upper Gwynedd Township)	PA	L	2,090	2.42	0.0012	0.14
36	36-2	Merck & Company, Inc.	Unit 5	West Point (Upper Gwynedd Township)	PA	L	21,826	3.79	0.0012	0.15
40	40	Charleston Area Medical Center, General Hospital		Charleston	WV	L	2,452	1.96	0.0020	0.23
42	42	Stericycle, Inc.		Apopka	FL	L	39,974	5.03	0.0026	0.31
51	51	Lakeland Regional Medical Center		Lakeland	FL	L	9,015	1.44	0.0019	0.23
60	60-1	BMWNC, Inc.	Unit 1	Matthews	NC	L	24,601	3.30	0.0022	0.26
84	84	Mayo Clinic, Waste Management Facility		Rochester	MN	L	35,973	5.76	0.0029	0.34
87	87	MedCentral Health System, Mansfield Hospital		Mansfield	OH	L	4,418	1.42	0.0024	0.28
109	109	Healthcare Environmental Services Inc.		Fargo	ND	L	8,612	4.60	0.0027	0.32
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	Anahuac	TX	L	28,677	3.63	0.0009	0.10
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	Anahuac	TX	L	31,733	4.02	0.0010	0.11
29	29	Hamot Medical Center		Erie	PA	L	6,563	3.16	0.0030	0.35
55	55	St. Joseph's Hospital		Tampa	FL	L	14,483	1.81	0.0012	0.14
110	110	Stericycle, Inc.		North Salt Lake	UT	L	67,691	9.26	0.0048	0.56
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		Greenville	NC	L	845	1.35	0.0014	0.16
20	20-1	Fort Detrick	Unit 5	Fort Detrick	MD	L	3,068	2.36	0.0024	0.28
20	20-2	Fort Detrick	Unit 6	Fort Detrick	MD	L	3,068	2.36	0.0024	0.28
43	43	Boca Raton Community Hospital		Boca Raton	FL	L	15,052	1.72	0.0024	0.28
44	44	Bethesda Memorial Hospital		Boynton Beach	FL	L	8,102	2.68	0.0027	0.32
46	46	Holy Cross Hospital		Fort Lauderdale	FL	L	4,403	1.49	0.0011	0.13
48	48	Memorial Regional Hospital		Hollywood	FL	L	20,301	4.07	0.0023	0.27
54	54	Bayfront Medical Center		St. Petersburg	FL	L	8,694	2.59	0.0017	0.20
59	59-1	Stericycle, Inc.	Unit 1	Haw River	NC	L	37,888	4.51	0.0024	0.28
59	59-2	Stericycle, Inc.	Unit 2	Haw River	NC	L	37,888	4.51	0.0024	0.28
65	65-1	Stericycle, Inc.	Unit 1	Clinton	IL	L	27,136	3.54	0.0024	0.28
65	65-2	Stericycle, Inc.	Unit 2	Clinton	IL	L	26,757	3.54	0.0024	0.28
71	71	Loyola University Medical Center		Maywood	IL	L	11,087	2.31	0.0014	0.16
77	77	Parkview Hospital		Fort Wayne	IN	L	23,777	2.83	0.0024	0.28
94	94	Stericycle, Inc.		Warren	OH	L	26,118	3.30	0.0024	0.28
98	98-1	University of Texas Medical Branch		Galveston	TX	L	12,637	2.37	0.0016	0.19

Table 1. Basis for Model HMIWI Parameters

FACID	UNITID	Facility name	Unit number	City	State	Category	NO _x (lb/yr)	NO _x (lb/hr)	NO _x (lb/lb waste)	NO _x (lb/MMBtu)
106	106	Stericycle, Inc.		Kansas City	KS	L	31,014	3.54	0.0024	0.28
130	130	Department of Veterans Affairs Medical Center		Miami	FL	L	13,396	3.22	0.0032	0.38
						Avge L				0.28
						Avge L, dry				
38	38	Wilkes-Barre General Hospital		Wilkes-Barre	PA	M	4,222	0.94	0.0024	0.28
63	63	St. Jude Children's Research Hospital		Memphis	TN	M	1,648	1.57	0.0031	0.37
95	95	St. Joseph's Hospital		Marshfield	WI	M	1,657	1.18	0.0024	0.28
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		Baltimore	MD	M	1,652	1.15	0.0023	0.27
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		Baltimore	MD	M	1,328	0.98	0.0031	0.36
18	18	Franklin Square Hospital Center		Baltimore	MD	M	10,116	1.87	0.0037	0.44
21	21	Washington County Hospital		Hagerstown	MD	M	2,946	1.18	0.0024	0.28
25	25	Holy Spirit Hospital		Camp Hill	PA	M	4,654	1.18	0.0024	0.28
30	30	Riddle Memorial Hospital		Media	PA	M	3,398	1.16	0.0023	0.27
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		State College	PA	M	1,206	1.18	0.0024	0.28
41	41	Thomas Memorial Hospital		South Charleston	WV	M	1,870	0.90	0.0019	0.23
47	47	Malcolm Randall Veterans Affairs Medical Center		Gainesville	FL	M	2,670	1.60	0.0032	0.38
81	81	South Bend Medical Foundation		South Bend	IN	M	460	0.23	0.0005	0.06
82	82	Good Samaritan Hospital		Vincennes	IN	M	3,038	1.18	0.0024	0.28
88	88	Medina General Hospital		Medina	OH	M	2,136	0.71	0.0024	0.28
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	Hamilton	MT	M	1,884	1.51	0.0030	0.36
111	111	Wyoming Medical Center		Casper	WY	M	1,343	1.36	0.0034	0.40
						Avge M				0.28
						Avge M, dry				
86	86	Fairfield Medical Center		Lancaster	OH	S	1,125	0.22	0.0024	0.28
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	Atlanta	GA	S	827	0.28	0.0024	0.28
						Avge S				0.28
115	115	Kona Community Hospital		Kealahou	HI	SR	675	0.47	0.0024	0.28
116	116	Yukon-Kuskokwim Delta Regional Hospital		Bethel	AK	SR	163	0.10	0.0021	0.25
						Avge SR				0.26

Notes:

1. Assumed values are highlighted in yellow.
2. For dry APCD, 95% HCl control assumed based on average % HCl control (96.59%) for several of the HMIWI in database equipped with dry APCD, and 99% PM control assumed based on % Pb and Cd control (99.6% and 99.2%) for a recently shutdown HMIWI (Northwest Hospital Center) equipped with a dry APCD.
3. For wet APCD, 99% HCl control assumed based on % HCl control (99.29%) for an HMIWI in database equipped with a wet APCD, and 85% PM control assumed based on % Pb and Cd control (87.2% and 88.4%) for a recently shutdown HMIWI (Northwest Hospital Center) equipped with a dry APCD.
4. For all units, 85% Hg control assumed based on median % Hg control (87.6%) for three HMIWI in database.

Table 2. Summary of Model HMIWI Secondary Impacts

Control option	Secondary pollutants	Large	Medium	Small	Small rural
A. Solid Waste Impacts, tpy					
1. Dry injection fabric filter		194	7.3	4.8	1.8
2. Fabric filter		10	2.3	1.1	0.06
3. Selective noncatalytic reduction / increase NO _x reagent		5.4	1.8	3.6	1.3
4. Activated carbon injection system / increase carbon flow		15	2.3	2.3	0.6
5. Increase lime flow		183	4.9	3.7	1.7
6. Increase NaHCO ₃ flow		135	3.6	2.7	1.2
7. Landfill (after autoclave)		2,714	302	121	57
B. Wastewater Impacts, gpy					
1. Packed-bed scrubber / increase caustic flow		6,533	353	47	2,156
2. Autoclave		141,123	16,805	12,294	4,610
C. Energy Impacts, MMBtu/yr					
1. Packed-bed scrubber		287	43.0	41.8	12.3
2. Dry injection fabric filter / fabric filter		537	90	108	32
3. Secondary chamber retrofit / increase natural gas		3,790	569	569	142
4. Selective noncatalytic reduction		3.6	0.4	0.2	0.08
5. Increase scrubber horsepower		1,486	236	259	71
5. Autoclave		1,107	136	102	38
D. Secondary Emissions, lb/yr					
1. Packed-bed scrubber	PM	4.7	0.7	0.7	0.2
	CO	34	5.1	5.0	1.5
	NO _x	17	2.6	2.5	0.7
	SO ₂	34	5.0	4.9	1.4
2. Dry injection fabric filter / fabric filter	PM	8.8	1.5	1.8	0.5
	CO	64	11	13	3.7
	NO _x	32	5.4	6.5	1.9
	SO ₂	63	11	13	3.7
3. Secondary chamber retrofit / increase natural gas	PM	7.2	1.1	1.1	0.3
	CO	318	48	48	12
	NO _x	379	57	57	14
	SO ₂	2.3	0.3	0.3	0.09
4. Selective noncatalytic reduction	PM	0.06	0.007	0.003	0.001
	CO	0.4	0.05	0.02	0.009
	NO _x	0.2	0.02	0.01	0.005
	SO ₂	0.4	0.05	0.02	0.009
5. Increase scrubber horsepower	PM	24	3.8	4.2	1.2
	CO	177	28	31	8.4
	NO _x	89	14	16	4.2
	SO ₂	174	28	30	8.3
6. Autoclave	PM	18	2.2	1.7	0.6
	CO	132	16	12	4.5
	NO _x	67	8.2	6.1	2.3
	SO ₂	130	16	12	4.5
7. Landfill (after autoclave)	CH ₄	16	1.8	0.7	0.3
	Hg	8.67E-04	9.63E-05	3.85E-05	1.81E-05

Table 3. Packed Bed Wet Scrubber Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Temperature out of FF into quench, F (T1)		300	300	130	1,600
3. Temperature out of PB to ID fan, F (T2)		130	130	130	130
4. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
5. Exhaust gas flow rate (dry), dscfm (Qd)		4,000	1,800	900	600
6. Assumed moisture content in gas entering quench, % (M)		10	10	10	10
7. Exhaust gas flow rate, scfm (Qw)	$= (Qd) / (1 - M/100)$	4,444	2,000	1,000	667
8. Water added in quench, scfm (Qh)	$= ((7.010 \times (T1 - 77^\circ\text{F}) - 6.958 \times (T2 - 77^\circ\text{F})) \times 0.9 + (8.154 \times (T1 - 77^\circ\text{F}) - 8.064 \times (T2 - 77^\circ\text{F})) \times 0.1) \times (\text{lb-mole}/385 \text{ scf}) \times Qw / (1,160 \text{ Btu/lb}) / (18 \text{ lb/lb-mole}) \times (0.7302 \text{ ft}^3\text{-atm/lb-mol-}^\circ\text{R}) \times 528^\circ\text{R} / 1 \text{ atm}$	259	116	0	335
9. Actual flow out of PB, acfm (Qa)	$= (Qw + Qh) \times (460^\circ\text{F} + T2)/(528^\circ\text{R})$	5,256	2,365	1,118	1,119
10. HCl concentration, ppmvd (HCl)		25	9	1.2	220
11. Assumed pressure drop through control system, inches of water (ΔP)		15	15	15	15
12. Surface area-to-volume ratio for 1" dia. Ceramic Raschig rings, ft^2/ft^3 (SAV)		58	58	58	58
13. Minimum packing wetting rate, ft^2/hr (WR)		1	1	1	1
14. Water density, lb/ft^3 (Wd)		62.4	62.4	62.4	62.4
15. Water circulation flow rate, $\text{lb}/\text{hr-ft}^2$ (Gs)	$= \text{SAV} \times \text{Wd} \times \text{WR}$	4,705	4,705	4,705	4,705
16. Estimated column cross-sectional area from separate analysis, ft^2 (A)		19.2	8.6	3.8	4.7
17. Water circulation rate, gpm (GPM)	$= Gs \times A \times (1 \text{ hr}/60 \text{ min}) \times (1 \text{ gal}/8.33 \text{ lb})$	181	81	36	44
18. Water head, ft of water (Head)		60	60	60	60
19. Wastewater (blowdown) flow, gpm (B)	$= (\text{HCl}/1000000) \times (Qd) \times (\text{lb-mole}/385 \text{ ft}^3) \times (1 \text{ lb-mole NaCl}/1 \text{ lb-mole HCl}) \times (58.2 \text{ lb NaCl}/\text{lb-mole NaCl}) \times (1 \text{ lb wastewater}/0.1 \text{ lb NaCl}) \times (1 \text{ gal}/8.33 \text{ lb})$	0.018	0.003	0.0002	0.024
B. Secondary Impacts					
1. Energy impacts					
a. kWh/yr	$= (0.000181 \times Qa \times \Delta P \times H) + (0.000289 \times \text{GPM} \times \text{Head} \times H)$	83,964	12,582	12,255	3,594
b. MMBtu/yr	$= [\text{electricity (kWh/yr)}] \times [1 \text{ Btu}/0.000292875 \text{ kWh}] \times [1 \text{ MM Btu}/10^6 \text{ Btu}]$	287	43.0	41.8	12.3
2. Wastewater impacts, gpy	$= B \times (60 \text{ min}/\text{hr}) \times H$	6,533	353	47.0	2,156
3. Secondary emissions, lb/yr					
a. PM	$= [\text{Energy impacts (MMBtu/yr)}] \times [\text{solid fuel emission factor (lb/MMBtu)}] \times [53\% \text{ energy generation from coal}] + [\text{energy impacts (MMBtu/yr)}] \times [\text{natural gas emission factor (lb/MMBtu)}] \times [22\% \text{ energy generation from oil/natural gas and other fuels}]$	4.7	0.7	0.7	0.2
b. CO		34	5.1	5.0	1.5
c. NO _x		17	2.6	2.5	0.7
d. SO ₂		34	5.0	4.9	1.4

Sources:

1. Model Plant Description and Cost Report (II-A-112).
2. Wet Scrubber Cost Memorandum (IV-B-30).

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion.

NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.

3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.

4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers.

SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 4. Fabric Filter Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
4. PM concentration, gr/dscf (PM)		0.10	0.15	0.07	0.015
B. Secondary Impacts					
1. Solid waste impacts, tpy	= PM x Q x [60 min/hr] x [1 lb/7,000 gr] x [1 ton/2,000 lb] x H	10	2.3	1.1	0.06
2. Energy impacts					
a. kWh/yr	= [0.746 kW/hp] x [hp (0.0072 x Q + 3.20)] x H	157,152	26,453	31,690	9,232
b. MMBtu/yr	= [Electricity (kWh/yr)] x [1 Btu / 0.000292875 kWh] x [1 MM Btu/10 ⁶ Btu]	537	90	108	32
3. Secondary emissions, lb/yr					
a. PM	= [Energy impacts (MMBtu/yr)] x [solid fuel emission factor (lb/MMBtu)] x [53% energy generation from coal] + [energy impacts (MMBtu/yr)] x [natural gas emission factor (lb/MMBtu)] x [22% energy generation from oil/natural gas and other fuels]	8.8	1.5	1.8	0.5
b. CO		64	11	13	3.7
c. NO _x		32	5.4	6.5	1.9
d. SO ₂		63	11	13	3.7

Sources:

1. Model Plant Description and Cost Report (II-A-112).
2. Dry Injection Fabric Filter Cost Memorandum (IV-B-32).

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion. NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.
2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.
3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.
4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers. SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 5. Dry Injection Fabric Filter Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
4. HCl concentration, ppmvd (HCl)		890	160	120	220
5. PM concentration, gr/dscf (PM)		0.10	0.15	0.07	0.015
B. Secondary Impacts					
1. Solid waste impacts, tpy	$= [(PM \times Q \times 60 \text{ min/hr} \times 1 \text{ lb/7,000 gr}) + (HCl \times Q \times 60 \text{ min/hr} \times 2.86E-7 \text{ lb/dscf})] \times [1 \text{ ton/2,000 lb}] \times H$	194	7.3	4.8	1.8
2. Energy impacts					
a. kWh/yr	$= [0.746 \text{ kW/hp}] \times [\text{hp} (0.0079 \times Q + 3.51)] \times H$	157,152	26,453	31,690	9,232
b. MMBtu/yr	$= [\text{Electricity (kWh/yr)}] \times [1 \text{ Btu} / 0.000292875 \text{ kWh}] \times [1 \text{ MM Btu}/10^6 \text{ Btu}]$	537	90	108	32
3. Secondary emissions, lb/yr					
a. PM	$= [\text{Energy impacts (MMBtu/yr)}] \times [\text{solid fuel emission factor (lb/MMBtu)}] \times [53\% \text{ energy generation from coal}] + [\text{energy impacts (MMBtu/yr)}] \times [\text{natural gas emission factor (lb/MMBtu)}] \times [22\% \text{ energy generation from oil/natural gas and other fuels}]$	8.8	1.5	1.8	0.5
b. CO		64	11	13	3.7
c. NO _x		32	5.4	6.5	1.9
d. SO ₂		63	11	13	3.7

Sources:

1. Model Plant Description and Cost Report (II-A-112).
2. Dry Injection Fabric Filter Cost Memorandum (IV-B-32).

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion. NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.
2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.
3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.
4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers. SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 6. Secondary Chamber Retrofit Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
B. Secondary Impacts					
1. Energy impacts (natural gas)					
a. MMft ³ /yr	= [0.32 Btu/lb°F] x [28.5 lb/lbmole] x [100°F] x [lbmole/385 ft ³] x [ft ³ /1,000 Btu] x [Q/0.9] x [60 min/hr] x H x [1 MMft ³ /10 ⁶ ft ³]	3.8	0.6	0.6	0.1
b. MMBtu/yr	= [Natural gas (MMft ³ /yr)] x [1,000 MMBtu/MMft ³]	3,790	569	569	142
2. Secondary emissions, lb/yr					
a. PM	= [Natural gas (MMft ³ /yr)] x [natural gas emission factor (lb/MMft ³)]	7.2	1.1	1.1	0.3
b. CO		318	48	48	12
c. NO _x		379	57	57	14
d. SO ₂		2.3	0.3	0.3	0.09

Sources:

1. Model Plant Description and Cost Report (II-A-112).
2. Secondary Chamber Retrofit Cost Memorandum (IV-B-33).

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion.

NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.

3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.

4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers.

SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 7. Selective Noncatalytic Reduction Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
4. Heating value, Btu/lb (HV)		8,500	8,500	8,500	8,500
5. NO _x concentration, lb/MMBtu (NO _x)		0.28	0.28	0.28	0.28
B. Secondary Impacts					
1. Solid waste impacts, tpy	= [(Heat of vaporization of water at 310°F (900 Btu/lb)) x (NO _x reagent mass flow rate (1.69 lb/hr)) x (1 / 0.1% NO _x reagent - 1 (9)) / HV] x (1 ton/2,000 lb) x H	5.4	1.8	3.6	1.3
2. Energy impacts					
a. kWh/yr	= kW [0.47 x NO _x x (C x HV) x (1 MM Btu/10 ⁶ Btu)] / 9.5 x H	1,060	118	47	22
b. MMBtu/yr	= [Electricity (kWh/yr)] x [1 Btu / 0.000292875 kWh] x [1 MM Btu/10 ⁶ Btu]	3.6	0.4	0.2	0.08
3. Secondary emissions, lb/yr					
a. PM	= [Energy impacts (MMBtu/yr)] x [solid fuel emission factor (lb/MMBtu)] x [53% energy generation from coal]	0.06	0.007	0.003	0.001
b. CO	+ [energy impacts (MMBtu/yr)] x [natural gas emission factor (lb/MMBtu)] x [22% energy generation from oil/natural gas and other fuels]	0.4	0.05	0.02	0.009
c. NO _x		0.2	0.02	0.01	0.005
d. SO ₂		0.4	0.05	0.02	0.009

Source:

1. OAQPS Control Cost Manual. Section 4.2: NO_x Post-Combustion, Chapter 1: Selective Noncatalytic Reduction.

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion. NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.
2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.
3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.
4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers. SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 8. Activated Carbon Injection Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
4. PM concentration, gr/dscf (PM)		0.10	0.15	0.07	0.015
B. Secondary Impacts					
1. Solid waste impacts, tpy	$= 0.00127 \times Q \times [1 \text{ ton}/2,000 \text{ lb}] \times H$	15	2.3	2.3	0.6

Source:

1. Model Plant Description and Cost Report (II-A-112).

Table 9. Secondary Impacts for Incremental Controls

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (IC)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. Exhaust gas flow rate, dscfm (Q)		4,000	1,800	900	600
4. Unc. HCl concentration, ppmvd (HCl _u)		890	160	120	220
5. Cont. HCl concentration, ppmvd (HCl _c)		1.1	1.5	1.2	220
6. Heating value, Btu/lb (HV)		8,500	8,500	8,500	8,500
7. Wastewater (blowdown) flow, gpm (B)		0.018	0.003	0.0002	0.024
B. Increase Caustic Flow					
1. Wastewater impacts, gpy	= B x (60 min/hr) x H	6,533	353	47	2,156
C. Increase Lime Flow					
1. Solid waste impacts, tpy	= HCl _u x Q x (60 min/hr) x (2.86E-7 lb/dscf) x (1 ton/2,000 lb) x H	183	4.9	3.7	1.7
D. Increase NaHCO₃ Flow					
1. Solid waste impacts, tpy	= HCl _u x Q x (60 min/hr) x (2.10E-7 lb/dscf) x (1 ton/2,000 lb) x H	135	3.6	2.7	1.2
E. Increase Carbon Flow					
1. Solid waste impacts, tpy	= 0.00127 x Q x [1 ton/2,000 lb] x H	15	2.3	2.3	0.6
F. Increase NO_x Reagent					
1. Solid waste impacts, tpy	= [(Heat of vaporization of water at 310°F (900 Btu/lb)) x (NO _x reagent mass flow rate (1.69 lb/hr)) x (1 / 0.1% NO _x reagent - 1 (9)) / HV] x (1 ton/2,000 lb) x H	5.4	1.8	3.6	1.3
G. Increase Scrubber Horsepower					
1. Energy impacts					
a. kWh/yr	= 0.746 x [(0.0205 x Q) + (0.00267 x Q + 4.554)] x H	435,219	69,020	75,814	20,652
b. MMBtu/yr	= [electricity (kWh/yr)] x [1 Btu/ 0.000292875 kWh] x [1 MM Btu/10 ⁶ Btu]	1,486	236	259	71
2. Secondary emissions, lb/yr					
a. PM	= [Energy impacts (MMBtu/yr)] x [solid fuel emission factor (lb/MMBtu)] x [53% energy generation from coal] +	24	3.8	4.2	1.2
b. CO	[energy impacts (MMBtu/yr)] x [natural gas emission factor (lb/MMBtu)] x [22% energy generation from oil/natural gas and other fuels]	177	28	31	8.4
c. NO _x		89	14	16	4.2
d. SO ₂		174	28	30	8.3
H. Increase Natural Gas					
1. Energy impacts (natural gas)					
a. MMft ³ /yr	= [0.32 Btu/lb°F] x [28.5 lb/lbmole] x [1800 - 1700°F temperature increase] x [lbmole/385 ft ³] x [ft ³ /1,000 Btu] x [Q/0.9] x [60 min/hr] x H x [1 MMft ³ /10 ⁶ ft ³]	3.8	0.6	0.6	0.1
b. MMBtu/yr	= [Natural gas (MMft ³ /yr)] x [1,000 MMBtu/MMft ³]	3,790	569	569	142
2. Secondary emissions, lb/yr					
a. PM	= [Natural gas (MMft ³ /yr)] x [natural gas emission factor (lb/MMft ³)]	7.2	1.1	1.1	0.3
b. CO		318	48	48	12
c. NO _x		379	57	57	14
d. SO ₂		2.3	0.3	0.3	0.09

Sources:

1. Model Plant Description and Cost Report (II-A-112)
2. Secondary Chamber Retrofit Cost Memorandum (IV-B-33)
3. Wet Scrubber Cost Memorandum (IV-B-30)
4. Dry Injection Fabric Filter Cost Memorandum (IV-B-32)
5. OAQPS Control Cost Manual. Section 4.2: NO_x Post-Combustion, Chapter 1: Selective Noncatalytic Reduction.

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion.
NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve

in 2015.

2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.

3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.

4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers.

SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 10. Autoclave Treatment Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
B. Secondary Impacts					
1. Energy impacts					
a. Sterilizer steam usage, lb/hr	From vendor quote	195	70	26	26
b. Sterilizer electrical usage, kWh/hr	From vendor quote	0.69	0.429	0.36	0.36
c. Compactor electrical usage, kWh/hr	From vendor quote	0.62	0.62	0.22	0.22
d. Total, MMBtu/yr	= [Sterilizer steam usage (lb steam/hr x 922 Btu/lb steam) x (1 MM Btu/10 ⁶ Btu) x H] + [total electrical usage kWh/hr x (1 Btu/0.000292875 kWh) x (1 MM Btu/10 ⁶ Btu) x H]	1,107	136	102	38
2. Secondary emissions, lb/yr					
a. PM	= [Energy impacts (MMBtu/yr)] x [solid fuel emission factor (lb/MMBtu)] x [53% energy generation from coal]	18	2.2	1.7	0.6
b. CO		132	16	12	4.5
c. NO _x	+ [energy impacts (MMBtu/yr)] x [natural gas emission factor (lb/MMBtu)] x [22% energy generation from oil/natural gas and other fuels]	67	8.2	6.1	2.3
d. SO ₂		130	16	12	4.5
3. Wastewater impacts					
a. Sterilizer steam usage, lb/hr	From vendor quote	195	70	26	26
b. Density of water, lb/gal		8.3	8.3	8.3	8.3
c. Wastewater impacts, gpy	= Sterilizer steam usage (lb steam/hr) x density of water (8.3 lb/gal) x H	141,123	16,805	12,294	4,610

Source:

San-I-Pak vendor quote.

Emission Factors	Value	Units
PM	1.9	lb/MM ft ³ natural gas
	0.00186275	lb/MMBtu natural gas
	0.03	lb/MMBtu solid, liquid, gaseous fuel
CO	84	lb/MM ft ³ natural gas
	0.0824	lb/MMBtu natural gas
	0.19	lb/MMBtu bituminous coal
NO _x	100	lb/MM ft ³ natural gas
	0.0382	lb/MMBtu natural gas
	0.0975	lb/MMBtu solid fuel
SO ₂	0.6	lb/MM ft ³ natural gas
	0.00059	lb/MMBtu natural gas
	0.2211	lb/MMBtu solid fuel

Sources:

1. AP-42 emission factors for PM, CO, NO_x, and SO₂ for natural gas combustion. NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.
2. NSPS limit for PM (40 CFR part 60, subpart Da) for utility boilers.
3. AP-42 emission factor for CO for bituminous coal-fired spreader stoker boilers.
4. CAMD emission reports for NO_x and SO₂ for solid fuel-fired utility boilers.

SO₂ reduced by 70% and NO_x reduced by 61% to reflect reductions similar to what CAIR would achieve in 2015.

Assume electricity generated using the following mix (from IPM Version 3.0 for the year 2015):

Fuel	Percent of generation	Notes
Coal	53%	
Oil/natural gas	21%	
Nuclear	17%	No secondary air emissions estimated
Hydroelectric	6%	No secondary air emissions estimated
Renewable	2%	No secondary air emissions estimated
Other	1%	Assumed equivalent to natural gas

Table 11. Landfill Secondary Impacts

Parameters/Costs	Equation	Large	Medium	Small	Small rural
A. Parameters					
1. Incinerator capacity, lb/hr (C)		1,500	500	100	125
2. Annual operating hours, hr/yr (H)		6,000	2,000	4,000	1,500
3. CH ₄ generation potential, m ³ /Mg (Lo)	assume Lo = 100 m ³ /Mg	100	100	100	100
4. Average annual refuse acceptance rate, Mg/yr (R)	$= [(C \times 0.67)/(2,000 \text{ lb/ton})] \times (0.90718 \text{ Mg/ton}) \times H$	2,735	304	122	57
5. CH ₄ generation constant, yr ⁻¹ (k)	assume k = 0.04 yr ⁻¹ (for areas receiving ≥25 inches/yr of rain)	0.04	0.04	0.04	0.04
6. Time since landfill closure, yr (c)	assume c = 0 yrs (for active landfills)	0	0	0	0
7. Time since initial refuse placement, yr (t)	assume t = 10 yrs (to reach steady state)	10	10	10	10
8. CH ₄ molecular weight, g/g-mol (MW _{CH4})		16.05	16.05	16.05	16.05
9. Temperature of landfill gas, °C (T)	assume T = 25°C	25	25	25	25
10. Collection efficiency of landfill gas collection system (η _{col})	assume η _{col} = 75%	75%	75%	75%	75%
11. Control efficiency of landfill gas control device (η _{cnt})	assume η _{cnt} = 99.7% (for flare controlling non-halogenated compounds)	99.7%	99.7%	99.7%	99.7%
12. Hg concentration in landfill, (Hg)		2.92E-04	2.92E-04	2.92E-04	2.92E-04
13. Hg molecular weight, g/g-mol (MW _{Hg})		200.59	200.59	200.59	200.59
B. Secondary Impacts					
1. Solid waste impacts, tpy	$= [\text{autoclaved waste landfilled } (C \times 0.67 \times H) - \text{incinerated waste landfilled } (C \times 0.67 \times 0.1 \times H)] \times (1 \text{ ton}/2,000 \text{ lb})$	2,714	302	121	57
2. CH ₄ secondary emissions					
a. Uncontrolled CH ₄ emission rate, m ³ /yr (Q _{CH4})	$= Lo \times R \times (e^{-kc} - e^{-kt})$	90,172	10,019	4,008	1,879
b. Uncontrolled CH ₄ mass emissions, tpy (UM _{CH4})	$= Q_{CH4} \times (MW_{CH4} \times 1 \text{ atm}) / [(8.205E-05 \text{ m}^3\text{-atm/g-mol-}^\circ\text{K}) \times (1,000 \text{ g/kg}) \times (273 + T)^\circ\text{K}] \times (1 \text{ ton}/907.1847 \text{ kg})$	65	7.2	2.9	1.4
b. Controlled CH ₄ mass emissions, tpy (CM _{CH4})	$= [UM_{CH4} \times (1 - \eta_{col}/100)] + [UM_{CH4} \times \eta_{col}/100 \times (1 - \eta_{cnt}/100)]$	16	1.8	0.7	0.3
3. Hg secondary emissions					
a. Uncontrolled Hg emission rate, m ³ /yr (Q _{Hg})	$1.82 \times Q_{CH4} \times \text{Hg}/(1E06)$	4.79E-05	5.32E-06	2.13E-06	9.98E-07
b. Uncontrolled Hg, mass emissions, lb/yr (UM _{Hg})	$= Q_{Hg} \times (MW_{Hg} \times 1 \text{ atm}) / [(8.205E-05 \text{ m}^3\text{-atm/g-mol-}^\circ\text{K}) \times (1,000 \text{ g/kg}) \times (273 + T)^\circ\text{K}] \times (1 \text{ lb}/0.4535924 \text{ kg})$	8.67E-04	9.63E-05	3.85E-05	1.81E-05

Notes:

1. Assume 90% reduction in solid waste with incineration.
2. Assume Hg emissions from landfill are uncontrolled.

Source:

U.S. Environmental Protection Agency. 1998. AP-42, Fifth Edition, Volume I, Section 2.4, Municipal Solid Waste Landfills. November.

Table 12. Nationwide MACT Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
1	1	Bristol-Myers Squibb Co.		Wallingford	CT	L	E	FF	Secondary chamber (1800F) and baghouse	1,000	1,648
5	5	Merck & Company, Inc.		Rahway	NJ	L	E	DIFF	Secondary chamber (1500F, 1 sec), partial quench, dry acid gas scrubber with dry lime injection, and baghouse	799	7,346
15	15--1	Curtis Bay Energy	Unit 1	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083	27,698
15	15--2	Curtis Bay Energy	Unit 2	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083	30,578
20	20--1	Fort Detrick	Unit 5	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000	2,424
20	20--2	Fort Detrick	Unit 6	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000	2,308
29	29	Hamot Medical Center		Erie	PA	L	E	DIFF/WS	Secondary chamber (2000F, 2 sec), lime injection system, powdered activated carbon injection system, baghouse, and vertical upflow two-stage multi-microventuri scrubber system	1,060	3,701
36	36--1	Merck & Company, Inc.	Unit 2	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary/tertiary chamber (2000F, 2 sec), water quench followed by sodium bicarbonate injection system with dry reaction chamber and pulse-jet baghouse	2,000	5,235
36	36--2	Merck & Company, Inc.	Unit 5	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary chamber (1800F, 2.2 sec), water quench followed by sodium bicarbonate injection system and pulse-jet baghouse	3,045	8,119
40	40	Charleston Area Medical Center, General Hospital		Charleston	WV	L	E	DIFF	Secondary chamber (1800F, 2 sec), dry injection/baghouse scrubber system with activated carbon	1,000	4,323
42	42	Stericycle, Inc.		Apopka	FL	L	E	DIFF	Secondary chamber (1800, 1 sec), dry scrubbing system with quench chamber, passive absorber, lime and carbon injection, and baghouse.	1,900	7,008
43	43	Boca Raton Community Hospital		Boca Raton	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and rotary atomizing wet scrubber system with caustic soda injection	730	2,078
44	44	Bethesda Memorial Hospital		Boynton Beach	FL	L	E	WS	Secondary chamber (1800F, 2 sec) and rotary atomizing scrubber with mist eliminator	1,000	4,537
46	46	Holy Cross Hospital		Fort Lauderdale	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and venturi scrubber with packed bed absorption unit using dilute NaOH	1,300	3,378
48	48	Memorial Regional Hospital		Hollywood	FL	L	E	WS/WESP	Secondary chamber (1800F, 1 sec), packed column gas scrubber, and wet ESP	1,800	4,568
51	51	Lakeland Regional Medical Center		Lakeland	FL	L	E	DIFF	Secondary chamber (1800F, 1 sec), lime injection system, and baghouse	750	3,323
54	54	Bayfront Medical Center		St. Petersburg	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and flux force/condensation collision scrubber system using dilute NaOH	1,500	2,898
55	55	St. Joseph's Hospital		Tampa	FL	L	E	DIFF/WS	Secondary chamber (1800F, 1 sec), lime injection, baghouse, and venturi scrubber	1,500	3,347
59	59--1	Stericycle, Inc.	Unit 1	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911	4,002
59	59--2	Stericycle, Inc.	Unit 2	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911	3,917
60	60--1	BMWNC, Inc.	Unit 1	Matthews	NC	L	E	DIFF	Secondary chamber (1641F), dry scrubber with lime and activated carbon injection, and baghouse	1,500	6,763
65	65--1	Stericycle, Inc.	Unit 1	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500	3,304

Table 12. Nationwide MACT Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
65	65-2	Stericycle, Inc.	Unit 2	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500	3,125
71	71	Loyola University Medical Center		Maywood	IL	L	E	WS	Two secondary chambers (1600F), twin rotary atomizer scrubber using 50% caustic solution, and two demister pads	1,650	3,526
77	77	Parkview Hospital		Fort Wayne	IN	L	E	WS	Secondary chamber and wet scrubber	1,200	2,766
84	84	Mayo Clinic, Waste Management Facility		Rochester	MN	L	E	DIFF	Secondary chamber (1800F, 1 sec) and baghouse with lime and carbon injection	2,000	6,516
87	87	MedCentral Health System, Mansfield Hospital		Mansfield	OH	L	E	DIFF	Secondary chamber (1800F, 2 sec) and baghouse with lime and carbon injection system	600	2,351
94	94	Stericycle, Inc.		Warren	OH	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,400	2,737
98	98-1	University of Texas Medical Branch		Galveston	TX	L	E	WS	Secondary chamber, packed tower, and venturi scrubber with activated carbon injection	1,500	4,534
106	106	Stericycle, Inc.		Kansas City	KS	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,500	3,590
109	109	Healthcare Environmental Services Inc.		Fargo	ND	L	E	DIFF	Secondary chamber (1800F) and dry scrubber/baghouse system with lime and carbon injection	1,686	4,478
110	110	Stericycle, Inc.		North Salt Lake	UT	L	E	DI-ESP/WS	Secondary chamber (1834F), carbon injection system, ESP, dry scrubber, and wet gas absorber	1,935	6,291
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167	10,031
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167	9,028
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		Greenville	NC	L	N	HEPA/CA/WS	Secondary chamber (1985F), rotary atomizing wet scrubber (with NaOH scrubbing medium), carbon bed adsorber, HEPA filtering system, and heat recovery system	1,000	3,124
130	130	Department of Veterans Affairs Medical Center		Miami	FL	L	E	WS	Secondary chamber (1800F, 1 sec), venturi scrubber, and packed tower absorber	1,000	6,422
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		Baltimore	MD	M	E	WS	Secondary chamber (1832F) and venturi caustic scrubber with packed-bed scrubber	500	1,972
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi wet scrubber followed by saturation chamber and mist eliminator	320	1,890
18	18	Franklin Square Hospital Center		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi scrubber followed by quench chamber and mist eliminator	500	2,999
21	21	Washington County Hospital		Hagerstown	MD	M	E	WS	Secondary chamber and venturi caustic scrubber	500	1,834
25	25	Holy Spirit Hospital		Camp Hill	PA	M	E	WS	Secondary chamber (1800F) and venturi scrubber with prequench and NaOH injection	500	1,702
30	30	Riddle Memorial Hospital		Media	PA	M	E	WS	Secondary chamber (1800F, 2 sec), caustic packed tower scrubber, and high pressure venturi, with activated carbon injection	500	1,730
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		State College	PA	M	E	WS	Secondary chamber (1900F) and rotary atomizing wet scrubber with demister	500	2,117
38	38	Wilkes-Barre General Hospital		Wilkes-Barre	PA	M	N	DIFF	Secondary/tertiary chambers (1800F, 2.85 sec) and dry scrubber/baghouse with lime and activated carbon injection	400	2,063
41	41	Thomas Memorial Hospital		South Charleston	WV	M	E	WS	Secondary chamber (1800F) and venturi packed tower wet scrubber with caustic injection	470	1,526
47	47	Malcolm Randall Veterans Affairs Medical Center		Gainesville	FL	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber with caustic soda injection	495	1,645
63	63	St. Jude Children's Research Hospital		Memphis	TN	M	E	DIFF	Secondary chamber (1528F) and baghouse with sodium bicarbonate and carbon injection	500	2,333
81	81	South Bend Medical Foundation		South Bend	IN	M	E	WS	Secondary chamber and wet scrubber	470	2,325

Table 12. Nationwide MACT Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
82	82	Good Samaritan Hospital		Vincennes	IN	M	E	WS	Secondary chamber and multi-chamber spray scrubber	500	1,352
88	88	Medina General Hospital		Medina	OH	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	300	1,153
95	95	St. Joseph's Hospital		Marshfield	WI	M	E	DIFF	Secondary chamber (1800F), quench tower, and baghouse with lime/carbon injection	500	1,634
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	Hamilton	MT	M	E	WS	Secondary chamber and wet scrubber	500	1,790
111	111	Wyoming Medical Center		Casper	WY	M	E	WS	Secondary chamber and wet scrubber	400	1,505
86	86	Fairfield Medical Center		Lancaster	OH	S	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	95	1,095
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	Atlanta	GA	S	N	WS	Secondary chamber (1800F, 1.68 sec) and rotary atomizing wet scrubber	120	715
115	115	Kona Community Hospital		Kealahakua	HI	SR	E	CC	Secondary chamber (1900F, 2 sec), no APCD	200	684
116	116	Yukon-Kuskokwim Delta Regional Hospital		Bethel	AK	SR	E	CC	Secondary chamber, no APCD	50	559
Total large											
Total medium											
Total small											
Total small rural											
Total nationwide											

Notes:

1. In calculating the total number of limits met for each unit, included only one of the CDD/CDF limits (total or TEQ), depending on which limit was met.

Key:

- Emissions data unavailable; used average emissions data from similar units (size, APCD) to estimate emissions
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	Baseline concentrations									
						HCl unit average (ppmvd)	CO unit average (ppmvd)	Pb unit average (mg/dscm)	Cd unit average (mg/dscm)	Hg unit average (mg/dscm)	PM unit average (gr/dscf)	CDD/CDF unit average (ng/dscm)	TEQ unit average (ng/dscm)	NO _x unit average (ppmvd)	SO ₂ unit average (ppmvd)
1	1	Bristol-Myers Squibb Co.		217	2,072	65.7	0.983	0.319	0.00364	0.000695	0.00180	36.9	0.659	119	29.9
5	5	Merck & Company, Inc.		246	4,321	0.780	1.41	0.0155	0.00265	0.00353	0.00330	12.8	0.110	112	2.72
15	15--1	Curtis Bay Energy	Unit 1	296	8,736	85.2	1.26	0.00504	0.000887	0.174	0.00823	27.7	0.451	187	23.0
15	15--2	Curtis Bay Energy	Unit 2	303	8,736	76.9	2.91	0.00769	0.00130	0.300	0.00407	5.47	0.115	180	34.7
20	20--1	Fort Detrick	Unit 5	87	1,300	0.190	0.871	0.126	0.00992	0.00324	0.00721	85.2	0.762	121	2.85
20	20--2	Fort Detrick	Unit 6	92	1,300	0.353	1.17	0.182	0.00867	0.00771	0.00775	97.3	1.26	121	2.85
29	29	Hamot Medical Center		122	2,080	16.6	2.60	0.00675	0.00119	0.00400	0.00174	7.72	0.0879	131	2.78
36	36--1	Merck & Company, Inc.	Unit 2	358	865	4.22	2.46	0.00115	0.000853	0.00305	0.00156	3.71	0.0442	99.8	1.13
36	36--2	Merck & Company, Inc.	Unit 5	304	5,753	3.75	1.07	0.0109	0.00242	0.0141	0.00255	6.78	0.308	94.4	2.35
40	40	Charleston Area Medical Center, General Hospital		312	1,248	26.6	11.3	0.00468	0.00186	0.00418	0.00106	1.31	0.0153	92.7	2.07
42	42	Stericycle, Inc.		327	7,951	27.1	10.7	0.0434	0.00886	0.0132	0.00203	24.3	0.748	149	1.50
43	43	Boca Raton Community Hospital		91	8,736	0.986	6.46	0.0883	0.00537	0.0119	0.0104	67.7	0.852	121	2.85
44	44	Bethesda Memorial Hospital		106	3,024	0.608	2.74	0.0774	0.00929	0.0739	0.00960	54.3	1.21	88.3	4.62
46	46	Holy Cross Hospital		124	2,964	1.18	4.91	0.0618	0.0168	0.0504	0.0103	37.5	2.23	67.9	1.16
48	48	Memorial Regional Hospital		143	4,992	1.02	1.17	0.0928	0.00560	0.00374	0.00973	48.3	1.29	142	3.41
51	51	Lakeland Regional Medical Center		212	6,247	2.68	6.35	0.0348	0.00365	0.00244	0.00254	68.2	1.29	77.1	2.13
54	54	Bayfront Medical Center		133	3,352	0.947	9.36	0.0976	0.00379	0.00128	0.00543	46.6	0.819	140	1.25
55	55	St. Joseph's Hospital		400	8,008	12.5	5.85	0.0740	0.00205	0.00730	0.00111	66.2	1.35	123	2.52
59	59--1	Stericycle, Inc.	Unit 1	135	8,400	4.24	3.95	0.206	0.0233	0.0389	0.00714	2.82	0.0664	121	2.85
59	59--2	Stericycle, Inc.	Unit 2	138	8,400	3.88	4.61	0.206	0.0188	0.118	0.0102	5.48	0.0845	121	2.85
60	60--1	BMWNC, Inc.	Unit 1	343	7,456	38.8	15.1	0.00335	0.000532	0.0598	0.00504	6.10	0.149	104	7.03
65	65--1	Stericycle, Inc.	Unit 1	143	7,665	1.12	12.9	0.200	0.00572	0.415	0.00921	1.24	0.0105	121	2.85

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	Baseline concentrations									
						HCl unit average (ppmvd)	CO unit average (ppmvd)	Pb unit average (mg/dscm)	Cd unit average (mg/dscm)	Hg unit average (mg/dscm)	PM unit average (gr/dscf)	CDD/CDF unit average (ng/dscm)	TEQ unit average (ng/dscm)	NO _x unit average (ppmvd)	SO ₂ unit average (ppmvd)
65	65-2	Stericycle, Inc.	Unit 2	141	7,558	1.43	5.77	0.134	0.0123	0.377	0.00878	0.837	0.0126	121	2.85
71	71	Loyola University Medical Center		156	4,800	2.22	7.07	0.178	0.0152	0.0183	0.0105	67.9	0.630	107	0.819
77	77	Parkview Hospital		114	8,395	2.68	5.90	0.177	0.0802	0.00623	0.0109	7.10	0.0898	121	2.85
84	84	Mayo Clinic, Waste Management Facility		294	6,240	15.2	2.24	0.291	0.0101	0.0445	0.0137	0.357	0.0117	176	1.45
87	87	MedCentral Health System, Mansfield Hospital		260	3,120	24.8	4.81	0.0415	0.00113	0.00898	0.00357	29.8	0.560	121	9.27
94	94	Stericycle, Inc.		138	7,904	0.661	4.45	0.244	0.00524	0.239	0.00617	14.7	0.341	121	2.85
98	98-1	University of Texas Medical Branch		111	5,328	2.12	1.73	0.756	0.00298	0.0482	0.0147	98.1	1.06	78.9	1.12
106	106	Stericycle, Inc.		152	8,760	0.567	4.62	0.127	0.00396	0.375	0.00828	2.40	0.0176	121	2.85
109	109	Healthcare Environmental Services Inc.		302	1,872	72.5	14.7	0.0171	0.00296	0.129	0.00611	16.0	1.95	207	20.2
110	110	Stericycle, Inc.		126	7,309	3.93	7.39	0.0309	0.00214	0.0746	0.00449	3.37	0.0824	228	3.35
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	296	7,896	11.0	3.96	0.0187	0.00132	0.0130	0.00702	0.498	0.00807	72.4	1.21
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	291	7,896	5.30	2.86	0.00778	0.000889	0.00559	0.00947	0.152	0.00378	88.4	0.462
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		125	625	1.58	10.7	0.000296	0.000106	0.00164	0.00323	0.380	0.00532	66.9	1.45
130	130	Department of Veterans Affairs Medical Center		155	4,160	8.32	1.00	0.0435	0.00564	0.00542	0.0111	0.665	0.0160	81.5	7.58
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		189	1,440	0.708	1.50	0.973	0.122	0.0405	0.0126	1.06	0.0509	99.8	0.469
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		179	1,350	1.39	11.8	0.331	0.0472	0.00395	0.0294	6.98	0.151	87.9	2.88
18	18	Franklin Square Hospital Center		54	5,408	1.48	5.363	0.262	0.0474	0.00270	0.0256	91.4	0.996	84.7	10.9
21	21	Washington County Hospital		112	2,496	6.26	6.62	0.164	0.0139	0.000836	0.0197	76.2	1.32	105	3.52
25	25	Holy Spirit Hospital		99	3,944	0.736	1.88	0.155	0.0439	0.00346	0.0164	3.47	0.0299	105	3.52
30	30	Riddle Memorial Hospital		239	2,920	2.10	1.41	0.178	0.00366	0.0108	0.0124	78.2	1.42	124	0.336
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		175	1,022	1.27	2.11	0.151	0.00408	0.00124	0.0239	0.0973	0.00291	105	1.22
38	38	Wilkes-Barre General Hospital		274	4,472	8.95	2.08	0.00406	0.00106	0.00927	0.00399	16.3	0.193	105	1.90
41	41	Thomas Memorial Hospital		146	2,080	2.62	0.946	0.723	0.0297	0.109	0.0261	0.175	0.00424	94.4	2.46
47	47	Malcolm Randall Veterans Affairs Medical Center		115	1,664	4.69	11.6	0.227	0.0877	0.0195	0.0173	4.48	0.111	148	2.54
63	63	St. Jude Children's Research Hospital		276	1,050	27.5	0.679	0.00485	0.00152	0.00361	0.00505	9.11	0.160	131	2.02
81	81	South Bend Medical Foundation		121	2,028	12.3	2.06	0.539	0.00176	0.206	0.01159	4.10	0.0409	15.0	11.7

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	Baseline concentrations									
						HCl unit average (ppmvd)	CO unit average (ppmvd)	Pb unit average (mg/dscm)	Cd unit average (mg/dscm)	Hg unit average (mg/dscm)	PM unit average (gr/dscf)	CDD/CDF unit average (ng/dscm)	TEQ unit average (ng/dscm)	NO _x unit average (ppmvd)	SO ₂ unit average (ppmvd)
82	82	Good Samaritan Hospital		128	2,574	1.58	1.91	0.0261	0.00336	0.00251	0.0137	27.9	0.0967	105	3.52
88	88	Medina General Hospital		100	3,016	3.29	14.1	0.669	0.0109	0.00716	0.0267	17.2	0.458	105	3.52
95	95	St. Joseph's Hospital		223	1,404	5.27	2.15	0.00397	0.00128	0.00254	0.00294	1.28	0.0457	105	1.96
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	112	1,248	0.455	1.97	0.0996	0.00773	0.00312	0.0216	0.206	0.00300	128	0.932
111	111	Wyoming Medical Center		130	989	1.17	3.28	0.0496	0.0182	0.0237	0.00336	74.0	1.12	141	1.80
86	86	Fairfield Medical Center		97	5,018	1.03	2.27	0.161	0.00256	0.0114	0.0137	2.89	0.0624	105	3.52
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	163	2,920	1.30	12.11	0.0727	0.00545	0.00292	0.00760	2.89	0.00453	105	3.52
115	115	Kona Community Hospital		1,787	1,430	135	7.00	0.226	0.0380	0.00158	0.0128	29.6	0.618	95	3.52
116	116	Yukon-Kuskokwim Delta Regional Hospital		1,457	1,560	298	5.41	0.226	0.0380	0.0906	0.0162	125	2.52	95.1	22.6
Total large															
Total medium															
Total small															
Total small rural															
Total nationwide															

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor emission limits									
				MACT floor HCl limit (ppmvd)	MACT floor CO limit (ppmvd)	MACT floor Pb limit (mg/dscm)	MACT floor Cd limit (mg/dscm)	MACT floor Hg limit (mg/dscm)	MACT floor PM limit (gr/dscf)	MACT floor CDD/CDF limit (ng/dscm)	MACT floor TEQ limit (ng/dscm)	MACT floor NO _x limit (ppmvd)	MACT floor SO ₂ limit (ppmvd)
1	1	Bristol-Myers Squibb Co.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
5	5	Merck & Company, Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
15	15--1	Curtis Bay Energy	Unit 1	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
15	15--2	Curtis Bay Energy	Unit 2	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
20	20--1	Fort Detrick	Unit 5	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
20	20--2	Fort Detrick	Unit 6	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
29	29	Hamot Medical Center		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
36	36--1	Merck & Company, Inc.	Unit 2	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
36	36--2	Merck & Company, Inc.	Unit 5	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
40	40	Charleston Area Medical Center, General Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
42	42	Stericycle, Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
43	43	Boca Raton Community Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
44	44	Bethesda Memorial Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
46	46	Holy Cross Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
48	48	Memorial Regional Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
51	51	Lakeland Regional Medical Center		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
54	54	Bayfront Medical Center		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
55	55	St. Joseph's Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
59	59--1	Stericycle, Inc.	Unit 1	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
59	59--2	Stericycle, Inc.	Unit 2	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
60	60--1	BMWNC, Inc.	Unit 1	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
65	65--1	Stericycle, Inc.	Unit 1	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor emission limits									
				MACT floor HCl limit (ppmvd)	MACT floor CO limit (ppmvd)	MACT floor Pb limit (mg/dscm)	MACT floor Cd limit (mg/dscm)	MACT floor Hg limit (mg/dscm)	MACT floor PM limit (gr/dscf)	MACT floor CDD/CDF limit (ng/dscm)	MACT floor TEQ limit (ng/dscm)	MACT floor NO _x limit (ppmvd)	MACT floor SO ₂ limit (ppmvd)
65	65-2	Stericycle, Inc.	Unit 2	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
71	71	Loyola University Medical Center		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
77	77	Parkview Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
84	84	Mayo Clinic, Waste Management Facility		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
87	87	MedCentral Health System, Mansfield Hospital		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
94	94	Stericycle, Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
98	98-1	University of Texas Medical Branch		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
106	106	Stericycle, Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
109	109	Healthcare Environmental Services Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
110	110	Stericycle, Inc.		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
130	130	Department of Veterans Affairs Medical Center		6.6	11	0.036	0.0092	0.018	0.011	9.3	0.054	140	9.0
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
18	18	Franklin Square Hospital Center		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
21	21	Washington County Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
25	25	Holy Spirit Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
30	30	Riddle Memorial Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
38	38	Wilkes-Barre General Hospital		7.7	5.5	0.018	0.013	0.025	0.015	0.85	0.020	190	4.2
41	41	Thomas Memorial Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
47	47	Malcolm Randall Veterans Affairs Medical Center		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
63	63	St. Jude Children's Research Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
81	81	South Bend Medical Foundation		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor emission limits									
				MACT floor HCl limit (ppmvd)	MACT floor CO limit (ppmvd)	MACT floor Pb limit (mg/dscm)	MACT floor Cd limit (mg/dscm)	MACT floor Hg limit (mg/dscm)	MACT floor PM limit (gr/dscf)	MACT floor CDD/CDF limit (ng/dscm)	MACT floor TEQ limit (ng/dscm)	MACT floor NO _x limit (ppmvd)	MACT floor SO ₂ limit (ppmvd)
82	82	Good Samaritan Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
88	88	Medina General Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
95	95	St. Joseph's Hospital		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
111	111	Wyoming Medical Center		7.7	5.5	0.018	0.013	0.025	0.020	0.85	0.020	190	4.2
86	86	Fairfield Medical Center		44	20	0.31	0.017	0.014	0.029	16	0.013	190	4.2
129	129	Centers for Disease Control and Prevention-- Clifton, Building 18	Unit 3	15	20	0.31	0.017	0.014	0.029	16	0.013	190	4.2
115	115	Kona Community Hospital		810	20	0.50	0.11	0.0051	0.038	240	5.1	130	55
116	116	Yukon-Kuskokwim Delta Regional Hospital		810	20	0.50	0.11	0.0051	0.038	240	5.1	130	55
Total large													
Total medium													
Total small													
Total small rural													
Total nationwide													

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Meets MACT floor limit (0 = no, 1 = yes)											
				Meets HCl Limit	Meets CO Limit	Meets Pb Limit	Meets Cd Limit	Meets Hg Limit	Meets PM Limit	Meets Total CDD/CDF Limit	Meets CDD/CDF TEQ Limit	Meets NO _x Limit	Meets SO ₂ Limit	Total limits met	
1	1	Bristol-Myers Squibb Co.		0	1	0	1	1	1	1	0	0	1	0	5
5	5	Merck & Company, Inc.		1	1	1	1	1	1	1	0	0	1	1	8
15	15--1	Curtis Bay Energy	Unit 1	0	1	1	1	0	1	1	0	0	0	0	4
15	15--2	Curtis Bay Energy	Unit 2	0	1	1	1	0	1	1	1	0	0	0	5
20	20--1	Fort Detrick	Unit 5	1	1	0	0	1	1	1	0	0	1	1	6
20	20--2	Fort Detrick	Unit 6	1	1	0	1	1	1	1	0	0	1	1	7
29	29	Hamot Medical Center		0	1	1	1	1	1	1	1	0	1	1	8
36	36--1	Merck & Company, Inc.	Unit 2	1	1	1	1	1	1	1	1	1	1	1	9
36	36--2	Merck & Company, Inc.	Unit 5	1	1	1	1	1	1	1	1	0	1	1	9
40	40	Charleston Area Medical Center, General Hospital		0	0	1	1	1	1	1	1	1	1	1	7
42	42	Stericycle, Inc.		0	1	0	1	1	1	1	0	0	0	1	5
43	43	Boca Raton Community Hospital		1	1	0	1	1	1	1	0	0	1	1	7
44	44	Bethesda Memorial Hospital		1	1	0	0	0	1	1	0	0	1	1	5
46	46	Holy Cross Hospital		1	1	0	0	0	1	1	0	0	1	1	5
48	48	Memorial Regional Hospital		1	1	0	1	1	1	1	0	0	0	1	6
51	51	Lakeland Regional Medical Center		1	1	1	1	1	1	1	0	0	1	1	8
54	54	Bayfront Medical Center		1	1	0	1	1	1	1	0	0	0	1	6
55	55	St. Joseph's Hospital		0	1	0	1	1	1	1	0	0	1	1	6
59	59--1	Stericycle, Inc.	Unit 1	1	1	0	0	0	1	1	1	0	1	1	6
59	59--2	Stericycle, Inc.	Unit 2	1	1	0	0	0	1	1	1	0	1	1	6
60	60--1	BMWNC, Inc.	Unit 1	0	0	1	1	0	1	1	1	0	1	1	6
65	65--1	Stericycle, Inc.	Unit 1	1	0	0	1	0	1	1	1	1	1	1	6

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Meets MACT floor limit (0 = no, 1 = yes)											
				Meets HCl Limit	Meets CO Limit	Meets Pb Limit	Meets Cd Limit	Meets Hg Limit	Meets PM Limit	Meets Total CDD/CDF Limit	Meets CDD/CDF TEQ Limit	Meets NO _x Limit	Meets SO ₂ Limit	Total limits met	
65	65-2	Stericycle, Inc.	Unit 2	1	1	0	0	0	1	1	1	1	1	1	6
71	71	Loyola University Medical Center		1	1	0	0	0	1	0	0	1	1	5	
77	77	Parkview Hospital		1	1	0	0	1	1	1	0	1	1	7	
84	84	Mayo Clinic, Waste Management Facility		0	1	0	0	0	0	1	1	0	1	3	
87	87	MedCentral Health System, Mansfield Hospital		0	1	0	1	1	1	0	0	1	0	5	
94	94	Stericycle, Inc.		1	1	0	1	0	1	0	0	1	1	6	
98	98-1	University of Texas Medical Branch		1	1	0	1	0	0	0	0	1	1	5	
106	106	Stericycle, Inc.		1	1	0	1	0	1	1	1	1	1	7	
109	109	Healthcare Environmental Services Inc.		0	0	1	1	0	1	0	0	0	0	3	
110	110	Stericycle, Inc.		1	1	1	1	0	1	1	0	0	1	7	
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	0	1	1	1	1	1	1	1	1	1	8	
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	1	1	1	1	1	1	1	1	1	1	9	
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		1	1	1	1	1	1	1	1	1	1	9	
130	130	Department of Veterans Affairs Medical Center		0	1	0	1	1	0	1	1	1	1	6	
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		1	1	0	0	0	1	0	0	1	1	5	
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		1	0	0	0	1	0	0	0	1	1	4	
18	18	Franklin Square Hospital Center		1	1	0	0	1	0	0	0	1	0	4	
21	21	Washington County Hospital		1	0	0	0	1	1	0	0	1	1	5	
25	25	Holy Spirit Hospital		1	1	0	0	1	1	0	0	1	1	6	
30	30	Riddle Memorial Hospital		1	1	0	1	1	1	0	0	1	1	7	
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		1	1	0	1	1	0	1	1	1	1	7	
38	38	Wilkes-Barre General Hospital		0	1	1	1	1	1	0	0	1	1	7	
41	41	Thomas Memorial Hospital		1	1	0	0	0	0	1	1	1	1	5	
47	47	Malcolm Randall Veterans Affairs Medical Center		1	0	0	0	1	1	0	0	1	1	5	
63	63	St. Jude Children's Research Hospital		0	1	1	1	1	1	0	0	1	1	7	
81	81	South Bend Medical Foundation		0	1	0	1	0	1	0	0	1	0	4	

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Meets MACT floor limit (0 = no, 1 = yes)											
				Meets HCl Limit	Meets CO Limit	Meets Pb Limit	Meets Cd Limit	Meets Hg Limit	Meets PM Limit	Meets Total CDD/CDF Limit	Meets CDD/CDF TEQ Limit	Meets NO _x Limit	Meets SO ₂ Limit	Total limits met	
82	82	Good Samaritan Hospital		1	1	0	1	1	1	1	0	0	1	1	7
88	88	Medina General Hospital		1	0	0	1	1	0	0	0	0	1	1	5
95	95	St. Joseph's Hospital		1	1	1	1	1	1	1	0	0	1	1	8
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	1	1	0	1	1	0	1	1	1	1	1	7
111	111	Wyoming Medical Center		1	1	0	0	1	1	0	0	0	1	1	6
86	86	Fairfield Medical Center		1	1	1	1	1	1	1	1	0	1	1	9
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	1	1	1	1	1	1	1	1	1	1	1	9
115	115	Kona Community Hospital		1	1	1	1	1	1	1	1	1	1	1	9
116	116	Yukon-Kuskokwim Delta Regional Hospital		1	1	1	1	0	1	1	1	1	1	1	8
Total large															
Total medium															
Total small															
Total small rural															
Total nationwide															

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet MACT floor limit									
				HCl % Improvement Needed	MACT floor HCl control	CO % Improvement Needed	MACT floor CO control	Pb % Improvement Needed	MACT floor Pb control	Cd % Improvement Needed	MACT floor Cd control	Hg % Improvement Needed	MACT floor Hg control
1	1	Bristol-Myers Squibb Co.		895%	add packed-bed scrubber	-91%	none	785%	replace FF	-60%	none	-96%	none
5	5	Merck & Company, Inc.		-88%	none	-87%	none	-57%	none	-71%	none	-80%	none
15	15--1	Curtis Bay Energy	Unit 1	1191%	add packed-bed scrubber	-89%	none	-86%	none	-90%	none	868%	increase activated carbon
15	15--2	Curtis Bay Energy	Unit 2	1065%	add packed-bed scrubber	-74%	none	-79%	none	-86%	none	1567%	increase activated carbon
20	20--1	Fort Detrick	Unit 5	-97%	none	-92%	none	251%	add FF	8%	increase scrubber hp	-82%	none
20	20--2	Fort Detrick	Unit 6	-95%	none	-89%	none	406%	add FF	-6%	none	-57%	none
29	29	Hamot Medical Center		152%	add packed-bed scrubber	-76%	none	-81%	none	-87%	none	-78%	none
36	36--1	Merck & Company, Inc.	Unit 2	-36%	none	-78%	none	-97%	none	-91%	none	-83%	none
36	36--2	Merck & Company, Inc.	Unit 5	-43%	none	-90%	none	-70%	none	-74%	none	-22%	none
40	40	Charleston Area Medical Center, General Hospital		304%	add packed-bed scrubber	3%	increase natural gas	-87%	none	-80%	none	-77%	none
42	42	Stericycle, Inc.		311%	add packed-bed scrubber	-3%	none	21%	improve FF performance	-4%	none	-27%	none
43	43	Boca Raton Community Hospital		-85%	none	-41%	none	145%	add FF	-42%	none	-34%	none
44	44	Bethesda Memorial Hospital		-91%	none	-75%	none	115%	add FF	1%	increase scrubber hp	311%	add ACI
46	46	Holy Cross Hospital		-82%	none	-55%	none	72%	add FF	83%	add FF	180%	add ACI
48	48	Memorial Regional Hospital		-85%	none	-89%	none	158%	add FF	-39%	none	-79%	none
51	51	Lakeland Regional Medical Center		-59%	none	-42%	none	-3%	none	-60%	none	-86%	none
54	54	Bayfront Medical Center		-86%	none	-15%	none	171%	add FF	-59%	none	-93%	none
55	55	St. Joseph's Hospital		90%	add packed-bed scrubber	-47%	none	106%	replace FF	-78%	none	-59%	none
59	59--1	Stericycle, Inc.	Unit 1	-36%	none	-64%	none	471%	add FF	153%	add FF	116%	add ACI
59	59--2	Stericycle, Inc.	Unit 2	-41%	none	-58%	none	472%	add FF	104%	add FF	555%	add ACI
60	60--1	BMWNC, Inc.	Unit 1	488%	add packed-bed scrubber	37%	increase natural gas	-91%	none	-94%	none	232%	increase activated carbon
65	65--1	Stericycle, Inc.	Unit 1	-83%	none	17%	increase natural gas	457%	add FF	-38%	none	2204%	add ACI

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet MACT floor limit									
				HCl % Improvement Needed	MACT floor HCl control	CO % Improvement Needed	MACT floor CO control	Pb % Improvement Needed	MACT floor Pb control	Cd % Improvement Needed	MACT floor Cd control	Hg % Improvement Needed	MACT floor Hg control
65	65-2	Stericycle, Inc.	Unit 2	-78%	none	-48%	none	274%	add FF	34%	increase scrubber hp	1993%	add ACI
71	71	Loyola University Medical Center		-66%	none	-36%	none	393%	add FF	66%	add FF	2%	increase scrubber hp
77	77	Parkview Hospital		-59%	none	-46%	none	393%	add FF	771%	add FF	-65%	none
84	84	Mayo Clinic, Waste Management Facility		131%	add packed-bed scrubber	-80%	none	708%	replace FF	9%	improve FF performance	147%	increase activated carbon
87	87	MedCentral Health System, Mansfield Hospital		276%	add packed-bed scrubber	-56%	none	15%	improve FF performance	-88%	none	-50%	none
94	94	Stericycle, Inc.		-90%	none	-60%	none	578%	add FF	-43%	none	1230%	add ACI
98	98-1	University of Texas Medical Branch		-68%	none	-84%	none	2000%	add FF	-68%	none	168%	increase activated carbon
106	106	Stericycle, Inc.		-91%	none	-58%	none	252%	add FF	-57%	none	1986%	add ACI
109	109	Healthcare Environmental Services Inc.		998%	add packed-bed scrubber	34%	increase natural gas	-53%	none	-68%	none	615%	increase activated carbon
110	110	Stericycle, Inc.		-41%	none	-33%	none	-14%	none	-77%	none	315%	increase activated carbon
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	67%	add packed-bed scrubber	-64%	none	-48%	none	-86%	none	-28%	none
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	-20%	none	-74%	none	-78%	none	-90%	none	-69%	none
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		-76%	none	-3%	none	-99%	none	-99%	none	-91%	none
130	130	Department of Veterans Affairs Medical Center		26%	add caustic	-91%	none	21%	increase scrubber hp	-39%	none	-70%	none
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		-91%	none	-73%	none	5304%	add FF	840%	add FF	62%	add ACI
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		-82%	none	115%	secondary chamber retrofit	1738%	add FF	263%	add FF	-84%	none
18	18	Franklin Square Hospital Center		-81%	none	-2%	none	1356%	add FF	265%	add FF	-89%	none
21	21	Washington County Hospital		-19%	none	20%	increase natural gas	810%	add FF	7%	increase scrubber hp	-97%	none
25	25	Holy Spirit Hospital		-90%	none	-66%	none	762%	add FF	238%	add FF	-86%	none
30	30	Riddle Memorial Hospital		-73%	none	-74%	none	890%	add FF	-72%	none	-57%	none
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		-83%	none	-62%	none	736%	add FF	-69%	none	-95%	none
38	38	Wilkes-Barre General Hospital		16%	add lime	-62%	none	-77%	none	-92%	none	-63%	none
41	41	Thomas Memorial Hospital		-66%	none	-83%	none	3918%	add FF	129%	add FF	335%	add ACI
47	47	Malcolm Randall Veterans Affairs Medical Center		-39%	none	111%	secondary chamber retrofit	1163%	add FF	575%	add FF	-22%	none
63	63	St. Jude Children's Research Hospital		258%	add packed-bed scrubber	-88%	none	-73%	none	-88%	none	-86%	none
81	81	South Bend Medical Foundation		60%	add packed-bed scrubber	-62%	none	2893%	add FF	-86%	none	725%	add ACI

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet MACT floor limit									
				HCl % Improvement Needed	MACT floor HCl control	CO % Improvement Needed	MACT floor CO control	Pb % Improvement Needed	MACT floor Pb control	Cd % Improvement Needed	MACT floor Cd control	Hg % Improvement Needed	MACT floor Hg control
82	82	Good Samaritan Hospital		-80%	none	-65%	none	45%	increase scrubber hp	-74%	none	-90%	none
88	88	Medina General Hospital		-57%	none	156%	secondary chamber retrofit	3619%	add FF	-16%	none	-71%	none
95	95	St. Joseph's Hospital		-32%	none	-61%	none	-78%	none	-90%	none	-90%	none
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	-94%	none	-64%	none	454%	add FF	-41%	none	-88%	none
111	111	Wyoming Medical Center		-85%	none	-40%	none	176%	add FF	40%	increase scrubber hp	-5%	none
86	86	Fairfield Medical Center		-98%	none	-89%	none	-48%	none	-85%	none	-18%	none
129	129	Centers for Disease Control and Prevention-- Clifton, Building 18	Unit 3	-91%	none	-39%	none	-77%	none	-68%	none	-79%	none
115	115	Kona Community Hospital		-83%	none	-65%	none	-55%	none	-65%	none	-69%	none
116	116	Yukon-Kuskokwim Delta Regional Hospital		-63%	none	-73%	none	-55%	none	-65%	none	1677%	add DIFF and ACI
Total large													
Total medium													
Total small													
Total small rural													
Total nationwide													

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	PM %	MACT floor PM	Total CDD/CDF %	MACT floor	CDD/CDF TEQ %	MACT floor TEQ	NO _x %	MACT floor NO _x	SO ₂ %
				Improvement Needed	control	Improvement Needed	CDD/CDF control	Improvement Needed	control	Improvement Needed	control	Improvement Needed
1	1	Bristol-Myers Squibb Co.		-84%	none	296%	add ACI	1121%	add ACI	-15%	none	232%
5	5	Merck & Company, Inc.		-70%	none	38%	add ACI	103%	add ACI	-20%	none	-70%
15	15--1	Curtis Bay Energy	Unit 1	-25%	none	198%	increase activated carbon	735%	increase activated carbon	34%	add SNCR	155%
15	15--2	Curtis Bay Energy	Unit 2	-63%	none	-41%	none	113%	none (meets total CDD/CDF)	28%	add SNCR	286%
20	20--1	Fort Detrick	Unit 5	-34%	none	816%	add ACI	1312%	add ACI	-14%	none	-68%
20	20--2	Fort Detrick	Unit 6	-30%	none	946%	add ACI	2239%	add ACI	-14%	none	-68%
29	29	Hamot Medical Center		-84%	none	-17%	none	63%	none (meets total CDD/CDF)	-6%	none	-69%
36	36--1	Merck & Company, Inc.	Unit 2	-86%	none	-60%	none	-18%	none	-29%	none	-87%
36	36--2	Merck & Company, Inc.	Unit 5	-77%	none	-27%	none	470%	none (meets total CDD/CDF)	-33%	none	-74%
40	40	Charleston Area Medical Center, General Hospital		-90%	none	-86%	none	-72%	none	-34%	none	-77%
42	42	Stericycle, Inc.		-82%	none	161%	increase activated carbon	1285%	increase activated carbon	7%	minor adjustment (marginal difference in NO _x)	-83%
43	43	Boca Raton Community Hospital		-5%	none	628%	add ACI	1478%	add ACI	-14%	none	-68%
44	44	Bethesda Memorial Hospital		-13%	none	484%	add ACI	2133%	add ACI	-37%	none	-49%
46	46	Holy Cross Hospital		-6%	none	304%	add ACI	4020%	add ACI	-52%	none	-87%
48	48	Memorial Regional Hospital		-12%	none	420%	add ACI	2287%	add ACI	1%	minor adjustment (marginal difference in NO _x)	-62%
51	51	Lakeland Regional Medical Center		-77%	none	633%	add ACI	2288%	add ACI	-45%	none	-76%
54	54	Bayfront Medical Center		-51%	none	401%	add ACI	1417%	add ACI	0%	minor adjustment (marginal difference in NO _x)	-86%
55	55	St. Joseph's Hospital		-90%	none	611%	add ACI	2401%	add ACI	-12%	none	-72%
59	59--1	Stericycle, Inc.	Unit 1	-35%	none	-70%	none	23%	none (meets total CDD/CDF)	-14%	none	-68%
59	59--2	Stericycle, Inc.	Unit 2	-7%	none	-41%	none	56%	none (meets total CDD/CDF)	-14%	none	-68%
60	60--1	BMWNC, Inc.	Unit 1	-54%	none	-34%	none	176%	none (meets total CDD/CDF)	-26%	none	-22%
65	65--1	Stericycle, Inc.	Unit 1	-16%	none	-87%	none	-81%	none	-14%	none	-68%

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	PM %	MACT floor PM	Total CDD/CDF %	MACT floor	CDD/CDF TEQ %	MACT floor TEQ	NO _x %	MACT floor NO _x	SO ₂ %
				Improvement Needed	control	Improvement Needed	CDD/CDF control	Improvement Needed	control	Improvement Needed	control	Improvement Needed
65	65-2	Stericycle, Inc.	Unit 2	-20%	none	-91%	none	-77%	none	-14%	none	-68%
71	71	Loyola University Medical Center		-5%	none	630%	add ACI	1067%	add ACI	-24%	none	-91%
77	77	Parkview Hospital		-1%	none	-24%	none	66%	none (meets total CDD/CDF)	-14%	none	-68%
84	84	Mayo Clinic, Waste Management Facility		24%	improve FF performance	-96%	none	-78%	none	26%	add SNCR	-84%
87	87	MedCentral Health System, Mansfield Hospital		-68%	none	221%	increase activated carbon	938%	increase activated carbon	-14%	none	3%
94	94	Stericycle, Inc.		-44%	none	58%	add ACI	532%	add ACI	-14%	none	-68%
98	98-1	University of Texas Medical Branch		34%	increase scrubber hp	955%	add ACI	1856%	add ACI	-44%	none	-88%
106	106	Stericycle, Inc.		-25%	none	-74%	none	-67%	none	-14%	none	-68%
109	109	Healthcare Environmental Services Inc.		-44%	none	72%	increase activated carbon	3514%	increase activated carbon	48%	add SNCR	124%
110	110	Stericycle, Inc.		-59%	none	-64%	none	53%	none (meets total CDD/CDF)	63%	add SNCR	-63%
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	-36%	none	-95%	none	-85%	none	-48%	none	-87%
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	-14%	none	-98%	none	-93%	none	-37%	none	-95%
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		-71%	none	-96%	none	-90%	none	-52%	none	-84%
130	130	Department of Veterans Affairs Medical Center		1%	increase scrubber hp	-93%	none	-70%	none	-42%	none	-16%
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		-37%	none	25%	add ACI	154%	add ACI	-47%	none	-89%
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		47%	increase scrubber hp	721%	add ACI	654%	add ACI	-54%	none	-31%
18	18	Franklin Square Hospital Center		28%	increase scrubber hp	10648%	add ACI	4878%	add ACI	-55%	none	159%
21	21	Washington County Hospital		-2%	none	8864%	add ACI	6482%	add ACI	-45%	none	-16%
25	25	Holy Spirit Hospital		-18%	none	309%	add ACI	50%	add ACI	-45%	none	-16%
30	30	Riddle Memorial Hospital		-38%	none	9104%	add ACI	6981%	add ACI	-35%	none	-92%
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		20%	increase scrubber hp	-89%	none	-85%	none	-45%	none	-71%
38	38	Wilkes-Barre General Hospital		-73%	none	1817%	increase activated carbon	863%	increase activated carbon	-45%	none	-55%
41	41	Thomas Memorial Hospital		31%	increase scrubber hp	-79%	none	-79%	none	-50%	none	-42%
47	47	Malcolm Randall Veterans Affairs Medical Center		-14%	none	428%	add ACI	453%	add ACI	-22%	none	-40%
63	63	St. Jude Children's Research Hospital		-75%	none	972%	increase activated carbon	700%	increase activated carbon	-31%	none	-52%
81	81	South Bend Medical Foundation		-42%	none	383%	add ACI	105%	add ACI	-92%	none	178%

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	PM %	MACT floor PM	Total CDD/CDF %	MACT floor	CDD/CDF TEQ %	MACT floor TEQ	NO _x %	MACT floor NO _x	SO ₂ %
				Improvement Needed	control	Improvement Needed	CDD/CDF control	Improvement Needed	control	Improvement Needed	control	Improvement Needed
82	82	Good Samaritan Hospital		-32%	none	3179%	add ACI	384%	add ACI	-45%	none	-16%
88	88	Medina General Hospital		34%	increase scrubber hp	1929%	add ACI	2190%	add ACI	-45%	none	-16%
95	95	St. Joseph's Hospital		-85%	none	50%	increase activated carbon	128%	increase activated carbon	-45%	none	-53%
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	8%	increase scrubber hp	-76%	none	-85%	none	-33%	none	-78%
111	111	Wyoming Medical Center		-83%	none	8606%	add ACI	5478%	add ACI	-26%	none	-57%
86	86	Fairfield Medical Center		-53%	none	-82%	none	380%	none (meets total CDD/CDF)	-45%	none	-16%
129	129	Centers for Disease Control and Prevention-- Clifton, Building 18	Unit 3	-74%	none	-82%	none	-65%	none	-45%	none	-16%
115	115	Kona Community Hospital		-66%	none	-88%	none	-88%	none	-27%	none	-94%
116	116	Yukon-Kuskokwim Delta Regional Hospital		-57%	none	-48%	none	-51%	none	-27%	none	-59%
Total large												
Total medium												
Total small												
Total small rural												
Total nationwide												

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor SO ₂ control	Summary of MACT floor control measures		MACT floor energy impacts, MMBtu/yr								
					Consolidated MACT floor controls	APCD code with MACT floor controls	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor energy impacts	
1	1	Bristol-Myers Squibb Co.		add packed-bed scrubber	replace FF with DIFF; add packed-bed scrubber and ACI	DIFF/WS	287	0							287
5	5	Merck & Company, Inc.		none	add ACI	DIFF									0
15	15--1	Curtis Bay Energy	Unit 1	add packed-bed scrubber	add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS	287						3.6		290
15	15--2	Curtis Bay Energy	Unit 2	add packed-bed scrubber	add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS	287						3.6		290
20	20--1	Fort Detrick	Unit 5	none	add DIFF and ACI	DIFF/WS		537							537
20	20--2	Fort Detrick	Unit 6	none	add DIFF and ACI	DIFF/WS		537							537
29	29	Hamot Medical Center		none	add packed-bed scrubber; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS	287								287
36	36--1	Merck & Company, Inc.	Unit 2	none	none	DIFF									0
36	36--2	Merck & Company, Inc.	Unit 5	none	none	DIFF									0
40	40	Charleston Area Medical Center, General Hospital		none	increase natural gas; add packed-bed scrubber	DIFF/WS	287						3,790		4,077
42	42	Stericycle, Inc.		none	improve FF performance; add packed-bed scrubber; increase activated carbon; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS	287	0							287
43	43	Boca Raton Community Hospital		none	add DIFF and ACI	DIFF/WS		537							537
44	44	Bethesda Memorial Hospital		none	add DIFF and ACI	DIFF/WS		537							537
46	46	Holy Cross Hospital		none	add DIFF and ACI	DIFF/WS		537							537
48	48	Memorial Regional Hospital		none	add DIFF and ACI; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS		537							537
51	51	Lakeland Regional Medical Center		none	add ACI	DIFF									0
54	54	Bayfront Medical Center		none	add DIFF and ACI; only minor adjustment of system needed to obtain additional NOX control (marginal difference in NOX)	DIFF/WS		537							537
55	55	St. Joseph's Hospital		none	replace DIFF; add packed-bed scrubber and ACI	DIFF/WS	287	0							287
59	59--1	Stericycle, Inc.	Unit 1	none	add DIFF and ACI	DIFF/WS		537							537
59	59--2	Stericycle, Inc.	Unit 2	none	add DIFF and ACI	DIFF/WS		537							537
60	60--1	BMWNC, Inc.	Unit 1	none	increase natural gas; add packed-bed scrubber; increase activated carbon	DIFF/WS	287						3,790		4,077
65	65--1	Stericycle, Inc.	Unit 1	none	increase natural gas; add DIFF and ACI	DIFF/WS		537					3,790		4,327

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor SO ₂ control	Summary of MACT floor control measures		MACT floor energy impacts, MMBtu/yr								
					Consolidated MACT floor controls	APCD code with MACT floor controls	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor energy impacts	
65	65-2	Stericycle, Inc.	Unit 2	none	add DIFF and ACI	DIFF/WS		537							537
71	71	Loyola University Medical Center		none	add DIFF and ACI	DIFF/WS		537							537
77	77	Parkview Hospital		none	add DIFF	DIFF/WS		537							537
84	84	Mayo Clinic, Waste Management Facility		none	replace DIFF; add packed-bed scrubber; increase activated carbon; add SNCR	DIFF/WS	287	0				3.6			290
87	87	MedCentral Health System, Mansfield Hospital		add lime	improve FF performance; add packed-bed scrubber; increase activated carbon	DIFF/WS	287	0							287
94	94	Stericycle, Inc.		none	add DIFF and ACI	DIFF/WS		537							537
98	98-1	University of Texas Medical Branch		none	add DIFF and ACI (assumed existing ACI system would need to be replaced to work with DIFF)	DIFF/WS		537							537
106	106	Stericycle, Inc.		none	add DIFF and ACI	DIFF/WS		537							537
109	109	Healthcare Environmental Services Inc.		add packed-bed scrubber	increase natural gas; add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS	287					3.6	3,790		4,080
110	110	Stericycle, Inc.		none	increase activated carbon; add SNCR	DI-ESP/WS						3.6			4
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	none	add packed-bed scrubber	DIFF/WS	287								287
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	none	none	DIFF									0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		none	none	HEPA/CA/WS									0
130	130	Department of Veterans Affairs Medical Center		none	increase scrubber hp; add caustic	WS				1,486					1,486
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		none	add DIFF and ACI	DIFF/WS		90							90
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		none	secondary chamber retrofit; add DIFF and ACI	DIFF/WS		90			569				659
18	18	Franklin Square Hospital Center		add packed-bed scrubber	add DIFF, packed-bed scrubber, and ACI	DIFF/WS	43	90							133
21	21	Washington County Hospital		none	increase natural gas; add DIFF and ACI	DIFF/WS		90					569		659
25	25	Holy Spirit Hospital		none	add DIFF and ACI	DIFF/WS		90							90
30	30	Riddle Memorial Hospital		none	add DIFF and ACI (assumed existing ACI system would need to be replaced to work with DIFF)	DIFF/WS		90							90
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		none	add FF	FF/WS			90						90
38	38	Wilkes-Barre General Hospital		none	add lime; increase activated carbon	DIFF									0
41	41	Thomas Memorial Hospital		none	add DIFF and ACI	DIFF/WS		90							90
47	47	Malcolm Randall Veterans Affairs Medical Center		none	secondary chamber retrofit; add DIFF and ACI	DIFF/WS		90			569				659
63	63	St. Jude Children's Research Hospital		none	add packed-bed scrubber; increase activated carbon	DIFF/WS	43								43
81	81	South Bend Medical Foundation		add packed-bed scrubber	add DIFF, packed-bed scrubber, and ACI	DIFF/WS	43	90							133

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor SO ₂ control	Summary of MACT floor control measures		MACT floor energy impacts, MMBtu/yr								
					Consolidated MACT floor controls	APCD code with MACT floor controls	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor energy impacts	
82	82	Good Samaritan Hospital		none	increase scrubber hp; add ACI	WS				236				236	
88	88	Medina General Hospital		none	secondary chamber retrofit; add DIFF and ACI	DIFF/WS		90			569			659	
95	95	St. Joseph's Hospital		none	increase activated carbon	DIFF								0	
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	none	add FF	FF/WS			90					90	
111	111	Wyoming Medical Center		none	add DIFF and ACI	DIFF/WS		90						90	
86	86	Fairfield Medical Center		none	none	WS								0	
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	none	none	WS								0	
115	115	Kona Community Hospital		none	none	CC								0	
116	116	Yukon-Kuskokwim Delta Regional Hospital		none	add DIFF and ACI	DIFF		32						32	
Total large								3,440	8,585	0	1,486	0	18	15,161	28,690
Total medium								129	994	181	236	1,706	0	569	3,813
Total small								0	0	0	0	0	0	0	0
Total small rural								0	32	0	0	0	0	0	32
Total nationwide								3,569	9,610	181	1,722	1,706	18	15,729	32,535

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor solid waste impacts, tpy							MACT floor wastewater impacts, gpy		
				DIFF	FF	SNCR	ACI	Increase carbon	Increase lime	Total MACT floor solid waste impacts	Packed-bed scrubber	Increase caustic	Total MACT floor wastewater impacts
1	1	Bristol-Myers Squibb Co.		183			15				199	6,533	6,533
5	5	Merck & Company, Inc.					15				15		0
15	15--1	Curtis Bay Energy	Unit 1			5.4		15			21	6,533	6,533
15	15--2	Curtis Bay Energy	Unit 2			5.4		15			21	6,533	6,533
20	20--1	Fort Detrick	Unit 5	194			15				209		0
20	20--2	Fort Detrick	Unit 6	194			15				209		0
29	29	Hamot Medical Center									0	6,533	6,533
36	36--1	Merck & Company, Inc.	Unit 2								0		0
36	36--2	Merck & Company, Inc.	Unit 5								0		0
40	40	Charleston Area Medical Center, General Hospital									0	6,533	6,533
42	42	Stericycle, Inc.		0				15			15	6,533	6,533
43	43	Boca Raton Community Hospital		194			15				209		0
44	44	Bethesda Memorial Hospital		194			15				209		0
46	46	Holy Cross Hospital		194			15				209		0
48	48	Memorial Regional Hospital		194			15				209		0
51	51	Lakeland Regional Medical Center					15				15		0
54	54	Bayfront Medical Center		194			15				209		0
55	55	St. Joseph's Hospital		0			15				15	6,533	6,533
59	59--1	Stericycle, Inc.	Unit 1	194			15				209		0
59	59--2	Stericycle, Inc.	Unit 2	194			15				209		0
60	60--1	BMWNC, Inc.	Unit 1					15			15	6,533	6,533
65	65--1	Stericycle, Inc.	Unit 1	194			15				209		0

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor solid waste impacts, tpy							MACT floor wastewater impacts, gpy			
				DIFF	FF	SNCR	ACI	Increase carbon	Increase lime	Total MACT floor solid waste impacts	Packed-bed scrubber	Increase caustic	Total MACT floor wastewater impacts	
65	65-2	Stericycle, Inc.	Unit 2	194			15				209			0
71	71	Loyola University Medical Center		194			15				209			0
77	77	Parkview Hospital		194							194			0
84	84	Mayo Clinic, Waste Management Facility		0		5.4		15			21	6,533		6,533
87	87	MedCentral Health System, Mansfield Hospital		0				15			15	6,533		6,533
94	94	Stericycle, Inc.		194			15				209			0
98	98-1	University of Texas Medical Branch		194			15				209			0
106	106	Stericycle, Inc.		194			15				209			0
109	109	Healthcare Environmental Services Inc.				5.4		15			21	6,533		6,533
110	110	Stericycle, Inc.				5.4		15			21			0
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1								0	6,533		6,533
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2								0			0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant									0			0
130	130	Department of Veterans Affairs Medical Center									0	6,533		6,533
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		7.3			2.3				9.5			0
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		7.3			2.3				9.5			0
18	18	Franklin Square Hospital Center		7.3			2.3				9.5	353		353
21	21	Washington County Hospital		7.3			2.3				9.5			0
25	25	Holy Spirit Hospital		7.3			2.3				9.5			0
30	30	Riddle Memorial Hospital		7.3			2.3				9.5			0
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator				2.3					2.3			0
38	38	Wilkes-Barre General Hospital						2.3	4.9		7.2			0
41	41	Thomas Memorial Hospital		7.3			2.3				9.5			0
47	47	Malcolm Randall Veterans Affairs Medical Center		7.3			2.3				9.5			0
63	63	St. Jude Children's Research Hospital						2.3			2.3	353		353
81	81	South Bend Medical Foundation		7.3			2.3				9.5	353		353

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor solid waste impacts, tpy							MACT floor wastewater impacts, gpy		
				DIFF	FF	SNCR	ACI	Increase carbon	Increase lime	Total MACT floor solid waste impacts	Packed-bed scrubber	Increase caustic	Total MACT floor wastewater impacts
82	82	Good Samaritan Hospital					2.3			2.3			0
88	88	Medina General Hospital		7.3			2.3			9.5			0
95	95	St. Joseph's Hospital						2.3		2.3			0
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1		2.3					2.3			0
111	111	Wyoming Medical Center		7.3			2.3			9.5			0
86	86	Fairfield Medical Center								0.0			0
129	129	Centers for Disease Control and Prevention-- Clifton, Building 18	Unit 3							0			0
115	115	Kona Community Hospital								0			0
116	116	Yukon-Kuskokwim Delta Regional Hospital		1.8			0.6			2.3			0
Total large				3,280	0	27	290	122	0	3,718	78,397	6,533	84,930
Total medium				80	4.6	0	27	6.9	4.9	124	1,058	0	1,058
Total small				0	0	0	0	0	0	0	0	0	0
Total small rural				1.8	0	0	0.6	0	0	2	0	0	0
Total nationwide				3,362	4.6	27	318	129	4.9	3,844	79,456	6,533	85,989

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor PM secondary emissions, lb/yr								MACT floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor PM secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	
1	1	Bristol-Myers Squibb Co.		4.7	0						4.7	34	0						
5	5	Merck & Company, Inc.									0								
15	15--1	Curtis Bay Energy	Unit 1	4.7					0.06		4.7	34					0.4		
15	15--2	Curtis Bay Energy	Unit 2	4.7					0.06		4.7	34					0.4		
20	20--1	Fort Detrick	Unit 5		8.8						8.8		64						
20	20--2	Fort Detrick	Unit 6		8.8						8.8		64						
29	29	Hamot Medical Center		4.7							4.7	34							
36	36--1	Merck & Company, Inc.	Unit 2								0.0								
36	36--2	Merck & Company, Inc.	Unit 5								0.0								
40	40	Charleston Area Medical Center, General Hospital		4.7						7.2	12	34					318		
42	42	Stericycle, Inc.		4.7	0						5	34	0						
43	43	Boca Raton Community Hospital			8.8						9		64						
44	44	Bethesda Memorial Hospital			8.8						8.8		64						
46	46	Holy Cross Hospital			8.8						9		64						
48	48	Memorial Regional Hospital			8.8						8.8		64						
51	51	Lakeland Regional Medical Center									0.0								
54	54	Bayfront Medical Center			8.8						9		64						
55	55	St. Joseph's Hospital		4.7	0						4.7	34	0						
59	59--1	Stericycle, Inc.	Unit 1		8.8						9		64						
59	59--2	Stericycle, Inc.	Unit 2		8.8						9		64						
60	60--1	BMWNC, Inc.	Unit 1	4.7						7.2	12	34					318		
65	65--1	Stericycle, Inc.	Unit 1		8.8					7.2	16		64				318		

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor PM secondary emissions, lb/yr								MACT floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor PM secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	
65	65-2	Stericycle, Inc.	Unit 2		8.8							9		64					
71	71	Loyola University Medical Center			8.8							9		64					
77	77	Parkview Hospital			8.8							9		64					
84	84	Mayo Clinic, Waste Management Facility		4.7	0				0.06			4.7	34	0				0.4	
87	87	MedCentral Health System, Mansfield Hospital		4.7	0							5	34	0					
94	94	Stericycle, Inc.			8.8							9		64					
98	98-1	University of Texas Medical Branch			8.8							8.8		64					
106	106	Stericycle, Inc.			8.8							9		64					
109	109	Healthcare Environmental Services Inc.		4.7					0.06	7.2		12	34					0.4	318
110	110	Stericycle, Inc.							0.06			0						0.4	
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	4.7								5	34						
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2									0.0							
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant										0.0							
130	130	Department of Veterans Affairs Medical Center					24					24.2				177			
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility			1.5							1.5		11					
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment			1.5			1.1				2.6		11			48		
18	18	Franklin Square Hospital Center		0.7	1.5							2.2	5.1	11					
21	21	Washington County Hospital			1.5					1.1		2.6		11					48
25	25	Holy Spirit Hospital			1.5							1.5		11					
30	30	Riddle Memorial Hospital			1.5							1.5		11					
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator				1.5						1.5		11					
38	38	Wilkes-Barre General Hospital										0.0							
41	41	Thomas Memorial Hospital			1.5							1.5		11					
47	47	Malcolm Randall Veterans Affairs Medical Center			1.5			1.1				2.6		11			48		
63	63	St. Jude Children's Research Hospital		0.7								0.7	5.1						
81	81	South Bend Medical Foundation		0.7	1.5							2.2	5.1	11					

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor PM secondary emissions, lb/yr								MACT floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor PM secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	
82	82	Good Samaritan Hospital					3.8					3.8				28			
88	88	Medina General Hospital			1.5			1.1				2.6		11			48		
95	95	St. Joseph's Hospital										0.0							
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1			1.5						1.5		11					
111	111	Wyoming Medical Center			1.5							1.5		11					
86	86	Fairfield Medical Center										0							
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3									0.0							
115	115	Kona Community Hospital										0							
116	116	Yukon-Kuskokwim Delta Regional Hospital			0.5							0.5		3.7					
Total large				56	140	0	24	0	0.3	29	249	409	1,020	0	177	0	2.1	1,273	
Total medium				2.1	16	2.9	3.8	3.2	0	1.1	29	15	118	21	28	143	0	48	
Total small				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total small rural				0	0.5	0	0	0	0	0	0.5	0	3.7	0	0	0	0	0	
Total nationwide				58	157	2.9	28	3.2	0.3	30	279	424	1,142	21	205	143	2.1	1,321	

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor NO _x secondary emissions, lb/yr								MACT floor SO ₂ secondary emissions, lb/yr				
				Total MACT floor CO secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp
1	1	Bristol-Myers Squibb Co.		34	17	0						17	34	0		
5	5	Merck & Company, Inc.		0								0				
15	15--1	Curtis Bay Energy	Unit 1	34	17					0.2		17	34			
15	15--2	Curtis Bay Energy	Unit 2	34	17					0.2		17	34			
20	20--1	Fort Detrick	Unit 5	64		32						32		63		
20	20--2	Fort Detrick	Unit 6	64		32						32		63		
29	29	Hamot Medical Center		34	17							17	34			
36	36--1	Merck & Company, Inc.	Unit 2	0								0				
36	36--2	Merck & Company, Inc.	Unit 5	0								0				
40	40	Charleston Area Medical Center, General Hospital		352	17						379	396	34			
42	42	Stericycle, Inc.		34	17	0						17	34	0		
43	43	Boca Raton Community Hospital		64		32						32		63		
44	44	Bethesda Memorial Hospital		64		32						32		63		
46	46	Holy Cross Hospital		64		32						32		63		
48	48	Memorial Regional Hospital		64		32						32		63		
51	51	Lakeland Regional Medical Center		0								0				
54	54	Bayfront Medical Center		64		32						32		63		
55	55	St. Joseph's Hospital		34	17	0						17	34	0		
59	59--1	Stericycle, Inc.	Unit 1	64		32						32		63		
59	59--2	Stericycle, Inc.	Unit 2	64		32						32		63		
60	60--1	BMWNC, Inc.	Unit 1	352	17						379	396	34			
65	65--1	Stericycle, Inc.	Unit 1	382		32					379	411		63		

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor NO _x secondary emissions, lb/yr								MACT floor SO ₂ secondary emissions, lb/yr				
				Total MACT floor CO secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp
65	65-2	Stericycle, Inc.	Unit 2	64		32						32		63		
71	71	Loyola University Medical Center		64		32						32		63		
77	77	Parkview Hospital		64		32						32		63		
84	84	Mayo Clinic, Waste Management Facility		34	17	0				0.2		17	34	0		
87	87	MedCentral Health System, Mansfield Hospital		34	17	0						17	34	0		
94	94	Stericycle, Inc.		64		32						32		63		
98	98-1	University of Texas Medical Branch		64		32						32		63		
106	106	Stericycle, Inc.		64		32						32		63		
109	109	Healthcare Environmental Services Inc.		353	17					0.2	379	396	34			
110	110	Stericycle, Inc.		0						0.2		0				
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	34	17							17	34			
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	0								0				
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		0								0				
130	130	Department of Veterans Affairs Medical Center		177					89			89				174
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		11		5.4						5		11		
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		58		5.4					57	62		11		0.3
18	18	Franklin Square Hospital Center		16	2.6	5.4						8	5.0	11		
21	21	Washington County Hospital		58		5.4					57	62		11		
25	25	Holy Spirit Hospital		11		5.4						5.4		11		
30	30	Riddle Memorial Hospital		11		5.4						5.4		11		
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		11			5.4					5.4			11	
38	38	Wilkes-Barre General Hospital		0.0								0.0				
41	41	Thomas Memorial Hospital		11		5.4						5.4		11		
47	47	Malcolm Randall Veterans Affairs Medical Center		58		5.4					57	62		11		0.3
63	63	St. Jude Children's Research Hospital		5.1	2.6							2.6	5.0			
81	81	South Bend Medical Foundation		16	2.6	5.4						8.0	5.0	11		

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	MACT floor NO _x secondary emissions, lb/yr								MACT floor SO ₂ secondary emissions, lb/yr					
				Total MACT floor CO secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit	SNCR	Increase natural gas	Total MACT floor NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Increase scrubber hp	Secondary chamber retrofit
82	82	Good Samaritan Hospital		28				14				14.2				28	
88	88	Medina General Hospital		58		5.4			57			62		11			0.3
95	95	St. Joseph's Hospital		0.0								0.0					
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	11			5.4					5.4			11		
111	111	Wyoming Medical Center		11		5.4						5		11			
86	86	Fairfield Medical Center		0								0					
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	0								0					
115	115	Kona Community Hospital		0								0					
116	116	Yukon-Kuskokwim Delta Regional Hospital		3.7		1.9						1.9		3.7			
Total large				2,881	207	516	0	89	0	1.1	1,516	2,329	404	1,007	0	174	0
Total medium				374	8	60	11	14	171	0	57	320	15	117	21	28	1.0
Total small				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total small rural				3.7	0	1.9	0	0	0	0	0	1.9	0	3.7	0	0	0
Total nationwide				3,259	214	577	11	103	171	1.1	1,573	2,651	419	1,127	21	202	1.0

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	SNCR	Increase natural gas	Total MACT floor SO ₂ secondary emissions	Total MACT floor secondary emissions, lb/yr
1	1	Bristol-Myers Squibb Co.				34	90
5	5	Merck & Company, Inc.				0	0
15	15--1	Curtis Bay Energy	Unit 1	0.4		34	91
15	15--2	Curtis Bay Energy	Unit 2	0.4		34	91
20	20--1	Fort Detrick	Unit 5			63	168
20	20--2	Fort Detrick	Unit 6			63	168
29	29	Hamot Medical Center				34	90
36	36--1	Merck & Company, Inc.	Unit 2			0	0
36	36--2	Merck & Company, Inc.	Unit 5			0	0
40	40	Charleston Area Medical Center, General Hospital			2.3	36	796
42	42	Stericycle, Inc.				34	90
43	43	Boca Raton Community Hospital				63	168
44	44	Bethesda Memorial Hospital				63	168
46	46	Holy Cross Hospital				63	168
48	48	Memorial Regional Hospital				63	168
51	51	Lakeland Regional Medical Center				0.0	0
54	54	Bayfront Medical Center				63	168
55	55	St. Joseph's Hospital				33.6	90
59	59--1	Stericycle, Inc.	Unit 1			63	168
59	59--2	Stericycle, Inc.	Unit 2			63	168
60	60--1	BMWNC, Inc.	Unit 1		2.3	36	796
65	65--1	Stericycle, Inc.	Unit 1		2.3	65	875

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	SNCR	Increase natural gas	Total MACT floor SO ₂ secondary emissions	Total MACT floor secondary emissions, lb/yr
65	65-2	Stericycle, Inc.	Unit 2			63	168
71	71	Loyola University Medical Center				63	168
77	77	Parkview Hospital				63	168
84	84	Mayo Clinic, Waste Management Facility		0.4		34	91
87	87	MedCentral Health System, Mansfield Hospital				34	90
94	94	Stericycle, Inc.				63	168
98	98-1	University of Texas Medical Branch				63	168
106	106	Stericycle, Inc.				63	168
109	109	Healthcare Environmental Services Inc.		0.4	2.3	36	798
110	110	Stericycle, Inc.		0.4		0	1.1
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1			34	90
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2			0	0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant				0.0	0
130	130	Department of Veterans Affairs Medical Center				174	464
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility				11	28
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment				11	134
18	18	Franklin Square Hospital Center				16	42
21	21	Washington County Hospital			0.3	11	134
25	25	Holy Spirit Hospital				11	28
30	30	Riddle Memorial Hospital				11	28
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator				11	28
38	38	Wilkes-Barre General Hospital				0.0	0
41	41	Thomas Memorial Hospital				11	28
47	47	Malcolm Randall Veterans Affairs Medical Center				11	134
63	63	St. Jude Children's Research Hospital				5.0	13
81	81	South Bend Medical Foundation				16	42

Table 12. Nationwide MACT Floor Secondary Im

FACID	UNITID	Facility name	Unit number	SNCR	Increase natural gas	Total MACT floor SO ₂ secondary emissions	Total MACT floor secondary emissions, lb/yr
82	82	Good Samaritan Hospital				28	74
88	88	Medina General Hospital				11	134
95	95	St. Joseph's Hospital				0.0	0
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1			11	28
111	111	Wyoming Medical Center				11	28
86	86	Fairfield Medical Center				0	0
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3			0	0
115	115	Kona Community Hospital				0	0
116	116	Yukon-Kuskokwim Delta Regional Hospital				3.7	9.9
Total large				2.1	9.1	1,596	7,056
Total medium				0	0.3	182	905
Total small				0	0	0	0
Total small rural				0	0	3.7	9.9
Total nationwide				2.1	9.4	1,782	7,971

Notes:

1. In calculating the total number of limits met for each unit, included only c

Key:

- Emissions data unavailable; used average emissions data from si
- MACT floor subtotals
- MACT floor total

Table 13. Nationwide Beyond-the-Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
1	1	Bristol-Myers Squibb Co.		Wallingford	CT	L	E	FF	Secondary chamber (1800F) and baghouse	1,000	1,648
5	5	Merck & Company, Inc.		Rahway	NJ	L	E	DIFF	Secondary chamber (1500F, 1 sec), partial quench, dry acid gas scrubber with dry lime injection, and baghouse	799	7,346
15	15--1	Curtis Bay Energy	Unit 1	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083	27,698
15	15--2	Curtis Bay Energy	Unit 2	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083	30,578
20	20--1	Fort Detrick	Unit 5	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000	2,424
20	20--2	Fort Detrick	Unit 6	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000	2,308
29	29	Hamot Medical Center		Erie	PA	L	E	DIFF/WS	Secondary chamber (2000F, 2 sec), lime injection system, powdered activated carbon injection system, baghouse, and vertical upflow two-stage multi-microventuri scrubber system	1,060	3,701
36	36--1	Merck & Company, Inc.	Unit 2	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary/tertiary chamber (2000F, 2 sec), water quench followed by sodium bicarbonate injection system with dry reaction chamber and pulse-jet baghouse	2,000	5,235
36	36--2	Merck & Company, Inc.	Unit 5	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary chamber (1800F, 2.2 sec), water quench followed by sodium bicarbonate injection system and pulse-jet baghouse	3,045	8,119
40	40	Charleston Area Medical Center, General Hospital		Charleston	WV	L	E	DIFF	Secondary chamber (1800F, 2 sec), dry injection/baghouse scrubber system with activated carbon	1,000	4,323
42	42	Stericycle, Inc.		Apopka	FL	L	E	DIFF	Secondary chamber (1800, 1 sec), dry scrubbing system with quench chamber, passive absorber, lime and carbon injection, and baghouse.	1,900	7,008
43	43	Boca Raton Community Hospital		Boca Raton	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and rotary atomizing wet scrubber system with caustic soda injection	730	2,078
44	44	Bethesda Memorial Hospital		Boynton Beach	FL	L	E	WS	Secondary chamber (1800F, 2 sec) and rotary atomizing scrubber with mist eliminator	1,000	4,537
46	46	Holy Cross Hospital		Fort Lauderdale	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and venturi scrubber with packed bed absorption unit using dilute NaOH	1,300	3,378
48	48	Memorial Regional Hospital		Hollywood	FL	L	E	WS/WESP	Secondary chamber (1800F, 1 sec), packed column gas scrubber, and wet ESP	1,800	4,568
51	51	Lakeland Regional Medical Center		Lakeland	FL	L	E	DIFF	Secondary chamber (1800F, 1 sec), lime injection system, and baghouse	750	3,323
54	54	Bayfront Medical Center		St. Petersburg	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and flux force/condensation collision scrubber system using dilute NaOH	1,500	2,898
55	55	St. Joseph's Hospital		Tampa	FL	L	E	DIFF/WS	Secondary chamber (1800F, 1 sec), lime injection, baghouse, and venturi scrubber	1,500	3,347
59	59--1	Stericycle, Inc.	Unit 1	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911	4,002

Table 13. Nationwide Beyond-the-Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/ existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
59	59-2	Stericycle, Inc.	Unit 2	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911	3,917
60	60-1	BMWNC, Inc.	Unit 1	Matthews	NC	L	E	DIFF	Secondary chamber (1641F), dry scrubber with lime and activated carbon injection, and baghouse	1,500	6,763
65	65-1	Stericycle, Inc.	Unit 1	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500	3,304
65	65-2	Stericycle, Inc.	Unit 2	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500	3,125
71	71	Loyola University Medical Center		Maywood	IL	L	E	WS	Two secondary chambers (1600F), twin rotary atomizer scrubber using 50% caustic solution, and two demister pads	1,650	3,526
77	77	Parkview Hospital		Fort Wayne	IN	L	E	WS	Secondary chamber and wet scrubber	1,200	2,766
84	84	Mayo Clinic, Waste Management Facility		Rochester	MN	L	E	DIFF	Secondary chamber (1800F, 1 sec) and baghouse with lime and carbon injection	2,000	6,516
87	87	MedCentral Health System, Mansfield Hospital		Mansfield	OH	L	E	DIFF	Secondary chamber (1800F, 2 sec) and baghouse with lime and carbon injection system	600	2,351
94	94	Stericycle, Inc.		Warren	OH	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,400	2,737
98	98-1	University of Texas Medical Branch		Galveston	TX	L	E	WS	Secondary chamber, packed tower, and venturi scrubber with activated carbon injection	1,500	4,534
106	106	Stericycle, Inc.		Kansas City	KS	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,500	3,590
109	109	Healthcare Environmental Services Inc.		Fargo	ND	L	E	DIFF	Secondary chamber (1800F) and dry scrubber/baghouse system with lime and carbon injection	1,686	4,478
110	110	Stericycle, Inc.		North Salt Lake	UT	L	E	DI-ESP/WS	Secondary chamber (1834F), carbon injection system, ESP, dry scrubber, and wet gas absorber	1,935	6,291
120	120-1	Waste Management Resource Recovery and Recycling Center	Unit 1	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167	10,031
120	120-2	Waste Management Resource Recovery and Recycling Center	Unit 2	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167	9,028
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		Greenville	NC	L	N	HEPA/CA/WS	Secondary chamber (1985F), rotary atomizing wet scrubber (with NaOH scrubbing medium), carbon bed adsorber, HEPA filtering system, and heat recovery system	1,000	3,124
130	130	Department of Veterans Affairs Medical Center		Miami	FL	L	E	WS	Secondary chamber (1800F, 1 sec), venturi scrubber, and packed tower absorber	1,000	6,422
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		Baltimore	MD	M	E	WS	Secondary chamber (1832F) and venturi caustic scrubber with packed-bed scrubber	500	1,972
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi wet scrubber followed by saturation chamber and mist eliminator	320	1,890
18	18	Franklin Square Hospital Center		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi scrubber followed by quench chamber and mist eliminator	500	2,999
21	21	Washington County Hospital		Hagerstown	MD	M	E	WS	Secondary chamber and venturi caustic scrubber	500	1,834
25	25	Holy Spirit Hospital		Camp Hill	PA	M	E	WS	Secondary chamber (1800F) and venturi scrubber with prequench and NaOH injection	500	1,702

Table 13. Nationwide Beyond-the-Floor Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/existing	APCD code	APCD description	Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)
30	30	Riddle Memorial Hospital		Media	PA	M	E	WS	Secondary chamber (1800F, 2 sec), caustic packed tower scrubber, and high pressure venturi, with activated carbon injection	500	1,730
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		State College	PA	M	E	WS	Secondary chamber (1900F) and rotary atomizing wet scrubber with demister	500	2,117
38	38	Wilkes-Barre General Hospital		Wilkes-Barre	PA	M	N	DIFF	Secondary/tertiary chambers (1800F, 2.85 sec) and dry scrubber/baghouse with lime and activated carbon injection	400	2,063
41	41	Thomas Memorial Hospital		South Charleston	WV	M	E	WS	Secondary chamber (1800F) and venturi packed tower wet scrubber with caustic injection	470	1,526
47	47	Malcolm Randall Veterans Affairs Medical Center		Gainesville	FL	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber with caustic soda injection	495	1,645
63	63	St. Jude Children's Research Hospital		Memphis	TN	M	E	DIFF	Secondary chamber (1528F) and baghouse with sodium bicarbonate and carbon injection	500	2,333
81	81	South Bend Medical Foundation		South Bend	IN	M	E	WS	Secondary chamber and wet scrubber	470	2,325
82	82	Good Samaritan Hospital		Vincennes	IN	M	E	WS	Secondary chamber and multi-chamber spray scrubber	500	1,352
88	88	Medina General Hospital		Medina	OH	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	300	1,153
95	95	St. Joseph's Hospital		Marshfield	WI	M	E	DIFF	Secondary chamber (1800F), quench tower, and baghouse with lime/carbon injection	500	1,634
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	Hamilton	MT	M	E	WS	Secondary chamber and wet scrubber	500	1,790
111	111	Wyoming Medical Center		Casper	WY	M	E	WS	Secondary chamber and wet scrubber	400	1,505
86	86	Fairfield Medical Center		Lancaster	OH	S	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	95	1,095
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	Atlanta	GA	S	N	WS	Secondary chamber (1800F, 1.68 sec) and rotary atomizing wet scrubber	120	715
115	115	Kona Community Hospital		Kealahakua	HI	SR	E	CC	Secondary chamber (1900F, 2 sec), no APCD	200	684
116	116	Yukon-Kuskokwim Delta Regional Hospital		Bethel	AK	SR	E	CC	Secondary chamber, no APCD	50	559
Total large											
Total medium											
Total small											
Total small rural											
Total nationwide											

Notes:

1. In calculating the total number of limits met for each unit, included only one of the CDD/CDF limits (total or TEQ), depending on which limit was met.

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	MACT floor emission levels								
						HCl MACT floor level (ppmvd)	CO MACT floor level (ppmvd)	Pb MACT floor level (ppmvd)	Cd MACT floor level (ppmvd)	Hg MACT floor level (ppmvd)	PM MACT floor level (ppmvd)	CDD/CDF MACT floor level (ppmvd)	TEQ MACT floor level (ppmvd)	NO _x MACT floor level (ppmvd)
1	1	Bristol-Myers Squibb Co.		217	2,072	6.60	0.983	0.0360	0.00364	0.000695	0.00180	9.30	0.0540	119
5	5	Merck & Company, Inc.		246	4,321	0.780	1.41	0.0155	0.00265	0.00353	0.00330	9.30	0.0540	112
15	15--1	Curtis Bay Energy	Unit 1	296	8,736	6.60	1.26	0.00504	0.000887	0.0180	0.00823	9.30	0.0540	140
15	15--2	Curtis Bay Energy	Unit 2	303	8,736	6.60	2.91	0.00769	0.00130	0.0180	0.00407	5.47	0.0540	140
20	20--1	Fort Detrick	Unit 5	87	1,300	0.190	0.871	0.0360	0.00920	0.00324	0.00721	9.30	0.0540	121
20	20--2	Fort Detrick	Unit 6	92	1,300	0.353	1.17	0.0360	0.00867	0.00771	0.00775	9.30	0.0540	121
29	29	Hamot Medical Center		122	2,080	6.60	2.60	0.00675	0.00119	0.00400	0.00174	7.72	0.0540	131
36	36--1	Merck & Company, Inc.	Unit 2	358	865	4.22	2.46	0.00115	0.000853	0.00305	0.00156	3.71	0.0442	99.8
36	36--2	Merck & Company, Inc.	Unit 5	304	5,753	3.75	1.07	0.0109	0.00242	0.0141	0.00255	6.78	0.0540	94.4
40	40	Charleston Area Medical Center, General Hospital		312	1,248	6.60	11.0	0.00468	0.00186	0.00418	0.00106	1.31	0.0153	92.7
42	42	Stericycle, Inc.		327	7,951	6.60	10.7	0.0360	0.00886	0.0132	0.00203	9.30	0.0540	140
43	43	Boca Raton Community Hospital		91	8,736	0.986	6.46	0.0360	0.00537	0.0119	0.0104	9.30	0.0540	121
44	44	Bethesda Memorial Hospital		106	3,024	0.608	2.74	0.0360	0.00920	0.0180	0.00960	9.30	0.0540	88.3
46	46	Holy Cross Hospital		124	2,964	1.18	4.91	0.0360	0.00920	0.0180	0.0103	9.30	0.0540	67.9
48	48	Memorial Regional Hospital		143	4,992	1.02	1.17	0.0360	0.00560	0.00374	0.00973	9.30	0.0540	140
51	51	Lakeland Regional Medical Center		212	6,247	2.68	6.35	0.0348	0.00365	0.00244	0.00254	9.30	0.0540	77.1
54	54	Bayfront Medical Center		133	3,352	0.947	9.36	0.0360	0.00379	0.00128	0.00543	9.30	0.0540	140
55	55	St. Joseph's Hospital		400	8,008	6.60	5.85	0.0360	0.00205	0.00730	0.00111	9.30	0.0540	123
59	59--1	Stericycle, Inc.	Unit 1	135	8,400	4.24	3.95	0.0360	0.00920	0.0180	0.00714	2.82	0.0540	121

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	MACT floor emission levels									
						HCl MACT floor level (ppmvd)	CO MACT floor level (ppmvd)	Pb MACT floor level (ppmvd)	Cd MACT floor level (ppmvd)	Hg MACT floor level (ppmvd)	PM MACT floor level (ppmvd)	CDD/CDF MACT floor level (ppmvd)	TEQ MACT floor level (ppmvd)	NO _x MACT floor level (ppmvd)	
59	59--2	Stericycle, Inc.	Unit 2	138	8,400	3.88	4.61	0.0360	0.00920	0.0180	0.0102	5.48	0.0540	121	
60	60--1	BMWNC, Inc.	Unit 1	343	7,456	6.60	11.0	0.00335	0.000532	0.0180	0.00504	6.10	0.0540	104	
65	65--1	Stericycle, Inc.	Unit 1	143	7,665	1.12	11.0	0.0360	0.00572	0.0180	0.00921	1.24	0.0105	121	
65	65--2	Stericycle, Inc.	Unit 2	141	7,558	1.43	5.77	0.0360	0.00920	0.0180	0.00878	0.837	0.0126	121	
71	71	Loyola University Medical Center		156	4,800	2.22	7.07	0.0360	0.00920	0.0180	0.0105	9.30	0.0540	107	
77	77	Parkview Hospital		114	8,395	2.68	5.90	0.0360	0.00920	0.00623	0.0109	7.10	0.0540	121	
84	84	Mayo Clinic, Waste Management Facility		294	6,240	6.60	2.24	0.0360	0.00920	0.0180	0.0110	0.357	0.0117	140	
87	87	MedCentral Health System, Mansfield Hospital		260	3,120	6.60	4.81	0.0360	0.00113	0.00898	0.00357	9.30	0.0540	121	
94	94	Stericycle, Inc.		138	7,904	0.661	4.45	0.0360	0.00524	0.0180	0.00617	9.30	0.0540	121	
98	98--1	University of Texas Medical Branch		111	5,328	2.12	1.73	0.0360	0.00298	0.0180	0.0110	9.30	0.0540	78.9	
106	106	Stericycle, Inc.		152	8,760	0.567	4.62	0.0360	0.00396	0.0180	0.00828	2.40	0.0176	121	
109	109	Healthcare Environmental Services Inc.		302	1,872	6.60	11.0	0.0171	0.00296	0.0180	0.00611	9.30	0.0540	140	
110	110	Stericycle, Inc.		126	7,309	3.93	7.39	0.0309	0.00214	0.0180	0.00449	3.37	0.0540	140	
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	296	7,896	6.60	3.96	0.0187	0.00132	0.0130	0.00702	0.498	0.00807	72.4	
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	291	7,896	5.30	2.86	0.00778	0.000889	0.00559	0.00947	0.152	0.00378	88.4	
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		125	625	1.58	10.7	0.000296	0.000106	0.00164	0.00323	0.380	0.00532	66.9	
130	130	Department of Veterans Affairs Medical Center		155	4,160	6.60	1.00	0.0360	0.00564	0.00542	0.0110	0.665	0.0160	81.5	
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		189	1,440	0.708	1.50	0.0180	0.0130	0.0250	0.0126	0.850	0.0200	100	
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		179	1,350	1.39	5.50	0.0180	0.0130	0.00395	0.0200	0.850	0.0200	87.9	
18	18	Franklin Square Hospital Center		54	5,408	1.48	5.36	0.0180	0.0130	0.00270	0.0200	0.850	0.0200	84.7	
21	21	Washington County Hospital		112	2,496	6.26	5.50	0.0180	0.0130	0.000836	0.0197	0.850	0.0200	105	
25	25	Holy Spirit Hospital		99	3,944	0.736	1.88	0.0180	0.0130	0.00346	0.0164	0.850	0.0200	105	

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Stack gas temperature (°F)	Operating hours (hr/yr)	MACT floor emission levels								
						HCl MACT floor level (ppmvd)	CO MACT floor level (ppmvd)	Pb MACT floor level (ppmvd)	Cd MACT floor level (ppmvd)	Hg MACT floor level (ppmvd)	PM MACT floor level (ppmvd)	CDD/CDF MACT floor level (ppmvd)	TEQ MACT floor level (ppmvd)	NO _x MACT floor level (ppmvd)
30	30	Riddle Memorial Hospital		239	2,920	2.10	1.41	0.0180	0.00366	0.0108	0.0124	0.850	0.0200	124
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		175	1,022	1.27	2.11	0.0180	0.00408	0.00124	0.0200	0.0973	0.00291	105
38	38	Wilkes-Barre General Hospital		274	4,472	7.70	2.08	0.00406	0.00106	0.00927	0.00399	0.850	0.0200	105
41	41	Thomas Memorial Hospital		146	2,080	2.62	0.946	0.0180	0.0130	0.0250	0.0200	0.175	0.00424	94.4
47	47	Malcolm Randall Veterans Affairs Medical Center		115	1,664	4.69	5.50	0.0180	0.0130	0.0195	0.0173	0.850	0.0200	148
63	63	St. Jude Children's Research Hospital		276	1,050	7.70	0.679	0.00485	0.00152	0.00361	0.00505	0.850	0.0200	131
81	81	South Bend Medical Foundation		121	2,028	7.70	2.06	0.0180	0.00176	0.0250	0.0116	0.850	0.0200	15.0
82	82	Good Samaritan Hospital		128	2,574	1.58	1.91	0.0180	0.00336	0.00251	0.0137	0.850	0.0200	105
88	88	Medina General Hospital		100	3,016	3.29	5.50	0.0180	0.0109	0.00716	0.0200	0.850	0.0200	105
95	95	St. Joseph's Hospital		223	1,404	5.27	2.15	0.00397	0.00128	0.00254	0.00294	0.850	0.0200	105
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	112	1,248	0.455	1.97	0.0180	0.00773	0.00312	0.0200	0.206	0.00300	128
111	111	Wyoming Medical Center		130	989	1.17	3.28	0.0180	0.0130	0.0237	0.00336	0.850	0.0200	141
86	86	Fairfield Medical Center		97	5,018	1.03	2.27	0.161	0.00256	0.0114	0.0137	2.89	0.0130	105
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	163	2,920	1.30	12.1	0.0727	0.00545	0.00292	0.00760	2.89	0.00453	105
115	115	Kona Community Hospital		1,787	1,430	135	7.00	0.226	0.0380	0.00158	0.0128	29.6	0.618	95.1
116	116	Yukon-Kuskokwim Delta Regional Hospital		1,457	1,560	298	5.41	0.226	0.0380	0.00510	0.0162	125	2.52	95.1
Total large														
Total medium														
Total small														
Total small rural														
Total nationwide														

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor emission limits									
				SO ₂ MACT floor level (ppmvd)	HCl BTF limit-99% UCL (ppmvd)	CO BTF limit-99% UCL (ppmvd)	Pb BTF limit-99% UCL (mg/dscm)	Cd BTF limit-99% UCL (mg/dscm)	Hg BTF limit-99% UCL (mg/dscm)	PM BTF limit-99% UCL (gr/dscf)	CDD/CDF BTF limit-99% UCL (ng/dscm)	TEQ BTF limit-99% UCL (ng/dscm)	NOX BTF limit-99% UCL (ppmvd)
1	1	Bristol-Myers Squibb Co.		9.00	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
5	5	Merck & Company, Inc.		2.72	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
15	15--1	Curtis Bay Energy	Unit 1	9.00	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
15	15--2	Curtis Bay Energy	Unit 2	9.00	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
20	20--1	Fort Detrick	Unit 5	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
20	20--2	Fort Detrick	Unit 6	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
29	29	Hamot Medical Center		2.78	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
36	36--1	Merck & Company, Inc.	Unit 2	1.13	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
36	36--2	Merck & Company, Inc.	Unit 5	2.35	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
40	40	Charleston Area Medical Center, General Hospital		2.07	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
42	42	Stericycle, Inc.		1.50	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
43	43	Boca Raton Community Hospital		2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
44	44	Bethesda Memorial Hospital		4.62	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
46	46	Holy Cross Hospital		1.16	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
48	48	Memorial Regional Hospital		3.41	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
51	51	Lakeland Regional Medical Center		2.13	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
54	54	Bayfront Medical Center		1.25	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
55	55	St. Joseph's Hospital		2.52	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
59	59--1	Stericycle, Inc.	Unit 1	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor emission limits									
				SO ₂ MACT floor level (ppmvd)	HCl BTF limit-99% UCL (ppmvd)	CO BTF limit-99% UCL (ppmvd)	Pb BTF limit-99% UCL (mg/dscm)	Cd BTF limit-99% UCL (mg/dscm)	Hg BTF limit-99% UCL (mg/dscm)	PM BTF limit-99% UCL (gr/dscf)	CDD/CDF BTF limit-99% UCL (ng/dscm)	TEQ BTF limit-99% UCL (ng/dscm)	NOX BTF limit-99% UCL (ppmvd)
59	59--2	Stericycle, Inc.	Unit 2	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
60	60--1	BMWNC, Inc.	Unit 1	7.03	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
65	65--1	Stericycle, Inc.	Unit 1	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
65	65--2	Stericycle, Inc.	Unit 2	2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
71	71	Loyola University Medical Center		0.82	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
77	77	Parkview Hospital		2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
84	84	Mayo Clinic, Waste Management Facility		1.45	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
87	87	MedCentral Health System, Mansfield Hospital		9.00	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
94	94	Stericycle, Inc.		2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
98	98--1	University of Texas Medical Branch		1.12	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
106	106	Stericycle, Inc.		2.85	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
109	109	Healthcare Environmental Services Inc.		9.00	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
110	110	Stericycle, Inc.		3.35	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	1.21	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	0.462	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		1.45	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
130	130	Department of Veterans Affairs Medical Center		7.58	5.1	11	0.00069	0.00013	0.0013	0.0080	9.3	0.035	130
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		0.469	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		2.88	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
18	18	Franklin Square Hospital Center		4.20	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
21	21	Washington County Hospital		3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
25	25	Holy Spirit Hospital		3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor emission limits									
				SO ₂ MACT floor level (ppmvd)	HCl BTF limit-99% UCL (ppmvd)	CO BTF limit-99% UCL (ppmvd)	Pb BTF limit-99% UCL (mg/dscm)	Cd BTF limit-99% UCL (mg/dscm)	Hg BTF limit-99% UCL (mg/dscm)	PM BTF limit-99% UCL (gr/dscf)	CDD/CDF BTF limit-99% UCL (ng/dscm)	TEQ BTF limit-99% UCL (ng/dscm)	NOX BTF limit-99% UCL (ppmvd)
30	30	Riddle Memorial Hospital		0.336	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		1.22	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
38	38	Wilkes-Barre General Hospital		1.90	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
41	41	Thomas Memorial Hospital		2.46	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
47	47	Malcolm Randall Veterans Affairs Medical Center		2.54	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
63	63	St. Jude Children's Research Hospital		2.02	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
81	81	South Bend Medical Foundation		4.20	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
82	82	Good Samaritan Hospital		3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
88	88	Medina General Hospital		3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
95	95	St. Joseph's Hospital		1.96	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	0.932	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
111	111	Wyoming Medical Center		1.80	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.014	67
86	86	Fairfield Medical Center		3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.013	67
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	3.52	7.7	1.8	0.018	0.0098	0.0035	0.0095	0.47	0.013	67
115	115	Kona Community Hospital		3.52	15	20	0.31	0.017	0.0051	0.029	16	0.013	67
116	116	Yukon-Kuskokwim Delta Regional Hospital		22.6	15	20	0.31	0.017	0.0051	0.029	16	0.013	67
Total large													
Total medium													
Total small													
Total small rural													
Total nationwide													

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	SO2 BTF limit-99% UCL (ppmvd)	Meets BTF limit (0 = no, 1 = yes)											Total BTF limits met-99% UCL
					Meets HCl BTF limit-99% UCL	Meets CO BTF limit-99% UCL	Meets Pb BTF limit-99% UCL	Meets Cd BTF limit-99% UCL	Meets Hg BTF limit-99% UCL	Meets PM BTF limit-99% UCL	Meets CDD/CDF BTF limit-99% UCL	Meets TEQ BTF limit-99% UCL	Meets NOX BTF limit-99% UCL	Meets SO2 BTF limit-99% UCL		
1	1	Bristol-Myers Squibb Co.		1.6	0	1	0	0	1	1	1	0	1	0	5	
5	5	Merck & Company, Inc.		1.6	1	1	0	0	0	1	1	0	1	0	5	
15	15--1	Curtis Bay Energy	Unit 1	1.6	0	1	0	0	0	0	1	0	0	0	2	
15	15--2	Curtis Bay Energy	Unit 2	1.6	0	1	0	0	0	1	1	0	0	0	3	
20	20--1	Fort Detrick	Unit 5	1.6	1	1	0	0	0	1	1	0	1	0	5	
20	20--2	Fort Detrick	Unit 6	1.6	1	1	0	0	0	1	1	0	1	0	5	
29	29	Hamot Medical Center		1.6	0	1	0	0	0	1	1	0	0	0	3	
36	36--1	Merck & Company, Inc.	Unit 2	1.6	1	1	0	0	0	1	1	0	1	1	6	
36	36--2	Merck & Company, Inc.	Unit 5	1.6	1	1	0	0	0	1	1	0	1	0	5	
40	40	Charleston Area Medical Center, General Hospital		1.6	0	1	0	0	0	1	1	1	1	0	4	
42	42	Stericycle, Inc.		1.6	0	1	0	0	0	1	1	0	0	1	4	
43	43	Boca Raton Community Hospital		1.6	1	1	0	0	0	0	1	0	1	0	4	
44	44	Bethesda Memorial Hospital		1.6	1	1	0	0	0	0	1	0	1	0	4	
46	46	Holy Cross Hospital		1.6	1	1	0	0	0	0	1	0	1	1	5	
48	48	Memorial Regional Hospital		1.6	1	1	0	0	0	0	1	0	0	0	3	
51	51	Lakeland Regional Medical Center		1.6	1	1	0	0	0	1	1	0	1	0	5	
54	54	Bayfront Medical Center		1.6	1	1	0	0	1	1	1	0	0	1	6	
55	55	St. Joseph's Hospital		1.6	0	1	0	0	0	1	1	0	1	0	4	
59	59--1	Stericycle, Inc.	Unit 1	1.6	1	1	0	0	0	1	1	0	1	0	5	

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Meets BTF limit (0 = no, 1 = yes)												
				SO2 BTF limit-99% UCL (ppmvd)	Meets HCl BTF limit-99% UCL	Meets CO BTF limit-99% UCL	Meets Pb BTF limit-99% UCL	Meets Cd BTF limit-99% UCL	Meets Hg BTF limit-99% UCL	Meets PM BTF limit-99% UCL	Meets CDD/CDF BTF limit-99% UCL	Meets TEQ BTF limit-99% UCL	Meets NOX BTF limit-99% UCL	Meets SO2 BTF limit-99% UCL	Total BTF limits met-99% UCL	
59	59--2	Stericycle, Inc.	Unit 2	1.6	1	1	0	0	0	0	0	1	0	1	0	4
60	60--1	BMWNC, Inc.	Unit 1	1.6	0	1	0	0	0	0	1	1	0	1	0	4
65	65--1	Stericycle, Inc.	Unit 1	1.6	1	1	0	0	0	0	0	1	1	1	0	4
65	65--2	Stericycle, Inc.	Unit 2	1.6	1	1	0	0	0	0	0	1	1	1	0	4
71	71	Loyola University Medical Center		1.6	1	1	0	0	0	0	0	1	0	1	1	5
77	77	Parkview Hospital		1.6	1	1	0	0	0	0	0	1	0	1	0	4
84	84	Mayo Clinic, Waste Management Facility		1.6	0	1	0	0	0	0	0	1	1	0	1	3
87	87	MedCentral Health System, Mansfield Hospital		1.6	0	1	0	0	0	0	1	1	0	1	0	4
94	94	Stericycle, Inc.		1.6	1	1	0	0	0	0	1	1	0	1	0	5
98	98--1	University of Texas Medical Branch		1.6	1	1	0	0	0	0	0	1	0	1	1	5
106	106	Stericycle, Inc.		1.6	1	1	0	0	0	0	0	1	1	1	0	4
109	109	Healthcare Environmental Services Inc.		1.6	0	1	0	0	0	0	1	1	0	0	0	3
110	110	Stericycle, Inc.		1.6	1	1	0	0	0	0	1	1	0	0	0	4
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	1.6	0	1	0	0	0	0	1	1	1	1	1	5
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	1.6	0	1	0	0	0	0	0	1	1	1	1	4
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		1.6	1	1	1	1	0	0	1	1	1	1	1	8
130	130	Department of Veterans Affairs Medical Center		1.6	0	1	0	0	0	0	0	1	1	1	0	3
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		1.4	1	1	1	0	0	0	0	0	0	0	1	4
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		1.4	1	0	1	0	0	0	0	0	0	0	0	2
18	18	Franklin Square Hospital Center		1.4	1	0	1	0	1	0	0	0	0	0	0	3
21	21	Washington County Hospital		1.4	1	0	1	0	0	1	0	0	0	0	0	3
25	25	Holy Spirit Hospital		1.4	1	0	1	0	0	1	0	0	0	0	0	3

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	SO2 BTF limit-99% UCL (ppmvd)	Meets BTF limit (0 = no, 1 = yes)											Total BTF limits met-99% UCL
					Meets HCl BTF limit-99% UCL	Meets CO BTF limit-99% UCL	Meets Pb BTF limit-99% UCL	Meets Cd BTF limit-99% UCL	Meets Hg BTF limit-99% UCL	Meets PM BTF limit-99% UCL	Meets CDD/CDF BTF limit-99% UCL	Meets TEQ BTF limit-99% UCL	Meets NOX BTF limit-99% UCL	Meets SO2 BTF limit-99% UCL		
30	30	Riddle Memorial Hospital		1.4	1	1	1	1	0	0	0	0	0	0	1	5
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		1.4	1	0	1	1	1	0	1	1	0	1	6	6
38	38	Wilkes-Barre General Hospital		1.4	1	0	1	1	0	1	0	0	0	0	4	4
41	41	Thomas Memorial Hospital		1.4	1	1	1	0	0	0	1	1	0	0	4	4
47	47	Malcolm Randall Veterans Affairs Medical Center		1.4	1	0	1	0	0	0	0	0	0	0	2	2
63	63	St. Jude Children's Research Hospital		1.4	1	1	1	1	0	1	0	0	0	0	5	5
81	81	South Bend Medical Foundation		1.4	1	0	1	1	0	0	0	0	0	1	4	4
82	82	Good Samaritan Hospital		1.4	1	0	1	1	1	0	0	0	0	0	4	4
88	88	Medina General Hospital		1.4	1	0	1	0	0	0	0	0	0	0	2	2
95	95	St. Joseph's Hospital		1.4	1	0	1	1	1	1	0	0	0	0	5	5
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	1.4	1	0	1	1	1	0	1	1	0	1	6	6
111	111	Wyoming Medical Center		1.4	1	0	1	0	0	1	0	0	0	0	3	3
86	86	Fairfield Medical Center		1.4	1	0	0	1	0	0	0	0	1	0	3	3
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	1.4	1	0	0	1	1	1	0	1	0	0	5	5
115	115	Kona Community Hospital		1.4	0	1	1	0	1	1	0	0	0	0	4	4
116	116	Yukon-Kuskokwim Delta Regional Hospital		1.4	0	1	1	0	1	1	0	0	0	0	4	4
Total large																
Total medium																
Total small																
Total small rural																
Total nationwide																

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

- BTF subtotals
- BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet BTF limit								
				MACT floor HCl control	BTF HCl % Improvement Needed	Beyond-the-floor HCl control	MACT floor CO control	BTF CO % Improvement Needed	Beyond-the-floor CO control	MACT floor Pb control	BTF Pb % Improvement Needed	Beyond-the-floor Pb control
1	1	Bristol-Myers Squibb Co.		add packed-bed scrubber	29%	add caustic	none	-91%	no additional control	replace FF	5117%	improve FF performance
5	5	Merck & Company, Inc.		none	-85%	no additional control	none	-87%	no additional control	none	2144%	replace FF
15	15--1	Curtis Bay Energy	Unit 1	add packed-bed scrubber	29%	add caustic	none	-89%	no additional control	none	630%	replace FF
15	15--2	Curtis Bay Energy	Unit 2	add packed-bed scrubber	29%	add caustic	none	-74%	no additional control	none	1015%	replace FF
20	20--1	Fort Detrick	Unit 5	none	-96%	no additional control	none	-92%	no additional control	add FF	5117%	improve FF performance
20	20--2	Fort Detrick	Unit 6	none	-93%	no additional control	none	-89%	no additional control	add FF	5117%	improve FF performance
29	29	Hamot Medical Center		add packed-bed scrubber	29%	add caustic	none	-76%	no additional control	none	879%	replace FF
36	36--1	Merck & Company, Inc.	Unit 2	none	-17%	no additional control	none	-78%	no additional control	none	66%	improve FF performance
36	36--2	Merck & Company, Inc.	Unit 5	none	-26%	no additional control	none	-90%	no additional control	none	1481%	replace FF
40	40	Charleston Area Medical Center, General Hospital		add packed-bed scrubber	29%	add caustic	increase natural gas	0%	no additional control	none	579%	replace FF
42	42	Stericycle, Inc.		add packed-bed scrubber	29%	add caustic	none	-3%	no additional control	improve FF performance	5117%	replace FF
43	43	Boca Raton Community Hospital		none	-81%	no additional control	none	-41%	no additional control	add FF	5117%	improve FF performance
44	44	Bethesda Memorial Hospital		none	-88%	no additional control	none	-75%	no additional control	add FF	5117%	improve FF performance
46	46	Holy Cross Hospital		none	-77%	no additional control	none	-55%	no additional control	add FF	5117%	improve FF performance
48	48	Memorial Regional Hospital		none	-80%	no additional control	none	-89%	no additional control	add FF	5117%	improve FF performance
51	51	Lakeland Regional Medical Center		none	-47%	no additional control	none	-42%	no additional control	none	4945%	replace FF
54	54	Bayfront Medical Center		none	-81%	no additional control	none	-15%	no additional control	add FF	5117%	improve FF performance
55	55	St. Joseph's Hospital		add packed-bed scrubber	29%	add caustic	none	-47%	no additional control	replace FF	5117%	improve FF performance
59	59--1	Stericycle, Inc.	Unit 1	none	-17%	no additional control	none	-64%	no additional control	add FF	5117%	improve FF performance

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet BTF limit								
				MACT floor HCl control	BTF HCl % Improvement Needed	Beyond-the-floor HCl control	MACT floor CO control	BTF CO % Improvement Needed	Beyond-the-floor CO control	MACT floor Pb control	BTF Pb % Improvement Needed	Beyond-the-floor Pb control
59	59--2	Stericycle, Inc.	Unit 2	none	-24%	no additional control	none	-58%	no additional control	add FF	5117%	improve FF performance
60	60--1	BMWNC, Inc.	Unit 1	add packed-bed scrubber	29%	add caustic	increase natural gas	0%	no additional control	none	385%	replace FF
65	65--1	Stericycle, Inc.	Unit 1	none	-78%	no additional control	increase natural gas	0%	no additional control	add FF	5117%	improve FF performance
65	65--2	Stericycle, Inc.	Unit 2	none	-72%	no additional control	none	-48%	no additional control	add FF	5117%	improve FF performance
71	71	Loyola University Medical Center		none	-57%	no additional control	none	-36%	no additional control	add FF	5117%	improve FF performance
77	77	Parkview Hospital		none	-47%	no additional control	none	-46%	no additional control	add FF	5117%	improve FF performance
84	84	Mayo Clinic, Waste Management Facility		add packed-bed scrubber	29%	add caustic	none	-80%	no additional control	replace FF	5117%	improve FF performance
87	87	MedCentral Health System, Mansfield Hospital		add packed-bed scrubber	29%	add caustic	none	-56%	no additional control	improve FF performance	5117%	replace FF
94	94	Stericycle, Inc.		none	-87%	no additional control	none	-60%	no additional control	add FF	5117%	improve FF performance
98	98--1	University of Texas Medical Branch		none	-58%	no additional control	none	-84%	no additional control	add FF	5117%	improve FF performance
106	106	Stericycle, Inc.		none	-89%	no additional control	none	-58%	no additional control	add FF	5117%	improve FF performance
109	109	Healthcare Environmental Services Inc.		add packed-bed scrubber	29%	add caustic	increase natural gas	0%	no additional control	none	2373%	replace FF
110	110	Stericycle, Inc.		none	-23%	no additional control	none	-33%	no additional control	none	4374%	add FF
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	add packed-bed scrubber	29%	add caustic	none	-64%	no additional control	none	2606%	replace FF
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	none	4%	add lime	none	-74%	no additional control	none	1027%	replace FF
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		none	-69%	no additional control	none	-3%	no additional control	none	-57%	none
130	130	Department of Veterans Affairs Medical Center		add caustic	29%	add more caustic	none	-91%	no additional control	increase scrubber hp	5117%	add FF
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		none	-91%	no additional control	none	-17%	no additional control	add FF	0%	no additional control
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		none	-82%	no additional control	secondary chamber retrofit	206%	add natural gas	add FF	0%	no additional control
18	18	Franklin Square Hospital Center		none	-81%	no additional control	none	198%	secondary chamber retrofit	add FF	0%	no additional control
21	21	Washington County Hospital		none	-19%	no additional control	increase natural gas	206%	secondary chamber retrofit	add FF	0%	no additional control
25	25	Holy Spirit Hospital		none	-90%	no additional control	none	4%	add natural gas	add FF	0%	no additional control

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Percent improvement and control measure needed to meet BTF limit								
				MACT floor HCl control	BTF HCl % Improvement Needed	Beyond-the-floor HCl control	MACT floor CO control	BTF CO % Improvement Needed	Beyond-the-floor CO control	MACT floor Pb control	BTF Pb % Improvement Needed	Beyond-the-floor Pb control
30	30	Riddle Memorial Hospital		none	-73%	no additional control	none	-21%	no additional control	add FF	0%	no additional control
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		none	-83%	no additional control	none	17%	add natural gas	add FF	0%	no additional control
38	38	Wilkes-Barre General Hospital		add lime	0%	no additional control	none	16%	add natural gas	none	-77%	none
41	41	Thomas Memorial Hospital		none	-66%	no additional control	none	-47%	no additional control	add FF	0%	no additional control
47	47	Malcolm Randall Veterans Affairs Medical Center		none	-39%	no additional control	secondary chamber retrofit	206%	add natural gas	add FF	0%	no additional control
63	63	St. Jude Children's Research Hospital		add packed-bed scrubber	0%	no additional control	none	-62%	no additional control	none	-73%	none
81	81	South Bend Medical Foundation		add packed-bed scrubber	0%	no additional control	none	15%	add natural gas	add FF	0%	no additional control
82	82	Good Samaritan Hospital		none	-80%	no additional control	none	6%	add natural gas	increase scrubber hp	0%	no additional control
88	88	Medina General Hospital		none	-57%	no additional control	secondary chamber retrofit	206%	add natural gas	add FF	0%	no additional control
95	95	St. Joseph's Hospital		none	-32%	no additional control	none	19%	add natural gas	none	-78%	none
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	none	-94%	no additional control	none	9%	add natural gas	add FF	0%	no additional control
111	111	Wyoming Medical Center		none	-85%	no additional control	none	82%	add natural gas	add FF	0%	no additional control
86	86	Fairfield Medical Center		none	-87%	no additional control	none	26%	add natural gas	none	793%	add FF
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	none	-83%	no additional control	none	573%	add natural gas	none	304%	add FF
115	115	Kona Community Hospital		none	797%	add packed-bed scrubber	none	-65%	no additional control	none	-27%	none
116	116	Yukon-Kuskokwim Delta Regional Hospital		none	1887%	add packed-bed scrubber	none	-73%	no additional control	none	-27%	none
Total large												
Total medium												
Total small												
Total small rural												
Total nationwide												

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	MACT floor Cd control	BTF Cd % Improvement Needed	Beyond-the-floor Cd control	MACT floor Hg control	BTF Hg % Improvement Needed	Beyond-the-floor Hg control	MACT floor PM control	BTF PM % Improvement Needed	Beyond-the-floor PM control
1	1	Bristol-Myers Squibb Co.		none	2700%	improve FF performance	none	-47%	no additional control	none	-77%	no additional control
5	5	Merck & Company, Inc.		none	1941%	replace FF	none	172%	increase activated carbon	none	-59%	no additional control
15	15--1	Curtis Bay Energy	Unit 1	none	582%	replace FF	increase activated carbon	1285%	increase activated carbon	none	3%	improve FF performance
15	15--2	Curtis Bay Energy	Unit 2	none	901%	replace FF	increase activated carbon	1285%	increase activated carbon	none	-49%	no additional control
20	20--1	Fort Detrick	Unit 5	increase scrubber hp	6977%	improve FF performance	none	150%	increase activated carbon	none	-10%	no additional control
20	20--2	Fort Detrick	Unit 6	none	6567%	improve FF performance	none	493%	increase activated carbon	none	-3%	no additional control
29	29	Hamot Medical Center		none	819%	replace FF	none	208%	increase activated carbon	none	-78%	no additional control
36	36--1	Merck & Company, Inc.	Unit 2	none	556%	improve FF performance	none	135%	add ACI	none	-81%	no additional control
36	36--2	Merck & Company, Inc.	Unit 5	none	1764%	replace FF	none	987%	add ACI	none	-68%	no additional control
40	40	Charleston Area Medical Center, General Hospital		none	1327%	replace FF	none	221%	increase activated carbon	none	-87%	no additional control
42	42	Stericycle, Inc.		none	6714%	replace FF	none	916%	increase activated carbon	none	-75%	no additional control
43	43	Boca Raton Community Hospital		none	4034%	improve FF performance	none	812%	increase activated carbon	none	30%	improve FF performance
44	44	Bethesda Memorial Hospital		increase scrubber hp	6977%	improve FF performance	add ACI	1285%	increase activated carbon	none	20%	improve FF performance
46	46	Holy Cross Hospital		add FF	6977%	improve FF performance	add ACI	1285%	increase activated carbon	none	29%	improve FF performance
48	48	Memorial Regional Hospital		none	4211%	improve FF performance	none	187%	increase activated carbon	none	22%	improve FF performance
51	51	Lakeland Regional Medical Center		none	2707%	replace FF	none	88%	increase activated carbon	none	-68%	no additional control
54	54	Bayfront Medical Center		none	2819%	improve FF performance	none	-2%	no additional control	none	-32%	no additional control
55	55	St. Joseph's Hospital		none	1474%	improve FF performance	none	462%	increase activated carbon	none	-86%	no additional control
59	59--1	Stericycle, Inc.	Unit 1	add FF	6977%	improve FF performance	add ACI	1285%	increase activated carbon	none	-11%	no additional control

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	MACT floor Cd control	BTF Cd % Improvement Needed	Beyond-the-floor Cd control	MACT floor Hg control	BTF Hg % Improvement Needed	Beyond-the-floor Hg control	MACT floor PM control	BTF PM % Improvement Needed	Beyond-the-floor PM control
59	59--2	Stericycle, Inc.	Unit 2	add FF	6977%	improve FF performance	add ACI	1285%	increase activated carbon	none	27%	improve FF performance
60	60--1	BMWNC, Inc.	Unit 1	none	309%	replace FF	increase activated carbon	1285%	increase activated carbon	none	-37%	no additional control
65	65--1	Stericycle, Inc.	Unit 1	none	4298%	improve FF performance	add ACI	1285%	increase activated carbon	none	15%	improve FF performance
65	65--2	Stericycle, Inc.	Unit 2	increase scrubber hp	6977%	improve FF performance	add ACI	1285%	increase activated carbon	none	10%	improve FF performance
71	71	Loyola University Medical Center		add FF	6977%	improve FF performance	increase scrubber hp	1285%	increase activated carbon	none	31%	improve FF performance
77	77	Parkview Hospital		add FF	6977%	improve FF performance	none	379%	add ACI	none	36%	improve FF performance
84	84	Mayo Clinic, Waste Management Facility		improve FF performance	6977%	improve FF performance	increase activated carbon	1285%	increase activated carbon	improve FF performance	38%	improve FF performance
87	87	MedCentral Health System, Mansfield Hospital		none	772%	replace FF	none	591%	increase activated carbon	none	-55%	no additional control
94	94	Stericycle, Inc.		none	3932%	improve FF performance	add ACI	1285%	increase activated carbon	none	-23%	no additional control
98	98--1	University of Texas Medical Branch		none	2193%	improve FF performance	increase activated carbon	1285%	increase activated carbon	increase scrubber hp	38%	improve FF performance
106	106	Stericycle, Inc.		none	2947%	improve FF performance	add ACI	1285%	increase activated carbon	none	4%	improve FF performance
109	109	Healthcare Environmental Services Inc.		none	2173%	replace FF	increase activated carbon	1285%	increase activated carbon	none	-24%	no additional control
110	110	Stericycle, Inc.		none	1543%	add FF	increase activated carbon	1285%	increase activated carbon	none	-44%	no additional control
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	none	918%	replace FF	none	901%	increase activated carbon	none	-12%	no additional control
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	none	584%	replace FF	none	330%	increase activated carbon	none	18%	improve FF performance
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		none	-19%	none	none	26%	increase activated carbon	none	-60%	no additional control
130	130	Department of Veterans Affairs Medical Center		none	4239%	add FF	none	317%	add ACI	increase scrubber hp	38%	increase scrubber hp
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		add FF	33%	improve FF performance	add ACI	614%	increase activated carbon	none	33%	improve FF performance
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		add FF	33%	improve FF performance	none	13%	increase activated carbon	increase scrubber hp	111%	improve FF performance
18	18	Franklin Square Hospital Center		add FF	33%	improve FF performance	none	-23%	increase activated carbon	increase scrubber hp	111%	improve FF performance
21	21	Washington County Hospital		increase scrubber hp	33%	improve FF performance	none	-76%	no additional control	none	107%	improve FF performance
25	25	Holy Spirit Hospital		add FF	33%	improve FF performance	none	-1%	no additional control	none	73%	improve FF performance

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	MACT floor Cd control	BTF Cd % Improvement Needed	Beyond-the-floor Cd control	MACT floor Hg control	BTF Hg % Improvement Needed	Beyond-the-floor Hg control	MACT floor PM control	BTF PM % Improvement Needed	Beyond-the-floor PM control
30	30	Riddle Memorial Hospital		none	-63%	none	none	207%	increase activated carbon	none	31%	improve FF performance
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		none	-58%	none	none	-65%	no additional control	increase scrubber hp	111%	improve FF performance
38	38	Wilkes-Barre General Hospital		none	-89%	none	none	165%	increase activated carbon	none	-58%	no additional control
41	41	Thomas Memorial Hospital		add FF	33%	improve FF performance	add ACI	614%	increase activated carbon	increase scrubber hp	111%	improve FF performance
47	47	Malcolm Randall Veterans Affairs Medical Center		add FF	33%	improve FF performance	none	457%	increase activated carbon	none	82%	improve FF performance
63	63	St. Jude Children's Research Hospital		none	-85%	none	none	3%	increase activated carbon	none	-47%	no additional control
81	81	South Bend Medical Foundation		none	-82%	none	add ACI	614%	increase activated carbon	none	22%	improve FF performance
82	82	Good Samaritan Hospital		none	-66%	none	none	-28%	no additional control	none	44%	increase scrubber hp
88	88	Medina General Hospital		none	11%	improve FF performance	none	105%	increase activated carbon	increase scrubber hp	111%	improve FF performance
95	95	St. Joseph's Hospital		none	-87%	none	none	-28%	no additional control	none	-69%	no additional control
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	none	-21%	none	none	-11%	no additional control	increase scrubber hp	111%	improve FF performance
111	111	Wyoming Medical Center		increase scrubber hp	33%	improve FF performance	none	576%	increase activated carbon	none	-65%	no additional control
86	86	Fairfield Medical Center		none	-74%	none	none	227%	add ACI and DIFF	none	44%	increase scrubber hp
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	none	-44%	none	none	-16%	no additional control	none	-20%	no additional control
115	115	Kona Community Hospital		none	123%	add FF	none	-69%	no additional control	none	-56%	no additional control
116	116	Yukon-Kuskokwim Delta Regional Hospital		none	123%	improve FF performance	add DIFF and ACI	0%	no additional control	none	-44%	no additional control
Total large												
Total medium												
Total small												
Total small rural												
Total nationwide												

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	MACT floor CDD/CDF control	BTF Total CDD/CDF % Improvement Needed	Beyond-the-floor CDD/CDF control	MACT floor TEQ control	BTF CDD/CDF TEQ % Improvement Needed	Beyond-the-floor TEQ control	MACT floor NOX control	BTF NO _x % Improvement Needed
1	1	Bristol-Myers Squibb Co.		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-8%
5	5	Merck & Company, Inc.		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-14%
15	15--1	Curtis Bay Energy	Unit 1	increase activated carbon	0%	no additional control	increase activated carbon	54%	none (meets total CDD/CDF)	add SNCR	8%
15	15--2	Curtis Bay Energy	Unit 2	none	-41%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	add SNCR	8%
20	20--1	Fort Detrick	Unit 5	add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-7%
20	20--2	Fort Detrick	Unit 6	add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-7%
29	29	Hamot Medical Center		none	-17%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	minor adjustment (marginal difference in NOX)	1%
36	36--1	Merck & Company, Inc.	Unit 2	none	-60%	no additional control	none	26%	none (meets total CDD/CDF)	none	-23%
36	36--2	Merck & Company, Inc.	Unit 5	none	-27%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	none	-27%
40	40	Charleston Area Medical Center, General Hospital		none	-86%	no additional control	none	-56%	no additional control	none	-29%
42	42	Stericycle, Inc.		increase activated carbon	0%	no additional control	increase activated carbon	54%	none (meets total CDD/CDF)	minor adjustment (marginal difference in NOX)	8%
43	43	Boca Raton Community Hospital		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-7%
44	44	Bethesda Memorial Hospital		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-32%
46	46	Holy Cross Hospital		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-48%
48	48	Memorial Regional Hospital		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	minor adjustment (marginal difference in NOX)	8%
51	51	Lakeland Regional Medical Center		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-41%
54	54	Bayfront Medical Center		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	minor adjustment (marginal difference in NOX)	8%
55	55	St. Joseph's Hospital		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-5%
59	59--1	Stericycle, Inc.	Unit 1	none	-70%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	none	-7%

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	MACT floor CDD/CDF control	BTF Total CDD/CDF % Improvement Needed	Beyond-the-floor CDD/CDF control	MACT floor TEQ control	BTF CDD/CDF TEQ % Improvement Needed	Beyond-the-floor TEQ control	MACT floor NOX control	BTF NO _x % Improvement Needed
59	59--2	Stericycle, Inc.	Unit 2	none	-41%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	none	-7%
60	60--1	BMWNC, Inc.	Unit 1	none	-34%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	none	-20%
65	65--1	Stericycle, Inc.	Unit 1	none	-87%	no additional control	none	-70%	no additional control	none	-7%
65	65--2	Stericycle, Inc.	Unit 2	none	-91%	no additional control	none	-64%	no additional control	none	-7%
71	71	Loyola University Medical Center		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-18%
77	77	Parkview Hospital		none	-24%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	none	-7%
84	84	Mayo Clinic, Waste Management Facility		none	-96%	no additional control	none	-67%	no additional control	add SNCR	8%
87	87	MedCentral Health System, Mansfield Hospital		increase activated carbon	0%	no additional control	increase activated carbon	54%	none (meets total CDD/CDF)	none	-7%
94	94	Stericycle, Inc.		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-7%
98	98--1	University of Texas Medical Branch		add ACI	0%	no additional control	add ACI	54%	none (meets total CDD/CDF)	none	-39%
106	106	Stericycle, Inc.		none	-74%	no additional control	none	-50%	no additional control	none	-7%
109	109	Healthcare Environmental Services Inc.		increase activated carbon	0%	no additional control	increase activated carbon	54%	none (meets total CDD/CDF)	add SNCR	8%
110	110	Stericycle, Inc.		none	-64%	no additional control	none (meets total CDD/CDF)	54%	none (meets total CDD/CDF)	add SNCR	8%
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	none	-95%	no additional control	none	-77%	no additional control	none	-44%
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	none	-98%	no additional control	none	-89%	no additional control	none	-32%
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		none	-96%	no additional control	none	-85%	no additional control	none	-49%
130	130	Department of Veterans Affairs Medical Center		none	-93%	no additional control	none	-54%	no additional control	none	-37%
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	49%
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	31%
18	18	Franklin Square Hospital Center		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	26%
21	21	Washington County Hospital		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	57%
25	25	Holy Spirit Hospital		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	57%

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	BTF Total CDD/CDF % Improvement Needed							
				MACT floor CDD/CDF control	BTF Total CDD/CDF % Improvement Needed	Beyond-the-floor CDD/CDF control	MACT floor TEQ control	BTF CDD/CDF TEQ % Improvement Needed	Beyond-the-floor TEQ control	MACT floor NOX control	BTF NO _x % Improvement Needed
30	30	Riddle Memorial Hospital		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	86%
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		none	-79%	no additional control	none	-79%	no additional control	none	57%
38	38	Wilkes-Barre General Hospital		increase activated carbon	81%	increase activated carbon	increase activated carbon	43%	increase activated carbon	none	57%
41	41	Thomas Memorial Hospital		none	-63%	no additional control	none	-70%	no additional control	none	41%
47	47	Malcolm Randall Veterans Affairs Medical Center		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	121%
63	63	St. Jude Children's Research Hospital		increase activated carbon	81%	increase activated carbon	increase activated carbon	43%	increase activated carbon	none	95%
81	81	South Bend Medical Foundation		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	-78%
82	82	Good Samaritan Hospital		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	57%
88	88	Medina General Hospital		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	57%
95	95	St. Joseph's Hospital		increase activated carbon	81%	increase activated carbon	increase activated carbon	43%	increase activated carbon	none	57%
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	none	-56%	no additional control	none	-79%	no additional control	none	90%
111	111	Wyoming Medical Center		add ACI	81%	increase activated carbon	add ACI	43%	increase activated carbon	none	110%
86	86	Fairfield Medical Center		none	514%	none (meets TEQ)	none (meets total CDD/CDF)	0%	no additional control	none	57%
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	none	514%	none (meets TEQ)	none	-65%	no additional control	none	57%
115	115	Kona Community Hospital		none	85%	add ACI and DIFF	none	4654%	add ACI and DIFF	none	42%
116	116	Yukon-Kuskokwim Delta Regional Hospital		none	681%	increase activated carbon	none	19258%	increase activated carbon	none	42%
Total large											
Total medium											
Total small											
Total small rural											
Total nationwide											

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number					Summary of MACT floor control measures	
				Beyond-the-floor NO _x control	MACT floor SO ₂ control	BTF SO ₂ % Improvement Needed	Beyond-the-floor SO ₂ control	Consolidated MACT floor controls	APCD code with MACT floor controls
1	1	Bristol-Myers Squibb Co.		add SNCR	add packed-bed scrubber	463%	add caustic	replace FF with DIFF; add packed-bed scrubber and ACI	DIFF/WS
5	5	Merck & Company, Inc.		add SNCR	add lime	70%	add lime	add ACI and lime	DIFF
15	15--1	Curtis Bay Energy	Unit 1	minor adjustment (marginal difference in NOX)	add packed-bed scrubber	463%	add caustic	add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS
15	15--2	Curtis Bay Energy	Unit 2	minor adjustment (marginal difference in NOX)	add packed-bed scrubber	463%	add caustic	add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS
20	20--1	Fort Detrick	Unit 5	add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
20	20--2	Fort Detrick	Unit 6	add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
29	29	Hamot Medical Center		add SNCR	add caustic	73%	add caustic	add packed-bed scrubber; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS
36	36--1	Merck & Company, Inc.	Unit 2	add SNCR	none	-30%	no additional control	none	DIFF
36	36--2	Merck & Company, Inc.	Unit 5	add SNCR	minor adjustment (marginal difference in SO ₂)	47%	add lime	only minor adjustment of system to obtain additional SO ₂ control (marginal difference in SO ₂)	DIFF
40	40	Charleston Area Medical Center, General Hospital		add SNCR	none	29%	add caustic	increase natural gas; add packed-bed scrubber	DIFF/WS
42	42	Stericycle, Inc.		add SNCR	none	-6%	no additional control	improve FF performance; add packed-bed scrubber; increase activated carbon; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS
43	43	Boca Raton Community Hospital		add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
44	44	Bethesda Memorial Hospital		add SNCR	add caustic	189%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
46	46	Holy Cross Hospital		add SNCR	none	-27%	no additional control	add DIFF and ACI	DIFF/WS
48	48	Memorial Regional Hospital		add SNCR	add caustic	113%	add caustic	add DIFF, caustic, and ACI; only minor adjustment of system to obtain additional NOX control (marginal difference in NOX)	DIFF/WS
51	51	Lakeland Regional Medical Center		add SNCR	none	33%	add lime	add ACI	DIFF
54	54	Bayfront Medical Center		add SNCR	none	-22%	no additional control	add DIFF and ACI; only minor adjustment of system needed to obtain additional NOX control (marginal difference in NOX)	DIFF/WS
55	55	St. Joseph's Hospital		add SNCR	add lime	58%	add caustic	replace DIFF; add packed-bed scrubber and ACI	DIFF/WS
59	59--1	Stericycle, Inc.	Unit 1	add SNCR	add caustic	78%	add caustic	add DIFF, ACI, and caustic	DIFF/WS

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number					Summary of MACT floor control measures	
				Beyond-the-floor NO _x control	MACT floor SO ₂ control	BTF SO ₂ % Improvement Needed	Beyond-the-floor SO ₂ control	Consolidated MACT floor controls	APCD code with MACT floor controls
59	59--2	Stericycle, Inc.	Unit 2	add SNCR	add caustic	78%	add caustic	add DIFF, ACI, and caustic	DIFF/WS
60	60--1	BMWNC, Inc.	Unit 1	add SNCR	add packed-bed scrubber	339%	add caustic	increase natural gas; add packed-bed scrubber; increase activated carbon	DIFF/WS
65	65--1	Stericycle, Inc.	Unit 1	add SNCR	add caustic	78%	add caustic	increase natural gas; add DIFF, caustic, and ACI	DIFF/WS
65	65--2	Stericycle, Inc.	Unit 2	add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
71	71	Loyola University Medical Center		add SNCR	none	-49%	no additional control	add DIFF and ACI	DIFF/WS
77	77	Parkview Hospital		add SNCR	add caustic	78%	add caustic	add DIFF and caustic	DIFF/WS
84	84	Mayo Clinic, Waste Management Facility		minor adjustment (marginal difference in NO _x)	none	-9%	no additional control	replace DIFF; add packed-bed scrubber; increase activated carbon; add SNCR	DIFF/WS
87	87	MedCentral Health System, Mansfield Hospital		add SNCR	add packed-bed scrubber	463%	add caustic	improve FF performance; add packed-bed scrubber; increase activated carbon	DIFF/WS
94	94	Stericycle, Inc.		add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
98	98--1	University of Texas Medical Branch		add SNCR	none	-30%	no additional control	add DIFF and ACI (assumed existing ACI system would need to be replaced to work with DIFF)	DIFF/WS
106	106	Stericycle, Inc.		add SNCR	add caustic	78%	add caustic	add DIFF, caustic, and ACI	DIFF/WS
109	109	Healthcare Environmental Services Inc.		minor adjustment (marginal difference in NO _x)	add packed-bed scrubber	463%	add caustic	increase natural gas; add packed-bed scrubber and SNCR; increase activated carbon	DIFF/WS
110	110	Stericycle, Inc.		minor adjustment (marginal difference in NO _x)	increase sodium bicarbonate	109%	add sodium bicarbonate	increase sodium bicarbonate and activated carbon; add SNCR	DI-ESP/WS
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	none	none	-24%	no additional control	add packed-bed scrubber	DIFF/WS
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	none	none	-71%	no additional control	none	DIFF
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		add SNCR	none	-10%	no additional control	none	HEPA/CA/WS
130	130	Department of Veterans Affairs Medical Center		add SNCR	add caustic	374%	add caustic	increase scrubber hp; add caustic	WS
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		add SNCR	none	-67%	no additional control	add DIFF and ACI	DIFF/WS
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		add SNCR	none	106%	add caustic	secondary chamber retrofit; add DIFF and ACI	DIFF/WS
18	18	Franklin Square Hospital Center		add SNCR	add packed-bed scrubber	200%	add caustic	add DIFF, packed-bed scrubber, and ACI	DIFF/WS
21	21	Washington County Hospital		add SNCR	none	151%	add caustic	increase natural gas; add DIFF and ACI	DIFF/WS
25	25	Holy Spirit Hospital		add SNCR	none	151%	add caustic	add DIFF and ACI	DIFF/WS

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number					Summary of MACT floor control measures	
				Beyond-the-floor NO _x control	MACT floor SO ₂ control	BTF SO ₂ % Improvement Needed	Beyond-the-floor SO ₂ control	Consolidated MACT floor controls	APCD code with MACT floor controls
30	30	Riddle Memorial Hospital		add SNCR	none	-76%	no additional control	add DIFF and ACI (assumed existing ACI system would need to be replaced to work with DIFF)	DIFF/WS
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		add SNCR	none	-13%	no additional control	add FF	FF/WS
38	38	Wilkes-Barre General Hospital		add SNCR	none	35%	add lime	add lime; increase activated carbon	DIFF
41	41	Thomas Memorial Hospital		add SNCR	none	75%	add caustic	add DIFF and ACI	DIFF/WS
47	47	Malcolm Randall Veterans Affairs Medical Center		add SNCR	none	81%	add caustic	secondary chamber retrofit; add DIFF and ACI	DIFF/WS
63	63	St. Jude Children's Research Hospital		add SNCR	none	44%	add caustic	add packed-bed scrubber; increase activated carbon	DIFF/WS
81	81	South Bend Medical Foundation		add SNCR	add packed-bed scrubber	200%	add caustic	add DIFF, packed-bed scrubber, and ACI	DIFF/WS
82	82	Good Samaritan Hospital		add SNCR	none	151%	add caustic	increase scrubber hp; add ACI	WS
88	88	Medina General Hospital		add SNCR	none	151%	add caustic	secondary chamber retrofit; add DIFF and ACI	DIFF/WS
95	95	St. Joseph's Hospital		add SNCR	none	40%	add lime	increase activated carbon	DIFF
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	add SNCR	none	-33%	no additional control	add FF	FF/WS
111	111	Wyoming Medical Center		add SNCR	none	29%	add caustic	add DIFF and ACI	DIFF/WS
86	86	Fairfield Medical Center		add SNCR	none	151%	add caustic	none	WS
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	add SNCR	none	151%	add caustic	none	WS
115	115	Kona Community Hospital		add SNCR	none	151%	add packed-bed scrubber	none	CC
116	116	Yukon-Kuskokwim Delta Regional Hospital		add SNCR	none	1512%	add packed-bed scrubber	add DIFF and ACI	DIFF
Total large									
Total medium									
Total small									
Total small rural									
Total nationwide									

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Summary of BTF control measures		Beyond-the-floor energy impacts, MMBtu/yr							
				Consolidated beyond-the-floor controls	APCD code with MACT floor and BTF controls	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF energy impacts	
1	1	Bristol-Myers Squibb Co.		improve FF performance; add caustic; add SNCR	DIFF/WS		0				3.6		3.6
5	5	Merck & Company, Inc.		replace DIFF; add lime; increase activated carbon; add SNCR	DIFF		0				3.6		3.6
15	15--1	Curtis Bay Energy	Unit 1	replace DIFF; add caustic; increase activated carbon; increase NOX reagent	DIFF/WS		0						0
15	15--2	Curtis Bay Energy	Unit 2	replace DIFF; add caustic; increase activated carbon; increase NOX reagent	DIFF/WS		0						0
20	20--1	Fort Detrick	Unit 5	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
20	20--2	Fort Detrick	Unit 6	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
29	29	Hamot Medical Center		replace DIFF; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
36	36--1	Merck & Company, Inc.	Unit 2	improve FF performance; add ACI; add SNCR	DIFF		0				3.6		3.6
36	36--2	Merck & Company, Inc.	Unit 5	replace DIFF; add lime; add ACI; add SNCR	DIFF		0				3.6		3.6
40	40	Charleston Area Medical Center, General Hospital		replace DIFF; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
42	42	Stericycle, Inc.		replace FF (in place of improving FF performance); add caustic; increase activated carbon; add SNCR (in place of minor adjustment of system)	DIFF/WS		0				3.6		3.6
43	43	Boca Raton Community Hospital		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
44	44	Bethesda Memorial Hospital		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
46	46	Holy Cross Hospital		improve FF performance; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
48	48	Memorial Regional Hospital		improve FF performance; add caustic; increase activated carbon; add SNCR (in place of minor adjustment of system)	DIFF/WS		0				3.6		3.6
51	51	Lakeland Regional Medical Center		replace DIFF; add lime; increase activated carbon; add SNCR	DIFF		0				3.6		3.6
54	54	Bayfront Medical Center		improve FF performance; add SNCR	DIFF/WS		0				3.6		3.6
55	55	St. Joseph's Hospital		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
59	59--1	Stericycle, Inc.	Unit 1	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Summary of BTF control measures		Beyond-the-floor energy impacts, MMBtu/yr							
				Consolidated beyond-the-floor controls	APCD code with MACT floor and BTF controls	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF energy impacts	
59	59--2	Stericycle, Inc.	Unit 2	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
60	60--1	BMWNC, Inc.	Unit 1	replace DIFF; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
65	65--1	Stericycle, Inc.	Unit 1	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
65	65--2	Stericycle, Inc.	Unit 2	improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
71	71	Loyola University Medical Center		improve FF performance; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
77	77	Parkview Hospital		improve FF performance; add caustic; add ACI; add SNCR	DIFF/WS		0				3.6		3.6
84	84	Mayo Clinic, Waste Management Facility		improve FF performance; add caustic; increase activated carbon; increase NOX reagent	DIFF/WS		0						0
87	87	MedCentral Health System, Mansfield Hospital		replace DIFF (in place of improving FF performance); add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
94	94	Stericycle, Inc.		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
98	98--1	University of Texas Medical Branch		improve FF performance; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
106	106	Stericycle, Inc.		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				3.6		3.6
109	109	Healthcare Environmental Services Inc.		replace DIFF; add caustic; increase activated carbon; increase NOX reagent	DIFF/WS		0						0
110	110	Stericycle, Inc.		add FF; add sodium bicarbonate; increase activated carbon; increase NOX reagent	DIFF-ESP/WS		0	537					537
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	replace DIFF; add caustic; increase activated carbon	DIFF/WS		0						0
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	replace DIFF; add lime; increase activated carbon	DIFF		0						0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		increase activated carbon; add SNCR	HEPA/CA/WS						3.6		3.6
130	130	Department of Veterans Affairs Medical Center		add DIFF; add caustic; add ACI; add SNCR	DIFF/WS		537				3.6		540
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		improve FF performance; increase activated carbon; add SNCR	DIFF/WS		0				0.4		0.4
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0				0.4		0.4
18	18	Franklin Square Hospital Center		secondary chamber retrofit; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0		569	0.4			569
21	21	Washington County Hospital		secondary chamber retrofit (in place of adding natural gas); improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0		0	0.4			0.4
25	25	Holy Spirit Hospital		add natural gas; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4	569		569

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Summary of BTF control measures		Beyond-the-floor energy impacts, MMBtu/yr						
				Consolidated beyond-the-floor controls	APCD code with MACT floor and BTF controls	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF energy impacts
30	30	Riddle Memorial Hospital		improve FF performance; increase activated carbon; add SNCR	DIFF/WS		0			0.4		0.4
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		add natural gas; improve FF performance; add SNCR	FF/WS		0			0.4	569	569
38	38	Wilkes-Barre General Hospital		add natural gas; add lime; increase activated carbon; add SNCR	DIFF					0.4	569	569
41	41	Thomas Memorial Hospital		improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4		0.4
47	47	Malcolm Randall Veterans Affairs Medical Center		add natural gas; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4	569	569
63	63	St. Jude Children's Research Hospital		add caustic; increase activated carbon; add SNCR	DIFF/WS					0.4		0.4
81	81	South Bend Medical Foundation		add natural gas; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4	569	569
82	82	Good Samaritan Hospital		add natural gas; increase scrubber hp; add caustic; increase activated carbon; add SNCR	WS					0.4	569	569
88	88	Medina General Hospital		add natural gas; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4	569	569
95	95	St. Joseph's Hospital		add natural gas; add lime; increase activated carbon; add SNCR	DIFF					0.4	569	569
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	add natural gas; improve FF performance; add SNCR	FF/WS		0			0.4	569	569
111	111	Wyoming Medical Center		add natural gas; improve FF performance; add caustic; increase activated carbon; add SNCR	DIFF/WS		0			0.4	569	569
86	86	Fairfield Medical Center		add natural gas; add DIFF and ACI; add caustic; add SNCR	DIFF/WS		108			0.2	569	677
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	add natural gas; add DIFF; add caustic; add SNCR	DIFF/WS		108			0.2	569	677
115	115	Kona Community Hospital		add DIFF and ACI; add packed-bed scrubber; add SNCR	DIFF/WS	12	32			0.08		44
116	116	Yukon-Kuskokwim Delta Regional Hospital		improve FF performance; add packed-bed scrubber; increase activated carbon; add SNCR	DIFF/WS	12	0			0.08		12
Total large						0	537	537	0	105	0	1,178
Total medium						0	0	0	569	6.8	5,685	6,261
Total small						0	216	0	0	0	1,137	1,354
Total small rural						25	32	0	0	0	0	56
Total nationwide						25	785	537	569	112	6,822	8,849

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor solid waste impacts, tpy								Beyond-the-floor wastewater impacts, gpy			
				DIFF	FF	SNCR	ACI	Increase NO _x reagent	Increase carbon	Increase NaHCO ₃	Total BTF solid waste impacts	Packed-bed scrubber	Increase caustic	Total BTF wastewater impacts	
1	1	Bristol-Myers Squibb Co.		0		5.4						5.4		6,533	6,533
5	5	Merck & Company, Inc.		0		5.4			15			21			0
15	15--1	Curtis Bay Energy	Unit 1	0				5.4	15			21		6,533	6,533
15	15--2	Curtis Bay Energy	Unit 2	0				5.4	15			21		6,533	6,533
20	20--1	Fort Detrick	Unit 5	0		5.4			15			21		6,533	6,533
20	20--2	Fort Detrick	Unit 6	0		5.4			15			21		6,533	6,533
29	29	Hamot Medical Center		0		5.4			15			21		6,533	6,533
36	36--1	Merck & Company, Inc.	Unit 2	0		5.4	15					21			0
36	36--2	Merck & Company, Inc.	Unit 5	0		5.4	15					21			0
40	40	Charleston Area Medical Center, General Hospital		0		5.4			15			21		6,533	6,533
42	42	Stericycle, Inc.		0		5.4			15			21		6,533	6,533
43	43	Boca Raton Community Hospital		0		5.4			15			21		6,533	6,533
44	44	Bethesda Memorial Hospital		0		5.4			15			21		6,533	6,533
46	46	Holy Cross Hospital		0		5.4			15			21			0
48	48	Memorial Regional Hospital		0		5.4			15			21		6,533	6,533
51	51	Lakeland Regional Medical Center		0		5.4			15			21			0
54	54	Bayfront Medical Center		0		5.4						5.4			0
55	55	St. Joseph's Hospital		0		5.4			15			21		6,533	6,533
59	59--1	Stericycle, Inc.	Unit 1	0		5.4			15			21		6,533	6,533

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor solid waste impacts, tpy							Beyond-the-floor wastewater impacts, gpy			
				DIFF	FF	SNCR	ACI	Increase NO _x reagent	Increase carbon	Increase NaHCO ₃	Total BTF solid waste impacts	Packed-bed scrubber	Increase caustic	Total BTF wastewater impacts
59	59--2	Stericycle, Inc.	Unit 2	0		5.4			15		21		6,533	6,533
60	60--1	BMWNC, Inc.	Unit 1	0		5.4			15		21		6,533	6,533
65	65--1	Stericycle, Inc.	Unit 1	0		5.4			15		21		6,533	6,533
65	65--2	Stericycle, Inc.	Unit 2	0		5.4			15		21		6,533	6,533
71	71	Loyola University Medical Center		0		5.4			15		21			0
77	77	Parkview Hospital		0		5.4	15				21		6,533	6,533
84	84	Mayo Clinic, Waste Management Facility		0				5.4	15		21		6,533	6,533
87	87	MedCentral Health System, Mansfield Hospital		0		5.4			15		21		6,533	6,533
94	94	Stericycle, Inc.		0		5.4			15		21		6,533	6,533
98	98--1	University of Texas Medical Branch		0		5.4			15		21			0
106	106	Stericycle, Inc.		0		5.4			15		21		6,533	6,533
109	109	Healthcare Environmental Services Inc.		0				5.4	15		21		6,533	6,533
110	110	Stericycle, Inc.			10			5.4	15	135	165			0
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	0					15		15		6,533	6,533
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	0					15		15			0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant				5.4			15		21			0
130	130	Department of Veterans Affairs Medical Center		194		5.4	15				214		6,533	6,533
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		0		1.8			2.3		4.1			0
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		0		1.8			2.3		4.1		353	353
18	18	Franklin Square Hospital Center		0		1.8			2.3		4.1		353	353
21	21	Washington County Hospital		0		1.8			2.3		4.1		353	353
25	25	Holy Spirit Hospital		0		1.8			2.3		4.1		353	353

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor solid waste impacts, tpy								Beyond-the-floor wastewater impacts, gpy		
				DIFF	FF	SNCR	ACI	Increase NO _x reagent	Increase carbon	Increase NaHCO ₃	Total BTF solid waste impacts	Packed-bed scrubber	Increase caustic	Total BTF wastewater impacts
30	30	Riddle Memorial Hospital		0		1.8			2.3		4.1			0
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		0		1.8					2			0
38	38	Wilkes-Barre General Hospital				1.8			2.3		4.1			0
41	41	Thomas Memorial Hospital		0		1.8			2.3		4.1	353		353
47	47	Malcolm Randall Veterans Affairs Medical Center		0		1.8			2.3		4.1	353		353
63	63	St. Jude Children's Research Hospital				1.8			2.3		4.1	353		353
81	81	South Bend Medical Foundation		0		1.8			2.3		4.1	353		353
82	82	Good Samaritan Hospital				1.8			2.3		4.1	353		353
88	88	Medina General Hospital		0		1.8			2.3		4.1	353		353
95	95	St. Joseph's Hospital				1.8			2.3		4.1			0
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	0		1.8					1.8			0
111	111	Wyoming Medical Center		0		1.8			2.3		4.1	353		353
86	86	Fairfield Medical Center		4.8		3.6	2.3				11	47		47
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	4.8		3.6					8.4	47		47
115	115	Kona Community Hospital		1.8		1.3	0.6				3.7	2,156		2,156
116	116	Yukon-Kuskokwim Delta Regional Hospital		0		1.3			0.6		1.9	2,156		2,156
Total large				194	10	156	61	27	457	135	1,039	0	163,328	163,328
Total medium				0	0	30	0	0	34	0	65	0	3,881	3,881
Total small				9.6	0	7.2	2.3	0	0	0	19	0	94	94
Total small rural				1.8	0	2.7	0.6	0	0.6	0	5.6	4,312	0	4,312
Total nationwide				205	10	196	64	27	492	135	1,128	4,312	167,302	171,614

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor PM secondary emissions, lb/yr							Beyond-the-floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF PM secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF CO secondary emissions	
1	1	Bristol-Myers Squibb Co.			0			0.06			0.06		0			0.4		0.4
5	5	Merck & Company, Inc.			0			0.06			0.06		0			0.4		0.4
15	15--1	Curtis Bay Energy	Unit 1		0						0		0					0
15	15--2	Curtis Bay Energy	Unit 2		0						0		0					0
20	20--1	Fort Detrick	Unit 5		0			0.06			0.06		0			0.4		0.4
20	20--2	Fort Detrick	Unit 6		0			0.06			0.06		0			0.4		0.4
29	29	Hamot Medical Center			0			0.06			0.06		0			0.4		0.4
36	36--1	Merck & Company, Inc.	Unit 2		0			0.06			0.06		0			0.4		0.4
36	36--2	Merck & Company, Inc.	Unit 5		0			0.06			0.06		0			0.4		0.4
40	40	Charleston Area Medical Center, General Hospital			0			0.06			0.06		0			0.4		0.4
42	42	Stericycle, Inc.			0			0.06			0.06		0			0.4		0.4
43	43	Boca Raton Community Hospital			0			0.06			0.06		0			0.4		0.4
44	44	Bethesda Memorial Hospital			0			0.06			0.06		0			0.4		0.4
46	46	Holy Cross Hospital			0			0.06			0.06		0			0.4		0.4
48	48	Memorial Regional Hospital			0			0.06			0.06		0			0.4		0.4
51	51	Lakeland Regional Medical Center			0			0.06			0.06		0			0.4		0.4
54	54	Bayfront Medical Center			0			0.06			0.06		0			0.4		0.4
55	55	St. Joseph's Hospital			0			0.06			0.06		0			0.4		0.4
59	59--1	Stericycle, Inc.	Unit 1		0			0.06			0.06		0			0.4		0.4

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor PM secondary emissions, lb/yr							Beyond-the-floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF PM secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF CO secondary emissions	
59	59--2	Stericycle, Inc.	Unit 2		0			0.06			0.06		0			0.4		0.4
60	60--1	BMWNC, Inc.	Unit 1		0			0.06			0.06		0			0.4		0.4
65	65--1	Stericycle, Inc.	Unit 1		0			0.06			0.06		0			0.4		0.4
65	65--2	Stericycle, Inc.	Unit 2		0			0.06			0.06		0			0.4		0.4
71	71	Loyola University Medical Center			0			0.06			0.06		0			0.4		0.4
77	77	Parkview Hospital			0			0.06			0.06		0			0.4		0.4
84	84	Mayo Clinic, Waste Management Facility			0						0		0					0
87	87	MedCentral Health System, Mansfield Hospital			0			0.06			0.06		0			0.4		0.4
94	94	Stericycle, Inc.			0			0.06			0.06		0			0.4		0.4
98	98--1	University of Texas Medical Branch			0			0.06			0.06		0			0.4		0.4
106	106	Stericycle, Inc.			0			0.06			0.06		0			0.4		0.4
109	109	Healthcare Environmental Services Inc.			0						0		0					0
110	110	Stericycle, Inc.			0	8.8					8.8		0	64				64
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1		0						0		0					0
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2		0						0		0					0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant						0.06			0.06					0.4		0.4
130	130	Department of Veterans Affairs Medical Center			8.8			0.06			8.8		64			0.4		64
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility			0			0.007			0.007		0			0.05		0.05
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment			0			0.007			0.007		0			0.05		0.05
18	18	Franklin Square Hospital Center			0		1.1	0.007			1.1		0	48	0.05			48
21	21	Washington County Hospital			0		0	0.007			0.007		0		0	0.05		0.05
25	25	Holy Spirit Hospital			0			0.007	1.1		1.1		0			0.05	48	48

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor PM secondary emissions, lb/yr							Beyond-the-floor CO secondary emissions, lb/yr							
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF PM secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF CO secondary emissions	
30	30	Riddle Memorial Hospital			0			0.007			0.007		0			0.05		0.05
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator			0			0.007	1.1	1.1		0			0.05	48	48	
38	38	Wilkes-Barre General Hospital						0.007	1.1	1.1					0.05	48	48	
41	41	Thomas Memorial Hospital			0			0.007		0.007		0			0.05		0.05	
47	47	Malcolm Randall Veterans Affairs Medical Center			0			0.007	1.1	1.1		0			0.05	48	48	
63	63	St. Jude Children's Research Hospital						0.007		0.007					0.05		0.05	
81	81	South Bend Medical Foundation			0			0.007	1.1	1.1		0			0.05	48	48	
82	82	Good Samaritan Hospital						0.007	1.1	1.1					0.05	48	48	
88	88	Medina General Hospital			0			0.007	1.1	1.1		0			0.05	48	48	
95	95	St. Joseph's Hospital						0.007	1.1	1.1					0.05	48	48	
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1		0			0.007	1.1	1.1		0			0.05	48	48	
111	111	Wyoming Medical Center			0			0.007	1.1	1.1		0			0.05	48	48	
86	86	Fairfield Medical Center			1.8			0.003	1.1	2.8		13			0.02	48	61	
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3		1.8			0.003	1.1	2.8		13			0.02	48	61	
115	115	Kona Community Hospital			0.2	0.5		0.001		0.7	1.5	3.7			0.009		5.2	
116	116	Yukon-Kuskokwim Delta Regional Hospital			0.2	0		0.001		0.2	1.5	0			0.009		1.5	
Total large					0	8.8	8.8	0	1.7	0	19	0	64	64	0	12	0	140
Total medium					0	0	0	1.1	0.1	11	12	0	0	0	48	0.8	478	526
Total small					0	3.5	0	0	0.005	2.2	5.7	0	26	0	0	0.04	96	121
Total small rural					0.4	0.5	0	0	0.002	0	0.9	2.916	3.7	0	0	0.02	0	6.7
Total nationwide					0.4	13	8.8	1.1	1.8	13	38	2.9	93	64	48	13	573	794

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor NO _x secondary emissions, lb/yr							Beyond-the-floor SO ₂ secondary emissions, lb/yr						
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF SO ₂ secondary emissions
1	1	Bristol-Myers Squibb Co.			0			0.2		0.2		0			0.4		0.4
5	5	Merck & Company, Inc.			0			0.2		0.2		0			0.4		0.4
15	15--1	Curtis Bay Energy	Unit 1		0					0		0					0
15	15--2	Curtis Bay Energy	Unit 2		0					0		0					0
20	20--1	Fort Detrick	Unit 5		0			0.2		0.2		0			0.4		0.4
20	20--2	Fort Detrick	Unit 6		0			0.2		0.2		0			0.4		0.4
29	29	Hamot Medical Center			0			0.2		0.2		0			0.4		0.4
36	36--1	Merck & Company, Inc.	Unit 2		0			0.2		0.2		0			0.4		0.4
36	36--2	Merck & Company, Inc.	Unit 5		0			0.2		0.2		0			0.4		0.4
40	40	Charleston Area Medical Center, General Hospital			0			0.2		0.2		0			0.4		0.4
42	42	Stericycle, Inc.			0			0.2		0.2		0			0.4		0.4
43	43	Boca Raton Community Hospital			0			0.2		0.2		0			0.4		0.4
44	44	Bethesda Memorial Hospital			0			0.2		0.2		0			0.4		0.4
46	46	Holy Cross Hospital			0			0.2		0.2		0			0.4		0.4
48	48	Memorial Regional Hospital			0			0.2		0.2		0			0.4		0.4
51	51	Lakeland Regional Medical Center			0			0.2		0.2		0			0.4		0.4
54	54	Bayfront Medical Center			0			0.2		0.2		0			0.4		0.4
55	55	St. Joseph's Hospital			0			0.2		0.2		0			0.4		0.4
59	59--1	Stericycle, Inc.	Unit 1		0			0.2		0.2		0			0.4		0.4

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor NO _x secondary emissions, lb/yr							Beyond-the-floor SO ₂ secondary emissions, lb/yr						
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF SO ₂ secondary emissions
59	59--2	Stericycle, Inc.	Unit 2		0			0.2		0.2		0			0.4		0.4
60	60--1	BMWNC, Inc.	Unit 1		0			0.2		0.2		0			0.4		0.4
65	65--1	Stericycle, Inc.	Unit 1		0			0.2		0.2		0			0.4		0.4
65	65--2	Stericycle, Inc.	Unit 2		0			0.2		0.2		0			0.4		0.4
71	71	Loyola University Medical Center			0			0.2		0.2		0			0.4		0.4
77	77	Parkview Hospital			0			0.2		0.2		0			0.4		0.4
84	84	Mayo Clinic, Waste Management Facility			0					0		0					0
87	87	MedCentral Health System, Mansfield Hospital			0			0.2		0.2		0			0.4		0.4
94	94	Stericycle, Inc.			0			0.2		0.2		0			0.4		0.4
98	98--1	University of Texas Medical Branch			0			0.2		0.2		0			0.4		0.4
106	106	Stericycle, Inc.			0			0.2		0.2		0			0.4		0.4
109	109	Healthcare Environmental Services Inc.			0					0		0					0
110	110	Stericycle, Inc.			0	32				32		0	63				63
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1		0					0		0					0
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2		0					0		0					0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant						0.2		0.2					0.4		0.4
130	130	Department of Veterans Affairs Medical Center			32			0.2		32		63			0.4		63
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility			0			0.02		0.02		0			0.05		0.05
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment			0			0.02		0.02		0			0.05		0.05
18	18	Franklin Square Hospital Center			0		57	0.02		57		0		0.3	0.05		0.4
21	21	Washington County Hospital			0		0	0.02		0.02		0		0	0.05		0.05
25	25	Holy Spirit Hospital			0			0.02	57	57		0			0.05	0.3	0.4

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Beyond-the-floor NO _x secondary emissions, lb/yr							Beyond-the-floor SO ₂ secondary emissions, lb/yr						
				Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF NO _x secondary emissions	Packed-bed scrubber	DIFF	FF	Secondary chamber retrofit	SNCR	Increase natural gas	Total BTF SO ₂ secondary emissions
30	30	Riddle Memorial Hospital			0			0.02		0.02		0			0.05		0.05
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator			0			0.02	57	57		0			0.05	0.3	0.4
38	38	Wilkes-Barre General Hospital						0.02	57	57					0.05	0.3	0.4
41	41	Thomas Memorial Hospital			0			0.02		0.02		0			0.05		0.05
47	47	Malcolm Randall Veterans Affairs Medical Center			0			0.02	57	57		0			0.05	0.3	0.4
63	63	St. Jude Children's Research Hospital						0.02		0.02					0.05		0.05
81	81	South Bend Medical Foundation			0			0.02	57	57		0			0.05	0.3	0.4
82	82	Good Samaritan Hospital						0.02	57	57					0.05	0.3	0.4
88	88	Medina General Hospital			0			0.02	57	57		0			0.05	0.3	0.4
95	95	St. Joseph's Hospital						0.02	57	57					0.05	0.3	0.4
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1		0			0.02	57	57		0			0.05	0.3	0.4
111	111	Wyoming Medical Center			0			0.02	57	57		0			0.05	0.3	0.4
86	86	Fairfield Medical Center			6.5			0.01	57	63		13			0.02	0.3	13
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3		6.5			0.01	57	63		13			0.02	0.3	13
115	115	Kona Community Hospital		0.7	1.9			0.005		2.6	1.4	3.7			0.009		5.1
116	116	Yukon-Kuskokwim Delta Regional Hospital		0.7	0			0.005		0.7	1.4	0			0.009		1.4
Total large				0	32	32	0	6.3	0	71	0	63	63	0	12	0	138
Total medium				0	0	0	57	0.4	569	626	0	0	0	0.3	0.8	3.4	4.6
Total small				0	13	0	0	0.02	114	127	0	25	0	0	0.04	0.7	26
Total small rural				1.5	1.9	0	0	0.009	0	3.4	2.9	3.7	0	0	0.02	0	6.6
Total nationwide				1.5	47	32	57	6.7	682	827	2.9	92	63	0.3	13	4.1	175

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Total BTF secondary emissions, lb/yr
1	1	Bristol-Myers Squibb Co.		1.1
5	5	Merck & Company, Inc.		1.1
15	15--1	Curtis Bay Energy	Unit 1	0
15	15--2	Curtis Bay Energy	Unit 2	0
20	20--1	Fort Detrick	Unit 5	1.1
20	20--2	Fort Detrick	Unit 6	1.1
29	29	Hamot Medical Center		1.1
36	36--1	Merck & Company, Inc.	Unit 2	1.1
36	36--2	Merck & Company, Inc.	Unit 5	1.1
40	40	Charleston Area Medical Center, General Hospital		1.1
42	42	Stericycle, Inc.		1.1
43	43	Boca Raton Community Hospital		1.1
44	44	Bethesda Memorial Hospital		1.1
46	46	Holy Cross Hospital		1.1
48	48	Memorial Regional Hospital		1.1
51	51	Lakeland Regional Medical Center		1.1
54	54	Bayfront Medical Center		1.1
55	55	St. Joseph's Hospital		1.1
59	59--1	Stericycle, Inc.	Unit 1	1.1

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Total BTF secondary emissions, lb/yr
59	59--2	Stericycle, Inc.	Unit 2	1.1
60	60--1	BMWNC, Inc.	Unit 1	1.1
65	65--1	Stericycle, Inc.	Unit 1	1.1
65	65--2	Stericycle, Inc.	Unit 2	1.1
71	71	Loyola University Medical Center		1.1
77	77	Parkview Hospital		1.1
84	84	Mayo Clinic, Waste Management Facility		0
87	87	MedCentral Health System, Mansfield Hospital		1.1
94	94	Stericycle, Inc.		1.1
98	98--1	University of Texas Medical Branch		1.1
106	106	Stericycle, Inc.		1.1
109	109	Healthcare Environmental Services Inc.		0
110	110	Stericycle, Inc.		168
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	0
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	0
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		1.1
130	130	Department of Veterans Affairs Medical Center		169
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		0.1
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		0.1
18	18	Franklin Square Hospital Center		106
21	21	Washington County Hospital		0.1
25	25	Holy Spirit Hospital		106

Table 13. Nationwide Beyond-the-Floor Secondary

FACID	UNITID	Facility name	Unit number	Total BTF secondary emissions, lb/yr
30	30	Riddle Memorial Hospital		0.1
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		106
38	38	Wilkes-Barre General Hospital		106
41	41	Thomas Memorial Hospital		0.1
47	47	Malcolm Randall Veterans Affairs Medical Center		106
63	63	St. Jude Children's Research Hospital		0.1
81	81	South Bend Medical Foundation		106
82	82	Good Samaritan Hospital		106.2
88	88	Medina General Hospital		106
95	95	St. Joseph's Hospital		106
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	106
111	111	Wyoming Medical Center		106
86	86	Fairfield Medical Center		140
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	140
115	115	Kona Community Hospital		14
116	116	Yukon-Kuskokwim Delta Regional Hospital		3.9
Total large				368
Total medium				1,168
Total small				280
Total small rural				18
Total nationwide				1,834

Notes:

1. In calculating the total number of limits met for each unit, included only one

Key:

BTF subtotals
 BTF total

Table 14. Nationwide Autoclave/Landfill Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/existing	APCD code	APCD description	Maximum charge rate (lb/hr)
1	1	Bristol-Myers Squibb Co.		Wallingford	CT	L	E	FF	Secondary chamber (1800F) and baghouse	1,000
5	5	Merck & Company, Inc.		Rahway	NJ	L	E	DIFF	Secondary chamber (1500F, 1 sec), partial quench, dry acid gas scrubber with dry lime injection, and baghouse	799
15	15-1	Curtis Bay Energy	Unit 1	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083
15	15-2	Curtis Bay Energy	Unit 2	Baltimore	MD	L	E	DIFF	Secondary chamber, dry scrubber, and baghouse	7,083
20	20-1	Fort Detrick	Unit 5	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000
20	20-2	Fort Detrick	Unit 6	Fort Detrick	MD	L	E	WS	Secondary chamber and rotary atomizing wet scrubber	1,000
29	29	Hamot Medical Center		Erie	PA	L	E	DIFF/WS	Secondary chamber (2000F, 2 sec), lime injection system, powdered activated carbon injection system, baghouse, and vertical upflow two-stage multi-microventuri scrubber system	1,060
36	36-1	Merck & Company, Inc.	Unit 2	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary/tertiary chamber (2000F, 2 sec), water quench followed by sodium bicarbonate injection system with dry reaction chamber and pulse-jet baghouse	2,000
36	36-2	Merck & Company, Inc.	Unit 5	West Point (Upper Gwynedd Township)	PA	L	E	DIFF	Secondary chamber (1800F, 2.2 sec), water quench followed by sodium bicarbonate injection system and pulse-jet baghouse	3,045
40	40	Charleston Area Medical Center, General Hospital		Charleston	WV	L	E	DIFF	Secondary chamber (1800F, 2 sec), dry injection/baghouse scrubber system with activated carbon	1,000
42	42	Stericycle, Inc.		Apopka	FL	L	E	DIFF	Secondary chamber (1800, 1 sec), dry scrubbing system with quench chamber, passive absorber, lime and carbon injection, and baghouse.	1,900
43	43	Boca Raton Community Hospital		Boca Raton	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and rotary atomizing wet scrubber system with caustic soda injection	730
44	44	Bethesda Memorial Hospital		Boynton Beach	FL	L	E	WS	Secondary chamber (1800F, 2 sec) and rotary atomizing scrubber with mist eliminator	1,000
46	46	Holy Cross Hospital		Fort Lauderdale	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and venturi scrubber with packed bed absorption unit using dilute NaOH	1,300
48	48	Memorial Regional Hospital		Hollywood	FL	L	E	WS/WESP	Secondary chamber (1800F, 1 sec), packed column gas scrubber, and wet ESP	1,800
51	51	Lakeland Regional Medical Center		Lakeland	FL	L	E	DIFF	Secondary chamber (1800F, 1 sec), lime injection system, and baghouse	750
54	54	Bayfront Medical Center		St. Petersburg	FL	L	E	WS	Secondary chamber (1800F, 1 sec) and flux force/condensation collision scrubber system using dilute NaOH	1,500
55	55	St. Joseph's Hospital		Tampa	FL	L	E	DIFF/WS	Secondary chamber (1800F, 1 sec), lime injection, baghouse, and venturi scrubber	1,500
59	59-1	Stericycle, Inc.	Unit 1	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911
59	59-2	Stericycle, Inc.	Unit 2	Haw River	NC	L	E	WS	Secondary chamber (1800F, 1 sec), rapid gas quench system, wet scrubber system consisting of a packed bed absorber and venturi scrubber, and demister.	1,911
60	60-1	BMWNC, Inc.	Unit 1	Matthews	NC	L	E	DIFF	Secondary chamber (1641F), dry scrubber with lime and activated carbon injection, and baghouse	1,500
65	65-1	Stericycle, Inc.	Unit 1	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500
65	65-2	Stericycle, Inc.	Unit 2	Clinton	IL	L	E	WS	Secondary chamber (1800F), venturi scrubber, and condensing absorber	1,500
71	71	Loyola University Medical Center		Maywood	IL	L	E	WS	Two secondary chambers (1600F), twin rotary atomizer scrubber using 50% caustic solution, and two demister pads	1,650
77	77	Parkview Hospital		Fort Wayne	IN	L	E	WS	Secondary chamber and wet scrubber	1,200
84	84	Mayo Clinic, Waste Management Facility		Rochester	MN	L	E	DIFF	Secondary chamber (1800F, 1 sec) and baghouse with lime and carbon injection	2,000
87	87	MedCentral Health System, Mansfield Hospital		Mansfield	OH	L	E	DIFF	Secondary chamber (1800F, 2 sec) and baghouse with lime and carbon injection system	600
94	94	Stericycle, Inc.		Warren	OH	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,400
98	98-1	University of Texas Medical Branch		Galveston	TX	L	E	WS	Secondary chamber, packed tower, and venturi scrubber with activated carbon injection	1,500
106	106	Stericycle, Inc.		Kansas City	KS	L	E	WS	Secondary chamber (1800F, 2 sec), wet scrubber	1,500
109	109	Healthcare Environmental Services Inc.		Fargo	ND	L	E	DIFF	Secondary chamber (1800F) and dry scrubber/baghouse system with lime and carbon injection	1,686

Table 14. Nationwide Autoclave/Landfill Secondary Impacts for Existing Sources

FACID	UNITID	Facility name	Unit number	City	State	Category	New/existing	APCD code	APCD description	Maximum charge rate (lb/hr)
110	110	Stericycle, Inc.		North Salt Lake	UT	L	E	DI-ESP/WS	Secondary chamber (1834F), carbon injection system, ESP, dry scrubber, and wet gas absorber	1,935
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	Anahuac	TX	L	N	DIFF	Secondary chamber, baghouse with virgin lime injection, urea injection, and activated carbon injection	4,167
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		Greenville	NC	L	N	HEPA/CA/WS	Secondary chamber (1985F), rotary atomizing wet scrubber (with NaOH scrubbing medium), carbon bed adsorber, HEPA filtering system, and heat recovery system	1,000
130	130	Department of Veterans Affairs Medical Center		Miami	FL	L	E	WS	Secondary chamber (1800F, 1 sec), venturi scrubber, and packed tower absorber	1,000
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		Baltimore	MD	M	E	WS	Secondary chamber (1832F) and venturi caustic scrubber with packed-bed scrubber	500
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi wet scrubber followed by saturation chamber and mist eliminator	320
18	18	Franklin Square Hospital Center		Baltimore	MD	M	E	WS	Secondary chamber (1800F) and venturi scrubber followed by quench chamber and mist eliminator	500
21	21	Washington County Hospital		Hagerstown	MD	M	E	WS	Secondary chamber and venturi caustic scrubber	500
25	25	Holy Spirit Hospital		Camp Hill	PA	M	E	WS	Secondary chamber (1800F) and venturi scrubber with prequench and NaOH injection	500
30	30	Riddle Memorial Hospital		Media	PA	M	E	WS	Secondary chamber (1800F, 2 sec), caustic packed tower scrubber, and high pressure venturi, with activated carbon injection	500
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		State College	PA	M	E	WS	Secondary chamber (1900F) and rotary atomizing wet scrubber with demister	500
38	38	Wilkes-Barre General Hospital		Wilkes-Barre	PA	M	N	DIFF	Secondary/tertiary chambers (1800F, 2.85 sec) and dry scrubber/baghouse with lime and activated carbon injection	400
41	41	Thomas Memorial Hospital		South Charleston	WV	M	E	WS	Secondary chamber (1800F) and venturi packed tower wet scrubber with caustic injection	470
47	47	Malcolm Randall Veterans Affairs Medical Center		Gainesville	FL	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber with caustic soda injection	495
63	63	St. Jude Children's Research Hospital		Memphis	TN	M	E	DIFF	Secondary chamber (1528F) and baghouse with sodium bicarbonate and carbon injection	500
81	81	South Bend Medical Foundation		South Bend	IN	M	E	WS	Secondary chamber and wet scrubber	470
82	82	Good Samaritan Hospital		Vincennes	IN	M	E	WS	Secondary chamber and multi-chamber spray scrubber	500
88	88	Medina General Hospital		Medina	OH	M	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	300
95	95	St. Joseph's Hospital		Marshfield	WI	M	E	DIFF	Secondary chamber (1800F), quench tower, and baghouse with lime/carbon injection	500
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	Hamilton	MT	M	E	WS	Secondary chamber and wet scrubber	500
111	111	Wyoming Medical Center		Casper	WY	M	E	WS	Secondary chamber and wet scrubber	400
86	86	Fairfield Medical Center		Lancaster	OH	S	E	WS	Secondary chamber (1800F, 1 sec) and wet scrubber	95
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	Atlanta	GA	S	N	WS	Secondary chamber (1800F, 1.68 sec) and rotary atomizing wet scrubber	120
115	115	Kona Community Hospital		Kealahakua	HI	SR	E	CC	Secondary chamber (1900F, 2 sec), no APCD	200
116	116	Yukon-Kuskokwim Delta Regional Hospital		Bethel	AK	SR	E	CC	Secondary chamber, no APCD	50
Total large										
Total medium										
Total small										
Total small rural										
Total nationwide										

Table 14. Nationwide Autoclave/Landfill Second

FACID	UNITID	Facility name	Unit number	Stack gas flow rate (dscfm)	Stack gas temperature (°F)	Operating hours (hr/yr)	Autoclave energy impacts, MMBtu/yr	Autoclave wastewater impacts, gpy
1	1	Bristol-Myers Squibb Co.		1,648	217	2,072	1,107	141,123
5	5	Merck & Company, Inc.		7,346	246	4,321	1,107	141,123
15	15--1	Curtis Bay Energy	Unit 1	27,698	296	8,736	1,107	141,123
15	15--2	Curtis Bay Energy	Unit 2	30,578	303	8,736	1,107	141,123
20	20--1	Fort Detrick	Unit 5	2,424	87	1,300	1,107	141,123
20	20--2	Fort Detrick	Unit 6	2,308	92	1,300	1,107	141,123
29	29	Hamot Medical Center		3,701	122	2,080	1,107	141,123
36	36--1	Merck & Company, Inc.	Unit 2	5,235	358	865	1,107	141,123
36	36--2	Merck & Company, Inc.	Unit 5	8,119	304	5,753	1,107	141,123
40	40	Charleston Area Medical Center, General Hospital		4,323	312	1,248	1,107	141,123
42	42	Stericycle, Inc.		7,008	327	7,951	1,107	141,123
43	43	Boca Raton Community Hospital		2,078	91	8,736	1,107	141,123
44	44	Bethesda Memorial Hospital		4,537	106	3,024	1,107	141,123
46	46	Holy Cross Hospital		3,378	124	2,964	1,107	141,123
48	48	Memorial Regional Hospital		4,568	143	4,992	1,107	141,123
51	51	Lakeland Regional Medical Center		3,323	212	6,247	1,107	141,123
54	54	Bayfront Medical Center		2,898	133	3,352	1,107	141,123
55	55	St. Joseph's Hospital		3,347	400	8,008	1,107	141,123
59	59--1	Stericycle, Inc.	Unit 1	4,002	135	8,400	1,107	141,123
59	59--2	Stericycle, Inc.	Unit 2	3,917	138	8,400	1,107	141,123
60	60--1	BMWNC, Inc.	Unit 1	6,763	343	7,456	1,107	141,123
65	65--1	Stericycle, Inc.	Unit 1	3,304	143	7,665	1,107	141,123
65	65--2	Stericycle, Inc.	Unit 2	3,125	141	7,558	1,107	141,123
71	71	Loyola University Medical Center		3,526	156	4,800	1,107	141,123
77	77	Parkview Hospital		2,766	114	8,395	1,107	141,123
84	84	Mayo Clinic, Waste Management Facility		6,516	294	6,240	1,107	141,123
87	87	MedCentral Health System, Mansfield Hospital		2,351	260	3,120	1,107	141,123
94	94	Stericycle, Inc.		2,737	138	7,904	1,107	141,123
98	98--1	University of Texas Medical Branch		4,534	111	5,328	1,107	141,123
106	106	Stericycle, Inc.		3,590	152	8,760	1,107	141,123
109	109	Healthcare Environmental Services Inc.		4,478	302	1,872	1,107	141,123

Table 14. Nationwide Autoclave/Landfill Second

FACID	UNITID	Facility name	Unit number	Stack gas flow rate (dscfm)	Stack gas temperature (°F)	Operating hours (hr/yr)	Autoclave energy impacts, MMBtu/yr	Autoclave wastewater impacts, gpy
110	110	Stericycle, Inc.		6,291	126	7,309	1,107	141,123
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	10,031	296	7,896	1,107	141,123
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	9,028	291	7,896	1,107	141,123
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		3,124	125	625	1,107	141,123
130	130	Department of Veterans Affairs Medical Center		6,422	155	4,160	1,107	141,123
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		1,972	189	1,440	136	16,805
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		1,890	179	1,350	136	16,805
18	18	Franklin Square Hospital Center		2,999	54	5,408	136	16,805
21	21	Washington County Hospital		1,834	112	2,496	136	16,805
25	25	Holy Spirit Hospital		1,702	99	3,944	136	16,805
30	30	Riddle Memorial Hospital		1,730	239	2,920	136	16,805
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		2,117	175	1,022	136	16,805
38	38	Wilkes-Barre General Hospital		2,063	274	4,472	136	16,805
41	41	Thomas Memorial Hospital		1,526	146	2,080	136	16,805
47	47	Malcolm Randall Veterans Affairs Medical Center		1,645	115	1,664	136	16,805
63	63	St. Jude Children's Research Hospital		2,333	276	1,050	136	16,805
81	81	South Bend Medical Foundation		2,325	121	2,028	136	16,805
82	82	Good Samaritan Hospital		1,352	128	2,574	136	16,805
88	88	Medina General Hospital		1,153	100	3,016	136	16,805
95	95	St. Joseph's Hospital		1,634	223	1,404	136	16,805
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	1,790	112	1,248	136	16,805
111	111	Wyoming Medical Center		1,505	130	989	136	16,805
86	86	Fairfield Medical Center		1,095	97	5,018	102	12,294
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	715	163	2,920	102	12,294
115	115	Kona Community Hospital		684	1,787	1,430	38	4,610
116	116	Yukon-Kuskokwim Delta Regional Hospital		559	1,457	1,560	38	4,610
Total large							39,845	5,080,424
Total medium							2,308	285,682
Total small							204	24,588
Total small rural							77	9,220
Total nationwide							42,433	5,399,914

Table 14. Nationwide Autoclave/Landfill Second

FACID	UNITID	Facility name	Unit number	Landfill solid waste impacts, tpy	Autoclave secondary emissions, lb/yr					Landfill secondary emissions		
					PM	CO	NO _x	SO ₂	Total	Hg, lb/yr	CH ₄ , tpy	Total, tpy
1	1	Bristol-Myers Squibb Co.		69	18	132	67	130	346	0.0009	16	16
5	5	Merck & Company, Inc.		116	18	132	67	130	346	0.0009	16	16
15	15--1	Curtis Bay Energy	Unit 1	2,073	18	132	67	130	346	0.0009	16	16
15	15--2	Curtis Bay Energy	Unit 2	2,073	18	132	67	130	346	0.0009	16	16
20	20--1	Fort Detrick	Unit 5	44	18	132	67	130	346	0.0009	16	16
20	20--2	Fort Detrick	Unit 6	44	18	132	67	130	346	0.0009	16	16
29	29	Hamot Medical Center		74	18	132	67	130	346	0.0009	16	16
36	36--1	Merck & Company, Inc.	Unit 2	58	18	132	67	130	346	0.0009	16	16
36	36--2	Merck & Company, Inc.	Unit 5	587	18	132	67	130	346	0.0009	16	16
40	40	Charleston Area Medical Center, General Hospital		42	18	132	67	130	346	0.0009	16	16
42	42	Stericycle, Inc.		506	18	132	67	130	346	0.0009	16	16
43	43	Boca Raton Community Hospital		214	18	132	67	130	346	0.0009	16	16
44	44	Bethesda Memorial Hospital		101	18	132	67	130	346	0.0009	16	16
46	46	Holy Cross Hospital		129	18	132	67	130	346	0.0009	16	16
48	48	Memorial Regional Hospital		301	18	132	67	130	346	0.0009	16	16
51	51	Lakeland Regional Medical Center		157	18	132	67	130	346	0.0009	16	16
54	54	Bayfront Medical Center		168	18	132	67	130	346	0.0009	16	16
55	55	St. Joseph's Hospital		402	18	132	67	130	346	0.0009	16	16
59	59--1	Stericycle, Inc.	Unit 1	538	18	132	67	130	346	0.0009	16	16
59	59--2	Stericycle, Inc.	Unit 2	538	18	132	67	130	346	0.0009	16	16
60	60--1	BMWNC, Inc.	Unit 1	375	18	132	67	130	346	0.0009	16	16
65	65--1	Stericycle, Inc.	Unit 1	385	18	132	67	130	346	0.0009	16	16
65	65--2	Stericycle, Inc.	Unit 2	380	18	132	67	130	346	0.0009	16	16
71	71	Loyola University Medical Center		265	18	132	67	130	346	0.0009	16	16
77	77	Parkview Hospital		337	18	132	67	130	346	0.0009	16	16
84	84	Mayo Clinic, Waste Management Facility		418	18	132	67	130	346	0.0009	16	16
87	87	MedCentral Health System, Mansfield Hospital		63	18	132	67	130	346	0.0009	16	16
94	94	Stericycle, Inc.		371	18	132	67	130	346	0.0009	16	16
98	98--1	University of Texas Medical Branch		268	18	132	67	130	346	0.0009	16	16
106	106	Stericycle, Inc.		440	18	132	67	130	346	0.0009	16	16
109	109	Healthcare Environmental Services Inc.		106	18	132	67	130	346	0.0009	16	16

Table 14. Nationwide Autoclave/Landfill Second

FACID	UNITID	Facility name	Unit number	Landfill solid waste impacts, tpy	Autoclave secondary emissions, lb/yr					Landfill secondary emissions		
					PM	CO	NO _x	SO ₂	Total	Hg, lb/yr	CH ₄ , tpy	Total, tpy
110	110	Stericycle, Inc.		474	18	132	67	130	346	0.0009	16	16
120	120--1	Waste Management Resource Recovery and Recycling Center	Unit 1	1,102	18	132	67	130	346	0.0009	16	16
120	120--2	Waste Management Resource Recovery and Recycling Center	Unit 2	1,102	18	132	67	130	346	0.0009	16	16
125	125	East Carolina University, Health Sciences Campus, HSC Utility Plant		21	18	132	67	130	346	0.0009	16	16
130	130	Department of Veterans Affairs Medical Center		139	18	132	67	130	346	0.0009	16	16
13	13	University of Maryland at Baltimore, Environmental Health and Safety Facility		24	2.2	16	8.2	16	42	0.0001	1.8	1.8
16	16	Johns Hopkins Medical Institute, Department of Health, Safety, and Environment		14	2.2	16	8.2	16	42	0.0001	1.8	1.8
18	18	Franklin Square Hospital Center		91	2.2	16	8.2	16	42	0.0001	1.8	1.8
21	21	Washington County Hospital		42	2.2	16	8.2	16	42	0.0001	1.8	1.8
25	25	Holy Spirit Hospital		66	2.2	16	8.2	16	42	0.0001	1.8	1.8
30	30	Riddle Memorial Hospital		49	2.2	16	8.2	16	42	0.0001	1.8	1.8
34	34	Pennsylvania State University, Animal Diagnostic Lab Incinerator		17	2.2	16	8.2	16	42	0.0001	1.8	1.8
38	38	Wilkes-Barre General Hospital		60	2.2	16	8.2	16	42	0.0001	1.8	1.8
41	41	Thomas Memorial Hospital		33	2.2	16	8.2	16	42	0.0001	1.8	1.8
47	47	Malcolm Randall Veterans Affairs Medical Center		28	2.2	16	8.2	16	42	0.0001	1.8	1.8
63	63	St. Jude Children's Research Hospital		18	2.2	16	8.2	16	42	0.0001	1.8	1.8
81	81	South Bend Medical Foundation		32	2.2	16	8.2	16	42	0.0001	1.8	1.8
82	82	Good Samaritan Hospital		43	2.2	16	8.2	16	42	0.0001	1.8	1.8
88	88	Medina General Hospital		30	2.2	16	8.2	16	42	0.0001	1.8	1.8
95	95	St. Joseph's Hospital		24	2.2	16	8.2	16	42	0.0001	1.8	1.8
108	108--1	Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases	Unit 1	21	2.2	16	8.2	16	42	0.0001	1.8	1.8
111	111	Wyoming Medical Center		13	2.2	16	8.2	16	42	0.0001	1.8	1.8
86	86	Fairfield Medical Center		16	1.7	12	6.1	12	32	0.00004	0.7	0.7
129	129	Centers for Disease Control and Prevention--Clifton, Building 18	Unit 3	12	1.7	12	6.1	12	32	0.00004	0.7	0.7
115	115	Kona Community Hospital		9.6	0.6	4.5	2.3	4.5	12	0.00002	0.3	0.3
116	116	Yukon-Kuskokwim Delta Regional Hospital		2.6	0.6	4.5	2.3	4.5	12	0.00002	0.3	0.3
Total large				14,479	650	4,734	2,394	4,674	12,452	0.03	593	593
Total medium				604	38	274	139	271	721	0.002	31	31
Total small				28	3.3	24	12	24	64	0.00008	1.5	1.5
Total small rural				12	1.2	9.1	4.6	9.0	24	0.00004	0.7	0.7
Total nationwide				15,123	692	5,042	2,550	4,978	13,261	0.03	626	626

Table 15. Summary of Nationwide MACT Floor and Beyond-the-Floor Secondary Impacts and Autoclave/Landfill Secondary Impacts for Existing Sources

Parameters	Energy impacts, MMBtu/yr	Solid waste impacts, tpy	Wastewater impacts, gpy	Autoclave secondary emissions					Landfill secondary emissions	
				PM, lb/yr	CO, lb/yr	NO _x , lb/yr	SO ₂ , lb/yr	Total, lb/yr	Hg, lb/yr	CH ₄ , tpy
MACT Floor										
Large	28,690	3,718	84,930	249	2,881	2,329	1,596	7,056		
Medium	3,813	124	1,058	29	374	320	182	905		
Small	0	0	0	0	0	0	0	0		
Small rural	32	2.3	0	0.5	3.7	1.9	3.7	9.9		
Total	32,535	3,844	85,989	279	3,259	2,651	1,782	7,971		
Beyond-the-Floor										
Large	1,178	1,039	163,328	19	140	71	138	368		
Medium	6,261	65	3,881	12	526	626	5	1,168		
Small	1,354	19	94	5.7	121	127	26	280		
Small rural	56	5.6	4,312	0.9	6.7	3.4	6.6	18		
Total	8,849	1,128	171,614	38	794	827	175	1,834		
MACT Floor + Beyond-the-Floor										
Large	29,868	4,758	248,258	269	3,021	2,400	1,735	7,424		
Medium	10,073	188	4,939	41	900	946	186	2,073		
Small	1,354	19	94	5.7	121	127	26	280		
Small rural	88	7.9	4,312	1.4	10	5.3	10	27		
Total	41,383	4,973	257,603	317	4,053	3,477	1,957	9,805		
Autoclave/Landfill										
Large	39,845	14,479	5,080,424	650	4,734	2,394	4,674	12,452	0.03	593
Medium	2,308	604	285,682	38	274	139	271	721	0.002	31
Small	204	28	24,588	3.3	24	12	24	64	0.00008	1.5
Small rural	77	12	9,220	1.2	9.1	4.6	9.0	24	0.00004	0.7
Total	42,433	15,123	5,399,914	692	5,042	2,550	4,978	13,261	0.03	626