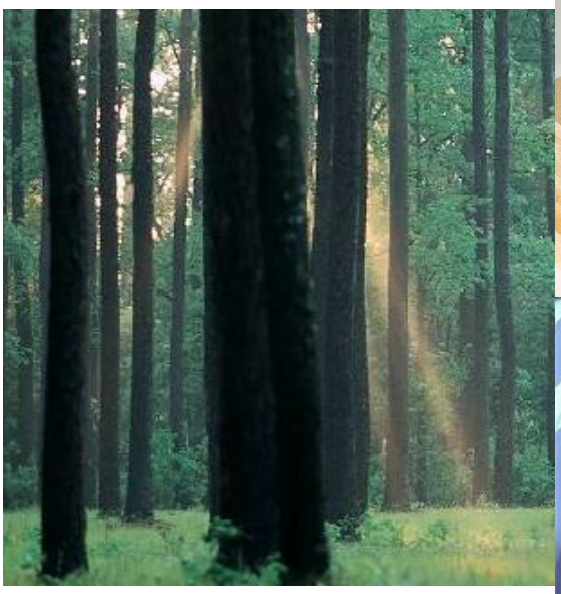
CUMULATIVE COST BURDEN ANALYSIS OF AIR REGULATIONS POTENTIALLY IMPACTING THE FOREST PRODUCTS INDUSTRY



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List of Acronyms and Abbreviations

AF&PA	American Forest and Paper Association
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
CAIR	Clean Air Interstate Rule
CISWI	Commercial or Institutional Solid Waste Incinerator
CO_2	Carbon Dioxide
CEMS	Continuous Emissions Monitoring System
CPMS	Continuous Parameter Monitoring System
EPA	Environmental Protection Agency
GACT	Generally Available Control Technology
GHG	Greenhouse Gas
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HBCA	Health Based Compliance Alternative
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NCASI	National Council for Air and Stream Improvement
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHSM	Non-Hazardous Secondary Materials
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
NSR	New Source Review
PCWP	Plywood and Composite Wood Products
PM	Particulate Matter
PM_{10}	Particulate Matter with diameter less than 10 microns
$PM_{2.5}$	Particulate Matter with diameter less than 2.5 microns
P&P	Pulp and Paper
PSD	Prevention of Significant Deterioration
RTR	Risk and Technology Review

SO_2	Sulfur Dioxide
SSM	Startup, Shutdown, or Malfunction
VOC	Volatile Organic Compound

1.1 INTRODUCTION

URS Corporation (URS) performed a detailed analysis of the cumulative cost burden of air regulations that may potentially impact American Forest and Paper Association (AF&PA) member companies (e.g., wood products manufacturing facilities and pulp and/or paper manufacturing facilities). The purpose of the analysis was to determine a rough order of magnitude estimate of the cumulative cost burden that would be imposed on the Forest Products Industry if EPA implements various air regulatory changes that are currently under consideration. The air quality regulations evaluated would impact member company boilers and other process equipment. The cost estimates were compiled in a Microsoft Excel workbook; were based on published information or similar project costs; have been reviewed by member company representatives; and have been made available to the US EPA and others for review. Note that the Boiler MACT and CISWI costs are based on the March 2011 rules and information in EPA's March 2011 survey and emissions databases, but also take into account the promulgated solid waste definition rule, that determines whether secondary materials being burned in boilers are fuels or solid waste and whether boilers are regulated under Boiler MACT/GACT or CISWI. This document provides background information on the regulations included in the analysis and the methodologies used in the analysis.

1.2 CONCLUSIONS

The following presents a summary of the conclusions from the cost estimate analysis.

- Based on the analysis described in this report, air regulatory actions currently under consideration by EPA could result in a Forest Products Industry total estimated initial capital cost of $16.5 billion and an estimated annualized cost of $4.3 billion.
- The regulatory action with the most significant economic impact on facilities with industrial boilers will be the revised Industrial Boiler Maximum Achievable Control Technology (MACT) Standard, combined with the revised CISWI and solid waste definition rules. We have estimated costs using a primary scenario that assumes many secondary materials burned by forest products facilities are determined to be solid waste, and also under a secondary scenario that assumes many of these materials are determined to be fuels.
- The regulatory action with the most significant economic impact on wood products facilities is expected to be the revisions to the wood products MACT standard.
- The regulatory actions with the most significant economic impact on pulp and paper mills are considered to be discretionary actions, and not mandated actions, and include regulation of hydrogen sulfide (H_2S) as a hazardous air pollutant (HAP), regulation of recovery furnaces under the Clean Air Interstate Rule (CAIR) that currently regulates fossil fuel-fired utility boilers, and adding regulated compounds to the pulp and paper MACT standards.

1.3 REPORT ORGANIZATION

The remainder of this report is divided into the following sections:

Section 2.0: Air Regulations Evaluated

Section 3.0: Cost Methodology and Results

The table of contents contains a detailed listing of tables and appendices.

2.1 REGULATIONS EVALUATED

AF&PA member companies identified several air quality regulations that have the potential to significantly impact them economically. Of the regulations identified, some are regulations that EPA is required to promulgate or revise and some are regulations that EPA may decide to review, revise, or implement. Note that because the regulatory scheme for greenhouse gases (GHG) is uncertain, this analysis did not focus on the cost of GHG regulations, which is also expected to be significant for the industry.

Table 2-1 presents the potential air regulatory actions considered and the main regulated compounds impacted. AF&PA considers the following regulatory actions discretionary on the part of EPA:

- Revisiting the pulp and paper MACT standards outside of the required risk and technology review (RTR) requirements;
- Including industrial boilers and recovery furnaces in the Clean Air Interstate Rule (CAIR) replacement, now termed the Cross State Air Pollution Rule (CSAPR);
- Regulating H_2S as a HAP;
- Developing New Source Performance Standards (NSPS) for wood products manufacturing; and
- Revisions to the current Kraft Pulp Mill NSPS under 40 CFR 60, Subpart BB.

The other non-discretionary regulatory actions include:

- Boiler MACT re-promulgation (will result in significantly lower limits than the 2004 regulation that was vacated);
- Generally Achievable Control Technology (GACT) for boilers located at area sources of HAP;
- Regulation of boilers as commercial or industrial solid waste incinerators (CISWI) if certain materials are deemed waste and not fuel;
- Risk and Technology Review for Pulp and Paper MACT rules (to determine if additional HAP emissions controls are needed);
- Reviewing/lowering the National Ambient Air Quality Standard (NAAQS) for Nitrogen Oxides, new 1-hour standard (NO_x);
- Reviewing/lowering the NAAQS for Sulfur Dioxide, new 1-hour standard (SO_2);
- The Continuous Parameter Monitoring System (CPMS) rule specifying quality assurance procedures for CPMS required by NSPS and MACT standards;
- Full implementation of the NAAQS for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$);
- Revisions to the Plywood and Composite Wood Products (PCWP) MACT due to court decisions;

- Changes to the PCWP and Pulp and Paper MACT rules due to the SSM vacatur (sources are no longer exempt from compliance during periods of SSM);
- Reviewing/lowering the Ozone NAAQS and increased number of non-attainment areas; and
- Further regulation of sources under the Regional Haze rule to meet future progress targets.

Estimated regulatory costs are summarized in Appendix A and are presented by rule in Appendix B of this document.

2.2 REGULATORY TIMELINE

The air regulations were evaluated in order of expected effective date and efforts were made to avoid double counting regulatory impacts. For example, if a boiler installed acid gas controls under Boiler MACT for control of hydrogen chloride and other inorganic HAPs, the facility would presumably not have to install additional controls on the boiler as a result of future regulations impacting SO_2 emissions.

Table 2-2 presents the regulatory cost impact analysis by year, based on the expected timing. For rules where the majority of the sources are impacted upon the initial promulgation of the rule (e.g., Boiler MACT), estimated capital costs are phased three years prior to the compliance date and annual costs remain constant each year following the compliance date (the number of affected sources is assumed to remain relatively constant). For rules where sources are impacted over time (e.g., NSPS), annual operating costs increase over time as the number of affected units increases. Details on how the cost estimates were developed are presented in Section 3.

3.1 COST ESTIMATE METHODOLOGY

URS estimated air regulatory costs for three categories of forest products industry sources: industrial boilers, wood products industry sources (non-boilers), and pulp and paper industry sources (non-power boilers). The regulations considered in this analysis were assigned to one or more of these categories, as shown in Table 2-1, and in general are ordered by expected effective date.

The three key variables in the analysis were the cost of controls, the number of affected units, and the inter-relationship of the regulations. For each category and regulation, potential compliance or emissions control scenarios were determined based on the compounds expected to require control, and for each of these scenarios, compliance costs and numbers of units included in the scenario were estimated. Both a capital cost and an annual operating cost were determined, and the capital cost was annualized using a capital recovery factor to develop the total estimated annual cost for each scenario. The regulatory costs are driven by selection of the compliance method or control technology to achieve significant emission reductions rather than to meet any specific limit under a particular regulation.

Capital and operating costs estimates are not intended to represent a worst case analysis. Rather, they represent median costs for the various scenarios based on published reports, industry information on specific project costs, EPA reports or control device fact sheets, or actual BACT or BART analyses submitted to permitting agencies. A primary resource was the document "Evaluation of Air Pollution Control Costs for the Pulp and Paper Industry," prepared by National Economic Research Associates (NERA) in May 2003. Note that costs were not scaled from the date of the reference used to 2011 dollars as the intent was to develop an order of magnitude estimate for each control scenario.

Air emissions controls were assigned to the rule with the earliest effective date. For example, if a later rule requires the same controls (e.g., industrial boilers are covered by CAIR at a date following the implementation Boiler MACT), the control cost is not double counted. However, if a cost from an earlier rule does not occur, or if a rulemaking is delayed, later rules could then become more expensive than currently estimated. Summaries of the estimated costs for each regulatory action and each category are presented in Appendix A.

URS received the following estimates from the National Council for Air and Stream Improvement (NCASI) regarding the numbers of each type of forest products industry facility:

- **700** sawmills (approximately 221 of which are major sources of HAP),
- **300** wood products mills (approximately 170 of which are major sources),
- **300** converting plants (mostly area sources), and
- **379** pulp and paper mills (mostly major sources), including 100 Kraft, 8 semi chemical, 18 mechanical pulp, 5 sulfite, and 1 soda.

3.1.1 Boiler Category

The detailed cost estimates for the boiler category are presented in Appendix B. URS received the following information from NCASI regarding the number and types of boilers in the forest products industry (note that 301 of the 918 pulp and paper mill boilers are at the 100 Kraft mills):

916	pulp and paper mill boilers		
	83	coal	
	67	coal/wood	
	108	wood	
	658	oil/gas	(about half of these are major sources of HAP)
820	wood products mill boilers		
	600	wood	(100 major sources, 500 area sources)
	120	gas	(most area sources of HAP)
	100	oil	(most area sources of HAP)
200	boilers at converting plants		(probably all area sources)

The EPA collected information during Phase 1 of the Boiler MACT information collection request (ICR) on 455 boilers at facilities in NAICS 322xxx (pulp and paper and packaging) and 369 boilers in NAICS code 321xxx (wood products).

In the boiler category, all forest products industry boilers (not including pulp mill recovery boilers) will fall under Boiler MACT, Boiler GACT, or CISWI. URS identified the regulated compounds likely to require control, likely control options (sometimes by boiler fuel type), typical control costs, and estimated number of units affected for each rule. For the regulatory actions that may occur after these first three rules, we then estimated additional numbers of boilers that will also be affected, in an attempt to avoid double counting control costs. However, note that an individual unit might be represented more than one time in the table if it has to install two different types of controls for different regulated compounds (e.g., fabric filter for PM and carbon injection for mercury). Costs of the boiler rules were allocated to the wood products and pulp and paper sectors based on information about the numbers, types, and sizes of boilers in each category.

A detailed spreadsheet was developed to estimate costs for Boiler MACT, based on EPA's major source boiler inventory database table. Because the rule does not include emission limits for natural gas boilers, boilers less than 10 MMBtu/hr heat input, or limited use units, these units are not included in the cost analysis. Based on the information in the EPA emissions database on boiler size, fuel, existing controls, and emissions, we estimated costs of controls that would likely be necessary to comply with the Boiler MACT for coal, biomass, and liquid boilers. Note that EPA's March 2011 rule assumed that landfill gas boilers (formerly in the Gas 2 category) could comply with MACT using work practices. As some forest products boilers at major sources did not receive an ICR from EPA in 2008, we added information for those boilers to the detailed spreadsheet based on a database maintained by Fisher International and information from NCASI.

Information from various sources was used to determine a base capital cost for a 250 MMBtu/hr boiler for each PM, CO, and HCl control technology option and then scaled using an 0.6 power function based on the size of each boiler in the inventory. For example, the capital cost of a wet scrubber on a 100 MMBtu/hr boiler is calculated as the base cost times $(100/250)^{0.6}$. A fixed

cost of $1 million was assumed for installation of a carbon adsorption system for Hg and/or dioxin control, as these systems do not vary much in cost by boiler size. Base cost assumptions are presented below. Operating costs are based on EPA and vendor information.

Base Control Size, MMBtu	250
Fabric Filter Capital Cost	$7,000,000
Wet Scrubber Capital Cost	$8,000,000
WS/FF/ESP upgrade Capital Cost	$4,000,000
Carbon Injection for Hg/dioxin Capital Cost	$1,000,000
Combustion Improvements or Catalyst for CO Capital Cost	$3,000,000
Interest Rate	7 percent
Equipment life, yrs	15
Capital recovery factor	0.110
Activated Carbon rate, lb/mmacf	4
Activated Carbon cost, $/lb	$1.00
Wet scrubber annual operating cost, $/acfm	$10
FF annual operating cost	$200,000

For the Boiler MACT control costs, we assumed that if emissions information (either site-specific test data or EPA's baseline emission factors by boiler type and existing control) indicated the boiler would not meet the March 2011 limits, the unit would need MACT, which EPA says is a fabric filter (FF) plus carbon injection plus wet scrubber plus combustion improvements (or CO catalyst). In their boiler inventory table, EPA put the boiler pollution controls into categories. The categories are explained in greater detail in EPA's baseline emission factor memo, but basically are as follows: for PM control code, 1=FF, 2=EFB/ESP, 3=venturi scrubber, 4=wet scrubber, 5=multiclone, 6=none/mist eliminator/unknown. If a unit did not already have a FF or ESP and there was information that indicated the unit cannot meet the limit, we assumed a new FF. If the unit already had a FF or ESP and there was information that indicated the unit cannot meet the limit we assumed an upgrade to the existing control equipment. For HCl control code, 1=wet scrubber or spray dryer, 2=dry scrubber, 3=sorbent injection, 4=venturi scrubber, 5=none/dry PM only. To estimate control costs for HCl, if there was information that indicated the unit cannot meet the limit, we assumed either a scrubber upgrade or new scrubber depending on whether the unit currently had a scrubber. For Hg control code, 1=carbon injection, 2=FF plus sorbent injection or spray dryer, 3=FF only, 4=wet scrubber,

5=venturi scrubber, 6=none/multiclone/EFB/mist eliminator. For Hg and dioxin, if there was information that indicated the unit cannot meet the limit, we added carbon injection. For CO, if there was information that indicated the unit cannot meet the limit, then we assumed that capital would be necessary to either perform combustion/fuel feed improvements or other boiler improvement projects to reduce CO or install a CO catalyst.

CISWI rule costs were developed in much the same manner as the Boiler MACT costs, using EPA's CISWI database. Control costs for NOx were added if necessary, assuming a base cost for SNCR of $4 million.

We assumed that compliance with Boiler GACT will only require tune-ups. Note that many facilities may choose fuel switching as a compliance option; however, as the cost of fuel switching is highly dependent on site specific factors (e.g., whether the boiler can burn the alternate fuel, what upgrades must be made to the fuel supply system) and the price of fuel is likely to change over time due to factors like supply and demand, we did not attempt to quantify costs for fuel switching.

For each rule, a total annual cost is presented based on the sum of each line item under the rule and represents the first year of implementation of the rule (for some rules the annual operating cost will increase over time as more sources become subject to the rule, such as NSPS). The Boiler MACT and CISWI Rules account for the majority of the estimated cost in the boiler category and are expected to require significant additional control cost for the forest products industry. The total estimated annual cost of the boiler regulations examined is $1.3 billion. The majority of this cost impact will be on the pulp and paper category, primarily impacting Kraft mills (it is estimated that Kraft mills will bear around 70 percent of the pulp and paper category's cost, based on the allocation of boilers at Kraft mills versus other mills). We anticipate that the Kraft pulp mills would bear the majority of the Boiler MACT cost assigned to the pulp and paper category and that non-Kraft mills would bear the majority of the Boiler GACT cost assigned to facilities in the pulp and paper category.

3.1.2 Boiler Regulatory Cost Scenarios Evaluated for MACT and CISWI

URS assumed that the health based compliance alternative (HBCA) is no longer an option for Boiler MACT. However, the following table shows potential savings that could be realized if the HBCA is an option under Boiler MACT. Note that the analysis did not differentiate by fuel, so if manganese is the only metal that can be excluded from a TSM limit using HBCA, then coal and oil-fired boilers would not benefit from HBCA as much as a wood-fired boiler would, and the savings would be less for the industry as a whole.

Potential Cost Savings with HBCA under Boiler MACT

	Pulp and Paper		Wood Products	
	Capital Cost	**Annual Cost**	**Capital Cost**	**Annual Cost**
Assuming 50% of mills could comply with PM/metals and HCl using HBCA instead of add-on controls:	$830 million	$156 million	$226 million	$30 million
Assuming 90% of mills could comply with PM/metals and HCl using HBCA instead of add-on controls:	$1.5 billion	$282 million	$407 million	$54 million

URS examined two regulatory scenarios for Boiler MACT and CISWI. The Non-Hazardous Secondary Materials (NHSM) definition rule determines whether boilers are regulated under Boiler MACT or CISWI. If a boiler or other combustion unit burns a secondary material that is solid waste, it will be regulated under the CISWI rule. The current Boiler MACT database contains units that burn some types of secondary materials, and only a few forest products boilers are in the CISWI database. Even though EPA is contemplating guidance that indicates many materials traditionally burned as fuels can still be classified as fuels, the current rule language may result in many materials being classified as solid waste (e.g., wastewater treatment residuals, recycling process residuals, TDF, resinated wood, creosote treated wood/rail ties). URS evaluated the impacts of having these materials considered solid wastes and having 104 boilers burning these materials install controls to comply with the CISWI rule instead of the Boiler MACT. Under this scenario, we estimate that one third of the 500 forest products area source boilers and 85 wood products facilities burning sanderdust in dryers would also have to install controls to comply with the CISWI rule (the average per boiler control cost of the 104 additional boilers of $7.8 million is used for these estimates).

Scenario	Boiler MACT	CISWI Rule	Total Cost
Control Cost When Many NHSM are Wastes not Fuels	$3.7 Billion	$3.3 Billion	$7 Billion
Control Cost When Most NHSM are Fuels not Waste	$4.3 Billion	$470 Million	$4.8 Billion

If facilities were to stop burning NHSM and replace the fuels with natural gas, operating costs would increase instead of capital costs. Based on the number of mills known to burn NHSM and estimated amounts burned (based on 2005 NCASI survey and supplier estimates), the annual cost for forest products industry boilers to stop burning wastewater treatment residuals, recycling process residuals, TDF, resinated wood, and creosote treated wood/rail ties would be over $650 million.

Material	# Mills	# Boilers	2005 Amount (Tons)	% of Total Boiler Fuel Used	Cost to landfill and replace with natural gas [1]
Wastewater Treatment Residuals	57	68	1,340,000	1.8	$159,000,000
TDF	21	29	401,500	1.2	$68,582,000
Recycling Process Residuals [2]	11	14	172,200	0.3	$24,200,000
Rail ties [3]	12		550,000	0.10	$57,600,000
Resinated Wood		100+	2,500,000	73.5	$352,000,000
Total					**$661,382,000**

1 = TDF and Railroad ties costs only include fuel replacement, not landfilling
2 = This is likely to be an underestimate. There are more than 100 mills that recycle, but not all have on-site boilers
3 = This represents an estimate by a major supplier of rail ties used by the FPI in 2011

3.1.3 Wood Products Category

The detailed cost estimates for the wood products category are presented in Appendix B. Note that we have not included emissions controls for lumber kilns, although we have assumed that there will be some cost to implement the expected work practice requirements. We have assumed that the level of control for currently controlled wood products MACT sources will not change (e.g., EPA will not increase the required control efficiency from 90 percent to 95 percent). We have also assumed that backup controls will not be required as a result of the SSM vacatur.

Of the regulatory actions evaluated, the revisions to the PCWP MACT will pose the most significant cost burden on the wood products industry (non-boiler sources), as additional sources are expected to require control under the revised rule. The total estimated annual cost of the potential wood products air regulatory actions examined (excluding boiler regulations) is $230 million.

3.1.4 Pulp and Paper Category

The detailed cost estimates for the pulp and paper category are presented in Appendix B. Note again that we have attempted to avoid double counting in the cost analysis, but one facility might have control costs under different regulations. URS received the following information from NCASI regarding the number of existing recovery furnaces and lime kilns at pulp and paper mills:

53 Direct contact evaporator (DCE) recovery furnaces
108 Non-direct contact evaporator (NDCE) recovery furnaces
140 Lime kilns

The highest potential cost impacts for the pulp and paper industry (non-power boiler sources) are from regulatory actions that are not required to be implemented: regulating H_2S as a HAP, including recovery furnaces in CAIR, and making significant revisions to the pulp and paper MACT rules (e.g., adding regulated compounds).

The regulation of H_2S as a HAP is expected to cause significant regulatory burden as it would likely require H_2S emission reductions from wastewater treatment systems. This could require conversion of systems with aerated stabilization basins to activated sludge systems at a capital cost of approximately $35 million for each of 67 mills. Based on the items in a Sierra Club petition to add regulated compounds to the pulp and paper MACT standards, we have estimated control scenarios and control costs that amount to over $1 billion per year for the pulp and paper industry. The total estimated annual cost of the potential pulp and paper air regulatory actions examined is $1.9 billion.

3.1.5 Collateral Emissions or Energy Increases for Controls

The detailed cost estimates in Appendix B also present information on whether a collateral emissions or energy increase can be expected with implementation of a control technology.

Where a control is expected to significantly increase electricity or fuel consumption, or will convert CO to CO_2 (e.g., a catalyst installed on a boiler), we have estimated the CO_2 emissions increase in metric tons per year. The notes column in the detailed cost estimates included in Appendix B provides the assumptions used to estimate CO_2. CO_2 emissions from combustion of additional biomass are not estimated, as these emissions are considered carbon neutral. Increased electricity and fuel consumption due to implementation of certain control strategies will also lead to higher NO_x emissions, which would not be favorable in an ozone non-attainment area. An impact of reducing CO and THC emissions through combustion controls and fuel switching may be increases in NO_x emissions, but the impact would be dependent on the operating conditions at each boiler before and after the change.

3.2 POTENTIAL REGULATORY COSTS NOT CAPTURED IN THIS ANALYSIS

The forest products industry faces other non-Clean Air Act regulatory costs under the Clean Water Act and the Resource Conservation and Recovery Act. There are also significant costs expected to be incurred by any future GHG regulatory scheme. For example, electricity may become very expensive for facilities that buy power from coal-fired power plants and facilities that operate coal-fired boilers may be financially impacted if a carbon tax or cap and trade program is enacted. Renewable energy legislation is also expected to significantly increase the cost of biomass, the forest products industry's raw material. This analysis only captured costs that will potentially be incurred as a result of non-GHG air regulatory actions currently being considered by EPA. We were also unable to predict the impact of the Electric Utility MACT on fuel and operating costs (e.g., increased electricity cost due to increased utility control costs or increased natural gas cost due to increase in Utility conversions of coal-fired units to natural gas and decrease in industrial availability).

Note that originally, we had developed cost estimates for the impact of EPA rolling back NSR reform (e.g., reverting to the "actual to potential" PSD applicability test instead of the "baseline actual to projected actual" applicability test). However, recent information indicates that EPA does not intend to go forward with this action. We originally estimated a capital cost for industrial boilers of $308 million due to a large number of projects triggering PSD review that would not have under the NSR reform rule, with an estimated annual cost of $38.8 million. The estimated costs for pulp and paper mills were approximately $115 million in capital and $28 million in annual costs, and for wood products facilities were $101 million in capital and $16 million in annual costs.

Tables

Table 2-1. List of Air Regulations Evaluated and Compounds Regulated

		Boilers/Process Heaters at Wood Products and Pulp and Paper							Wood Products - srcs already controlled	Wood Products - uncontrolled srcs	Pulp and Paper - pulp mill srcs already controlled	Pulp and Paper - Paper Machines		Pulp and Paper - CCA mills		Pulp and Paper - Wastewater Treatment Systems		Pulp and Paper - BLOX		Pulp and Paper - Recovery Boilers/Lime Kilns								Pulp and Paper - Smelt Tanks				
Rule	Notes	PM/metals	Hg	NOx	SO2/acid gas	VOHAP/CO	Dioxin	GHG	VOC	VOC	VOC	VOC	TRS	VOC	TRS	VOC	TRS	VOC	TRS	PM/metals	NOx	SO2/acid gas	TRS	Hg	VOHAP/CO	dioxin	GHG	PM/metals	acid gas	TRS	Hg	VOHAP/CO
Boiler MACT	1	x	x		x	x	x																								
Boiler GACT	2	x	x			x																									
CISWI	3	x	x	x	x	x	x																								
CAIR for industrial boilers	4	x		x	x															x	x	x									
Regional Haze	5			x	x																x	x						x			
CO2 regulated	6							x																			x					
NOx NAAQS lowered	7			x					x												x										
SO2 NAAQS lowered	8				x																	x									
Ozone NAAQS lowered	9			x		x			x	x		x		x		x		x			x				x						x
PM2.5 NAAQS fully implemented	10	x		x	x				x											x	x	x						x			
SSM goes away under MACT	11	x	x		x	x			x		x									x								x			
NSR reform	*12*	*x*		*x*	*x*	*x*		*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*		*x*		*x*	*x*	*x*	*x*		*x*
PCWP MACT revisions	13									x																					
PCWP MACT residual risk	14								x	x																					
NSPS for wood products	20								PM/NOx?	PM/NOx?																					
H2S listed as HAP	15												x		x		x		x				x						x		
P&P MACT I revisions	16											x		x		x															
P&P MACT II revisions	17																	x		x		x		x	x	x		x	x		x	x
P&P MACT residual risk	18										x	x				x		x		x		x		x	x	x		x	x		x	x
NSPS BB revisions	19																		?	x	?	?	x		?			x		?		

Notes
1. Boilers covered by MACT would not be covered by GACT. Many boilers will need control upgrades under MACT.
2. Boilers covered by GACT will not be covered by MACT. Costs under GACT will likely be lower than costs to comply with MACT, since work practices are allowed for existing biomass and liquid (coal has Hg limit).
3. Boilers covered by CISWI will not be covered by MACT or GACT. This will affect boilers burning materials deemed to be waste.
4. CAIR rule may be revised to cover fossil fuel-fired industrial boilers >250 MMBtu, and this could possibly include recovery boilers.
5. Sources close to Class I areas may be required to control SO2/NOx/PM to improve Regional Haze.
6. Regulation of CO2 would require emissions and control analyses for projects resulting in emissions increases, a cap and trade program may result in required reductions. BACT may be fuel switching.
7. Lowering of NOx ambient standard could result in NOx controls where a major project requires NAAQS modeling. New 1-hour standard difficult to comply with. States using modeling for attainment designations.
8. Lowering of SO2 ambient standard could result in SO2 controls where a major project requires NAAQS modeling. New 1-hr standard difficult to comply with. States using modeling for attainment designations.
9. Further lowering of ozone NAAQS puts more sources in non-attainment areas and may have to do RACT or install LAER for projects.
10. Full implementation of PM2.5 NAAQS may result in additional controls if a project cannot demonstrate compliance (not much room between background and standard).
11. Sources subject to MACT may not be allowed control device downtime or venting allowance. Will need backup controls, better controls, or more frequent process shutdowns.
12. *Note that EPA has denied the petition for reconsideration of NSR reform at present, but if NSR reform were rolled back, more projects may trigger PSD review and BACT controls.*
13. More sources may require control at PCWP plants (expand oxidizers or add additional oxidizers or biofilters)
14. Residual risk review may result in lower emission limits or additional regulated sources.
15. If H2S is listed as a HAP, EPA would have to revisit pulp and paper MACT and add H2S emission standards/possible additional controls (e.g., WWTP).
16. Sierra Club has sued because some pollutants not required to be controlled, some unregulated sources can be traded for regulated sources, some sources can be overcontrolled instead of controlling a regulated source further.
17. Sierra Club has sued because some pollutants not required to be controlled, some unregulated sources can be traded for regulated sources, some sources can be overcontrolled instead of controlling a regulated source further.
18. Residual risk review may result in lower emission limits or additional regulated sources.
19. EPA conducting a review/possible update of NSPS BB.
20. Not sure what this regulation would include - maybe standards for new dryers.

Table 2-2. Forest Products Industry Regulatory Cost Timeline

Year -->	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Rule											
Boiler MACT				**$370,000,000**	**$925,000,000**	**$2,405,000,000**					
						$290,000,000	$290,000,000	$290,000,000	$290,000,000	$290,000,000	$290,000,000
				$700,000,000	$700,000,000	$700,000,000	$700,000,000	$700,000,000	$700,000,000	$700,000,000	$700,000,000
Boiler GACT			**$1,000,000**	**$2,500,000**	**$6,500,000**						
				$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000
			$109,795	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$9,000,000
CISWI				**$325,000,000**	**$812,500,000**	**$2,112,500,000**					
						$805,000,000	$805,000,000	$805,000,000	$805,000,000	$805,000,000	$805,000,000
				$1,160,000,000	$1,160,000,000	$1,160,000,000	$1,160,000,000	$1,160,000,000	$1,160,000,000	$1,160,000,000	$1,160,000,000
Ozone NAAQS lowered			**$62,000,000**	**$62,000,000**							
				$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
				$21,000,000	$21,000,000	$21,000,000	$21,000,000	$21,000,000	$21,000,000	$21,000,000	$21,000,000
NOx NAAQS lowered				**$620,500,000**							
					$142,000,000	$142,000,000	$142,000,000	$142,000,000	$142,000,000	$142,000,000	$142,000,000
				$68,127,565	$211,000,000	$211,000,000	$211,000,000	$211,000,000	$211,000,000	$211,000,000	$211,000,000
SO2 NAAQS lowered				**$140,000,000**							
					$28,000,000	$28,000,000	$28,000,000	$28,000,000	$28,000,000	$28,000,000	$28,000,000
				$15,371,247	$43,000,000	$43,000,000	$43,000,000	$43,000,000	$43,000,000	$43,000,000	$43,000,000
CPMS Rule											
(assume variable applicability					$60,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000
timing per proposed rule)					$60,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000	$120,000,000
CAIR for industrial boilers/				**$47,000,000**	**$117,500,000**	**$305,500,000**					
recovery boilers						$80,000,000	$80,000,000	$80,000,000	$80,000,000	$80,000,000	$80,000,000
				$5,160,347	$18,061,216	$46,443,126	$130,000,000	$130,000,000	$130,000,000	$130,000,000	$130,000,000
PM2.5 NAAQS fully					**$318,000,000**						
implemented						$42,000,000	$42,000,000	$42,000,000	$42,000,000	$42,000,000	$42,000,000
					$34,914,691	$77,000,000	$77,000,000	$77,000,000	$77,000,000	$77,000,000	$77,000,000
SSM goes away under			**$100,000,000**								
MACT				$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
			$10,979,462	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000
P&P MACT I				**$780,000,000**							
revisions/RTR					$360,000,000	$360,000,000	$360,000,000	$360,000,000	$360,000,000	$360,000,000	$360,000,000
				$85,639,807	$450,000,000	$450,000,000	$450,000,000	$450,000,000	$450,000,000	$450,000,000	$450,000,000
P&P MACT II				**$330,000,000**	**$825,000,000**	**$2,145,000,000**					
revisions/RTR					$300,000,000	$300,000,000	$300,000,000	$300,000,000	$300,000,000	$300,000,000	$300,000,000
				$36,232,226	$710,000,000	$710,000,000	$710,000,000	$710,000,000	$710,000,000	$710,000,000	$710,000,000
				$83,000,000	**$83,000,000**	**$83,000,000**	**$83,000,000**	**$83,000,000**	**$83,000,000**	**$83,000,000**	**$83,000,000**
NSPS Subpart BB update					$8,000,000	$16,000,000	$24,000,000	$32,000,000	$40,000,000	$48,000,000	$56,000,000
				$9,112,954	$18,000,000	$36,000,000	$54,000,000	$72,000,000	$90,000,000	$108,000,000	$126,000,000
							$270,000,000	**$675,000,000**	**$1,755,000,000**		
H2S listed as HAP								$180,000,000	$180,000,000	$180,000,000	$180,000,000
							$470,000,000	$470,000,000	$470,000,000	$470,000,000	$470,000,000
PCWP MACT					**$78,000,000**	**$195,000,000**	**$507,000,000**				
revisions/RTR							$100,000,000	$100,000,000	$100,000,000	$100,000,000	$100,000,000
					$8,563,981	$29,973,933	$180,000,000	$180,000,000	$180,000,000	$180,000,000	$180,000,000
						$28,000,000	**$28,000,000**	**$28,000,000**	**$28,000,000**	**$28,000,000**	**$28,000,000**
Wood Products NSPS							$4,000,000	$8,000,000	$12,000,000	$16,000,000	$20,000,000
						$3,074,249	$7,000,000	$14,000,000	$21,000,000	$28,000,000	$35,000,000
											$92,000,000
Regional Haze											
											$10,101,105
Initial Capital Cost	$0	$0	$160,000,000	$2,800,000,000	$3,200,000,000	$7,270,000,000	$950,000,000	$790,000,000	$1,870,000,000	$110,000,000	$200,000,000
Annual O&M Cost	$0	$0	$0	$80,000,000	$1,000,000,000	$2,200,000,000	$2,300,000,000	$2,500,000,000	$2,500,000,000	$2,500,000,000	$2,500,000,000
Total Annual Cost	$0	$0	$10,000,000	$2,200,000,000	$3,500,000,000	$3,600,000,000	$4,300,000,000	$4,400,000,000	$4,400,000,000	$4,400,000,000	$4,500,000,000

= Expected Final Rule Timing

Capital costs for rules with 3-year compliance windows (e.g., MACT) spread out assuming 10% in Year 1, 25% in Year 2, 65% in Year 3.

Appendix A
Cost Estimate Summaries

Combined Summary of Forest Products Industry Air Regulatory Cost Impacts
Updated 8/17/2011

Rule	Initial Capital Cost	Initial Annual Operating Cost	Total Annual Cost
Reopen Pulp and Paper MACTs	$4,080,000,000	$660,000,000	$1,200,000,000
CAIR for Industrial Boilers/ Recovery Furnaces	$470,000,000	$80,000,000	$130,000,000
Boiler MACT/CISWI/Boiler GACT	$7,000,000,000	$1,100,000,000	$1,900,000,000
H2S HAP listing	$2,700,000,000	$180,000,000	$470,000,000
Wood Products MACT revsions	$780,000,000	$100,000,000	$180,000,000
SSM revisions	$100,000,000	$3,000,000	$14,000,000
NAAQS revisions	$1,200,000,000	$49,000,000	$100,000,000
Other Rules	$180,000,000	$310,000,000	$410,000,000
Total	$16,500,000,000	$2,500,000,000	$4,400,000,000

Note that the initial capital cost and the initial annual operating cost represent the cost for the initial number of units/facilities subject to the rule. For some rules, the number of units subject will increase over time (e.g., NSPS).

Potential savings with HBCA under Boiler MACT

	Pulp and Paper		Wood Products	
	Capital	Annual	Capital	Annual
Assuming 50% of mills could comply with PM and HCl using HBCA:	$829,726,380	$156,451,238	$226,211,712	$29,727,589
Assuming 90% of mills could comply with PM and HCl using HBCA:	$1,493,507,483	$281,612,228	$407,181,082	$53,509,660

Note - the HBCA savings analysis does not differentiate between fuel. If a metals HBCA is not feasible for a coal or oil fired boiler because manganese is the only pollutant that can be evaluated and excluded from TSM, then the pool of boilers that would benefit from PM/metals HBCA would be smaller.

Costs of Clean Air Rules for the Forest Products Industry
Updated 8/17/2011
Organized by Rule:

Rule	Industrial Boilers - Initial Cost	Industrial Boilers - Initial Annual Operating Cost	Industrial Boilers - Total Annual Cost	Wood Products Sources - Initial Cost	Wood Products Sources - Initial Annual Operating Cost	Wood Products Sources - Total Annual Cost	Pulp and Paper Mills - Initial Cost	Pulp and Paper Mills - Initial Annual Operating Cost	Pulp and Paper Mills - Total Annual Cost	Industry Wide - Initial Cost	Industry Wide - Initial Annual Operating Cost	Industry Wide - Total Annual Cost
Boiler MACT	$3,700,000,000	$290,000,000	$700,000,000							$3,700,000,000	$290,000,000	$700,000,000
Boiler GACT	$10,000,000	$9,000,000	$9,000,000							$10,000,000	$9,000,000	$9,000,000
CISWI	$3,250,000,000	$805,000,000	$1,160,000,000							$3,250,000,000	$805,000,000	$1,160,000,000
CAIR for industrial boilers/ recovery boilers	$0	$0	$0				$470,000,000	$77,000,000	$130,000,000	$470,000,000	$80,000,000	$130,000,000
Ozone NAAQS lowered	$0	$0	$0	$32,000,000	$5,000,000	$8,500,000	$92,000,000	$1,500,000	$12,000,000	$124,000,000	$7,000,000	$21,000,000
NOx NAAQS lowered	$607,000,000	$141,900,000	$209,000,000	$2,500,000	$0	$300,000	$11,000,000	$0	$1,500,000	$620,500,000	$142,000,000	$211,000,000
SO2 NAAQS lowered	$100,000,000	$20,000,000	$31,000,000				$40,000,000	$7,500,000	$12,000,000	$140,000,000	$28,000,000	$43,000,000
CPMS Rule	$0	$69,000,000	$69,000,000	$0	$35,000,000	$35,000,000	$0	$12,000,000	$12,000,000	$0	$120,000,000	$120,000,000
PM2.5 NAAQS fully implemented	$180,000,000	$26,000,000	$45,000,000	$18,000,000	$0	$2,200,000	$120,000,000	$16,000,000	$30,000,000	$318,000,000	$42,000,000	$77,000,000
Regional Haze	$60,000,000	$7,500,000	$14,000,000				$32,000,000	$3,600,000	$7,100,000	$92,000,000	$11,000,000	$21,000,000
PCWP MACT revisions/RTR				$780,000,000	$95,000,000	$180,000,000				$780,000,000	$100,000,000	$180,000,000
SSM goes away under MACT				$0	$0	$0	$100,000,000	$3,000,000	$14,000,000	$100,000,000	$3,000,000	$14,000,000
Wood Products NSPS				$28,000,000	$4,000,000	$7,000,000				$28,000,000	$4,000,000	$7,000,000
P&P MACT I revisions/RTR							$780,000,000	$360,000,000	$450,000,000	$780,000,000	$360,000,000	$450,000,000
P&P MACT II revisions/RTR							$3,300,000,000	$300,000,000	$710,000,000	$3,300,000,000	$300,000,000	$710,000,000
NSPS Subpart BB update							$83,000,000	$8,000,000	$18,000,000	$83,000,000	$8,000,000	$18,000,000
H2S listed as HAP							$2,700,000,000	$180,000,000	$470,000,000	$2,700,000,000	$180,000,000	$470,000,000
Total Regulatory Cost	$7,900,000,000	$1,370,000,000	$2,200,000,000	$860,000,000	$140,000,000	$230,000,000	$7,700,000,000	$1,000,000,000	$1,900,000,000	$16,500,000,000	$2,500,000,000	$4,300,000,000

Cost by Sector With Boiler Rule Costs Allocated to Wood Products and Pulp and Paper by Rule

Rule	Wood Products Initial Cost	Wood Products Initial Annual Operating Cost	Wood Products Total Annual Cost	Pulp and Paper Initial Cost	Pulp and Paper Initial Annual Operating Cost	Pulp and Paper Total Annual Cost
Boiler MACT	$900,000,000	$50,000,000	$140,000,000	$2,800,000,000	$240,000,000	$550,000,000
Boiler GACT	$10,000,000	$7,000,000	$7,000,000	$1,000,000	$1,000,000	$1,000,000
CISWI	$2,049,000,000	$615,000,000	$840,000,000	$1,200,000,000	$190,000,000	$320,000,000
CAIR for industrial boilers/ recovery boilers	$0	$0	$0	$470,000,000	$80,000,000	$130,000,000
Ozone NAAQS lowered	$32,200,000	$5,000,000	$9,000,000	$95,000,000	$2,000,000	$12,000,000
NOx NAAQS lowered	$32,800,000	$7,000,000	$10,000,000	$590,000,000	$140,000,000	$200,000,000
SO2 NAAQS lowered	$5,000,000	$1,000,000	$2,000,000	$139,000,000	$26,000,000	$41,000,000
CPMS Rule	$0	$69,000,000	$69,000,000	$0	$46,000,000	$46,000,000
PM2.5 NAAQS fully implemented	$26,400,000	$2,000,000	$4,500,000	$284,000,000	$40,000,000	$71,000,000
Regional Haze	$3,000,000	$400,000	$700,000	$89,000,000	$11,000,000	$21,000,000
PCWP MACT revisions/RTR	$780,000,000	$90,000,000	$180,000,000	$0	$0	$0
SSM goes away under MACT	$0	$0	$0	$100,000,000	$3,000,000	$14,000,000
Wood Products NSPS	$28,000,000	$4,000,000	$7,000,000	$0	$0	$0
P&P MACT I revisions/RTR	$0	$0	$0	$780,000,000	$360,000,000	$450,000,000
P&P MACT II revisions/RTR	$0	$0	$0	$3,340,000,000	$300,000,000	$710,000,000
NSPS Subpart BB update	$0	$0	$0	$83,000,000	$8,000,000	$18,000,000
H2S listed as HAP	$0	$0	$0	$2,650,000,000	$180,000,000	$470,000,000
Total Regulatory Cost	$3,800,000,000	$860,000,000	$1,270,000,000	$12,600,000,000	$1,600,000,000	$3,000,000,000

Note that the initial capital cost and the initial annual operating cost represent the cost for the initial number of units/facilities subject to the rule. For some rules, the number of units subject will increase over time (e.g., NSPS). For costs over time, see the timeline table.

List of Possible Controls for Mills

	Control Technology	Unit Costs ($ M)
1.	Scrubber (acid gases, H_2S and SO_2)	$4 to 8
2.	ESPs or ESP upgrade (metals and PM)	$3 to $5
3.	Carbon injection (mercury)	$1
4.	Oxidation catalysts (CO)	$1-2
5.	SNCR or SCR (NOx)	$4 to $8
6.	Low NOx burner or combustion controls	$0.5 to $1
7.	Steam stripper/incinerator (VOCs/organic HAPs)	$2
8.	Fabric Filter (mercury/metals/PM)	$7
9.	Fuel switching (numerous pollutants)	$1-2
10.	Ducting sources to existing controls (HAPs)	$2
11.	Redesigned wastewater treatment (H_2S)	$35
12.	Redesign Recovery Furnaces (organic HAPs)	$20
	TOTAL COST PER MILL*	$25 M to $100+ M

*depends on existing controls, type of mill/equipment and number of units affected

Summary of Benefits and Disbenefits of Various Control Strategies

Control Strategy	Pollutants Reduced	Collateral Increases/Impacts/Disbenefits
Scrubber on combustion unit	SO2, acid gases, Hg	Installation of a scrubber on a combustion unit would likely require a bigger fan to pull the gases through the scrubber (increased electricity) and would increase water usage at the facility. Increased water usage is counter to the sustainability goals of many facilities. Many river systems have recently experienced record low flow due to extended drought periods, along with increasing competition from various upstream/downstream uses (municipalities, recreation, power generation, aquatic habitat). Depending on the water source, additional fresh water usage may not be feasible. If caustic is required, this is a high operating cost for facilities where a source of caustic is not available onsite. Scrubbers also produce wastewater and sludge that must be disposed of.
Reduce biomass burning to reduce CO	CO	The forest products industry often produces steam and energy using renewable energy sources, such as biomass. Many facilities generate their own fuel from onsite operations such as log debarking, sawing, and sanding. Replacing biomass fuel with fossil fuel in an effort to reduce CO emissions would be contrary to our national goal to reduce our dependence on fossil fuels and increase generation of power through combustion of renewable fuels. Biomass is considered a "carbon neutral" fuel under many greenhouse gas reporting protocols because it is formed by removing carbon from the atmosphere. Therefore, replacing biomass fuels with fossil fuels would increase the concentration of CO2 in the atmosphere. Disposal of biomass generated during the production process at forest products facilities becomes problematic, consuming enormous amounts of space and eventually releasing methane during the natural decay process, a greenhouse gas 21 times more potent than CO2 released during combustion.
Install catalyst to reduce CO emissions	CO	Catalyst oxidizes CO to CO2, so it increases greenhouse gas emissions instead of reducing emissions per the national goal.
Oxidizer on wood products or pulp and paper unit	VOC/organic HAP	Installing an oxidizer increases auxiliary fuel usage (e.g, natural gas) and creates emissions of NOx, CO, and CO2 when the fuel is burned and the VOC compounds are oxidized. In areas where ground level ozone formation is NOx limited (e.g., Southeast US), this is contrary to the goal of reducing ground level ozone formation. This approach also is contrary to the goal of reducing fossil fuel usage.
Steam stripper	VOC/organic HAP, TRS	Installing a steam stripper to remove VOC/HAP/TRS from condensates prior to sending them to WWTP results in collateral emissions increases from burning these gases (NOx if ammonia is present and SO2 from burning TRS). The steam stripper operation also increases energy usage. If a mill is steam limited, a package boiler may have to be purchased to provide the steam.
Eliminate use of condensates in pulp mill/causticizing and use fresh water	VOC/organic HAP, TRS	Eliminating recycle of condensates within the mill will increase a mill's usage of fresh water, which may or may not be feasible, depending on the water supply. Many river systems have recently experienced record low flow due to extended drought periods, along with increasing competition from various upstream/downstream uses (municipalities, recreation, power generation, aquatic habitat). Energy use will also increase if the fresh water must be heated.
Increase the percent reduction required under PCWP MACT from 90% to 95%	VOC/organic HAP	Increasing the percent reduction required under PCWP MACT would have the effect of eliminating the use of biofilters and RCOs. Facilities would have to convert RCOs to RTOs or replace biofilters with RTOs in order to achieve a higher percent reduction on a consistent basis. Increase in use of RTOs would increase natural gas usage and emissions of NOx, CO, and CO2. In areas where ground level ozone formation is NOx limited (e.g., Southeast US), this is contrary to the goal of reducing ground level ozone formation. This approach also is contrary to the goal of reducing fossil fuel usage.
Install biofilters to achieve HAP reductions at currently uncontrolled PCWP sources.	VOC/organic HAP	Biofilters typically require a large footprint, especially when dealing with large air flows. The incoming air may need to be treated to adjust for moisture, temperature, or entrained particulate. Biofilters may not be feasible in cold climates. If there is a problem with the biological media, it takes time to get back to well-controlled conditions. If a faciltiy is shutdown for an extended period due to market conditions or other reasons, biofilter microbes will require replacement. Biofilters do not control all VOC compounds. Biofilters convert VOC and organic HAP into CO2.
SCR on boiler	NOx	Installation of SCR on industrial boilers is generally not cost effective. SCR has very high initial and operating costs. Reheating of the flue gas may be required for SCR to work properly, which increases energy usage. A large volume of both catalyst and reagent (ammonia) are required. There are safety issues associated with storage and handling of ammonia, and ammonia slip can occur, which can impact plume visibility. The spent catalyst must be disposed of following replacement, creating a solid waste. If adequate particulate controls are not in place prior to the SCR, catalyst poisoning can also occur, and catalyst poisoning/fouling exacerbates the ammonia slip issue. The catalyst also oxidizes SO2 to SO3 (leading to sulfate formation, potentially impacting visibility) and CO to CO2.

Appendix B
Cost Estimates by Category and Regulatory Action

Costs of Clean Air Rules for the Forest Products Industry

Industrial Boilers at Forest Products Facilities

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
Boiler MACT	HCl	Scrubber (coal)	$ 8,479,228	65		$ 551,149,820	$ 930,974	$ 60,513,288	$ 1,500,000	$ 97,500,000	$ 158,013,288	$ 4,861,947	water		Based on Boiler MACT database, boilers burning "traditional fuels."	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	HCl	Scrubber (wood)	$ -	0		$ -	$ -	$ -	$ 1,000,000	$ -	$ -	#DIV/0!	water		Based on Boiler MACT database, boilers burning "traditional fuels."	2003 NERA study scrubber cost for capital cost; URS BACT estimates for operating cost.
	HCl	Scrubber (gas2)	$ -	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	water		Based on Boiler MACT database.	2003 NERA study scrubber cost for capital cost; URS BACT estimates for operating cost.
	HCl	Scrubber (oil)	$ 6,896,710	54		$ 372,422,340	$ 757,222	$ 40,889,971	$ 1,000,000	$ 54,000,000	$ 94,889,971	$ 3,514,443	water		Based on Boiler MACT database, boilers burning "traditional fuels."	2003 NERA study scrubber cost for capital cost; URS BACT estimates for operating cost.
	PM/metals	Upgrade existing controls or add FF (wood)	$ 4,441,848	215		$ 954,997,320	$ 487,691	$ 104,853,572	$ 77,000	$ 16,555,000	$ 121,408,572	$ 1,129,382			Based on Boiler MACT database, boilers burning "traditional fuels."	Combination of URS engineering estimate and NERA study info for capital cost, NERA study for operating cost.
	PM/metals	Upgrade existing controls or add FF (coal)	$ 5,601,456	45		$ 252,065,520	$ 615,010	$ 27,675,439	$ 194,000	$ 8,730,000	$ 36,405,439	$ 1,618,020			Based on Boiler MACT database, boilers burning "traditional fuels."	Combination of URS engineering estimate and NERA study info for capital cost, NERA study for operating cost.
	PM/metals	Upgrade existing controls or add FF (oil)	$ 5,994,297	59		$ 353,663,523	$ 658,142	$ 38,830,354	$ 300,000	$ 17,700,000	$ 56,530,354	$ 1,916,283			Based on Boiler MACT database, boilers burning "traditional fuels."	Combination of URS engineering estimate and NERA study info for capital cost, NERA study for operating cost.
	PM/metals	Add FF (gas2)	$ -	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			Based on Boiler MACT database.	Combination of URS engineering estimate and NERA study info for capital cost, NERA study for operating cost.
Expected timing: re-proposal Oct 2011, final Apr 2012	Mercury/ dioxin	Carbon injection (coal)	$ 1,000,000	98		$ 98,000,000	$ 109,795	$ 10,759,873	$ 420,000	$ 41,160,000	$ 51,919,873	$ 1,059,589			Based on Boiler MACT database, boilers burning "traditional fuels." Assumes particulate control device already in place following carbon injection site.	URS engineering estimate confirmed by vendor
	Mercury/ dioxin	Carbon injection (wood)	$ 1,000,000	253		$ 253,000,000	$ 109,795	$ 27,778,040	$ 211,000	$ 53,383,000	$ 81,161,040	$ 641,589			Based on Boiler MACT database, boilers burning "traditional fuels." Assumes particulate control device already in place following carbon injection site.	URS engineering estimate confirmed by vendor
	Mercury/ dioxin	Carbon injection (gas2)	$ -	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			Based on Boiler MACT database.	URS engineering estimate confirmed by vendor
	Mercury/ dioxin	Carbon injection (oil)	$ 1,000,000	55		$ 55,000,000	$ 109,795	$ 6,038,704	$ 28,000	$ 1,540,000	$ 7,578,704	$ 275,589			Based on Boiler MACT database, boilers burning "traditional fuels." Assumes particulate control device already in place following carbon injection site.	URS engineering estimate confirmed by vendor
	CO	CO catalyst or combustion improvements (coal)	$ 3,008,120	45		$ 135,365,400	$ 330,275	$ 14,862,393	$ -	$ -	$ 14,862,393	$ 660,551	CO2		Based on Boiler MACT database, boilers burning "traditional fuels."	vendor quoted 0.5 to $1MM just for catalyst, est. $1MM to install
	CO	CO catalyst or combustion improvements (wood)	$ 2,341,248	214		$ 501,026,978	$ 257,056	$ 55,010,069	$ -	$ -	$ 55,010,069	$ 514,113	CO2		Based on Boiler MACT database, boilers burning "traditional fuels."	vendor quoted 0.5 to $1MM just for catalyst, est. $1MM to install
	CO	CO Catalyst - Gas2 (landfill gas)	$ -	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	CO2			vendor quoted 0.5 to $1MM just for catalyst, est. $1MM to install
	CO	CO catalyst or combustion improvements (oil)	$ 2,616,873	57		$ 149,161,761	$ 287,319	$ 16,377,160	$ -	$ -	$ 16,377,160	$ 574,637	CO2	4,782	Based on Boiler MACT database, boilers burning "traditional fuels." CO2 emissions assume avg 250 MMBtu/hr, 8700 hr/yr, AP-42 CO oil/gas avg 0.06 lb/MMBtu, 90 percent conversion of CO to CO2.	vendor quoted 0.5 to $1MM just for catalyst, est. $1MM to install
	All	Energy audit	$ 75,000	442		$ 33,150,000	$ 75,000	$ 33,150,000								
						$ 3,709,002,662		$ 436,738,863		$ 290,568,000	$ 694,156,863				note - cost per facility assumes 2 boilers per facility	

Costs of Clean Air Rules for the Forest Products Industry

Industrial Boilers at Forest Products Facilities

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
Boiler GACT	PM/metals	Fabric Filter	$ 500,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			No PM limits for wood or oil in proposed rule. Only 2 coal boilers at area sources known.	EPA GACT cost spreadsheets, median type cost
	Mercury	Carbon injection following FF	$ 1,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			No Hg limits for wood or oil in proposed rule. Only 2 coal boilers at area sources known.	URS engineering estimate for capital cost; assume half of MACT operating cost
	CO/POM	Tune-up	$ 2,219	1200		$ 2,662,800		$ -	$ 2,219	$ 2,662,800	$ 2,662,800	$ 4,438			Assumes all units need tuneup.	EPA cost estimate
	CO/POM	Energy audit	$ 5,000	1200		$ 6,000,000		$ -	$ 5,000	$ 6,000,000	$ 6,000,000	$ 10,000			Assumes needed by all units and utilities will no longer be able to offer for free; assumes required annually.	URS engineering estimate for simple audit
	CO/POM	Combustion controls (wood)	$ 500,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	may increase NOx		No controls because final rule had no CO limits for existing biomass boilers	URS engineering estimate/client costs
Timing: Final Rule March 2011	CO/POM	LBMS	$ 20,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			No controls because final rule had no CO limits for existing biomass boilers	EPA cost estimate
								$ -								
						$ 8,662,800		$ -		$ 8,662,800	$ 8,662,800				note - cost per facility assumes 2 boilers per facility	
CISWI	SO2/acid gas	Scrubber	$ 12,414,444	39		$ 484,163,333	$ 1,363,039	$ 53,158,531	$ 1,500,000	$ 58,500,000	$ 111,658,531	$ 2,863,039	water			2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	PM/metals/ dioxin	Fabric Filter	$ 6,701,895	74		$ 495,940,248	$ 735,832	$ 54,451,573	$ 194,000	$ 14,356,000	$ 68,807,573	$ 929,832				Combination of URS engineering estimate and NERA study info.
	Mercury	Carbon injection	$ 1,000,000	112		$ 112,000,000	$ 109,795	$ 12,296,998	$ 420,000	$ 47,040,000	$ 59,336,998	$ 529,795			Assumes boilers burning secondary materials such as sludge, paper recycling residuals, TDF, crossties, are regulated under CISWI, not Boiler MACT	Vendor for capital cost and assumed coal boiler operating cost
	NOx	SNCR	$ 2,610,540	50		$ 130,527,013	$ 286,623	$ 14,331,164	$ 1,200,000	$ 60,000,000	$ 74,331,164	$ -				URS engineering estimate; annual cost is primarily reagent cost
Expected timing: re-proposal Oct 2011, final Apr 2012	NOx	SCR	$ 8,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	ammonia			Published cost estimates range from $4MM to $12MM; operating cost from NERA
	CO	CO catalyst	$ 3,445,537	23		$ 79,247,343	$ 378,301	$ 8,700,932	$ -	$ -	$ 8,700,932	$ 378,301	CO2	19,295		vendor quoted 0.5 to $1MM just for catalyst, est. $1MM to install
	Area source boiler controls		$ 7,800,000	165		$ 1,287,000,000	$ 856,398	$ 141,305,682	$ 2,500,000	$ 412,500,000	$ 553,805,682	$ 3,356,398	CO2		assumes 1/3 of area source boilers burn secondary materials	based on average forest products boiler CISWI control cost
	Sanderdust dryers controls		$ 7,800,000	85		$ 663,000,000	$ 856,398	$ 72,793,836	$ 2,500,000	$ 212,500,000	$ 285,293,836	$ 3,356,398	CO2		assumes 85 facilities have dryers burning resinated wood	based on average forest products boiler CISWI control cost
						$ -	$ -	$ -			$ -					
						$ 3,251,877,937		$ 357,038,718		$ 804,896,000	$ 1,161,934,718				note - cost per facility assumes 1 boiler per facility	
NOx NAAQS	NOx	Combustion controls	$ 500,000	85		$ 42,500,000	$ 54,897	$ 4,666,272	$ -	$ -	$ 4,666,272	$ 54,897			Assumes liquid/gas-fired boilers in or close to NAA will need burner retrofits.	URS engineering estimate/client costs
New 1-hour standard	NOx	SNCR	$ 4,000,000	115		$ 460,000,000	$ 439,178	$ 50,505,527	$ 1,200,000	$ 138,000,000	$ 188,505,527	$ 1,639,178			Assumes facilities with solid fuel boilers that are projected to be in NAA will need an SCR.	URS engineering estimate for capital cost; NERA for operating cost
Final Jan 2010, designations 2012, implementation 2013	NOx	SCR	$ 8,000,000	13		$ 104,000,000	$ 878,357	$ 11,418,641	$ 301,000	$ 3,913,000	$ 15,331,641	$ 1,179,357	ammonia		Assumes facilities with solid fuel boilers that are close to projected NAA will need SNCR	Published cost estimates range from $4MM to $12MM; operating cost from NERA
						$ 606,500,000		$ 66,590,440		$ 141,913,000	$ 208,503,440				note - cost per facility assumes 1 boiler per facility	
Ozone NAAQS	NOx	Combustion controls	$ 500,000			$ -	$ -	$ -	$ -	$ -	$ -	$ -				URS engineering estimate/client costs
August 2011 for possible new lower standard, designations 2012, implementation 2014	NOx	SNCR	$ 4,000,000			$ -	$ -	$ -	$ -	$ -	$ -	$ -			Addressed under BMACT and NOx NAAQS	URS engineering estimate for capital cost; NERA for operating cost
	NOx	SCR	$ 8,000,000			$ -	$ -	$ -	$ -	$ -	$ -	$ -	ammonia			Published cost estimates range from $4MM to $12MM; operating cost from NERA
More NA Areas	NOx/VOC	More complex permitting/ permitting for more sources	$ 40,000	80		$ 3,200,000	$ 4,392	$ 351,343		$ -	$ 351,343	$ 4,392			The permitting process will become more complex for facilities in NAA. If NAA become Serious, more facilities will be Title V (50 tpy).	
						$ 3,200,000		$ 351,343		$ -	$ 351,343				note - cost per facility assumes 1 boiler per facility	

Costs of Clean Air Rules for the Forest Products Industry

Industrial Boilers at Forest Products Facilities

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
SO2 NAAQS	SO2	Scrubber	$ 8,000,000	13		$ 104,000,000	$ 878,357	$ 11,418,641	$ 1,500,000	$ 19,500,000	$ 30,918,641	$ 4,756,714	water		Remaining coal fired boilers not projected to need scrubbers under Boiler MACT.	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
New 1-hour standard final 2010, designations 2012, implementation 2013	SO2	Low sulfur fuel/ fuel switch		0		$ -	$ -	$ -		$ -	$ -	$ -			Any boiler burning higher sulfur fuels will likely have been captured in BMACT/CISWI.	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
						$ 104,000,000		$ 11,418,641		$ 19,500,000	$ 30,918,641					
CAIR/CSAPR for industrial boilers	SO2	Wet Scrubber	$ 8,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	water		Covered above	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	PM	ESP	$ 5,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	electricity	0	Covered above	2003 NERA study capital and operating cost for new ESP
	NOx	combustion controls	$ 500,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			Covered above	URS engineering estimate/client costs
	NOx	SNCR	$ 4,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -			Covered above	URS engineering estimate for capital cost; NERA for operating cost
EPA working on CAIR replacement 3 - proposal and final 2012, implement 2015	NOx	SCR	$ 8,000,000	0		$ -	$ -	$ -	$ -	$ -	$ -	$ -	ammonia		Covered above	Published cost estimates range from $4MM to $12MM; operating cost from NERA
						$ -		$ -		$ -	$ -				note - cost per facility assumes 2 boilers per facility	
Continuous Parametric Monitoring System Rule		Shutdown to QA		600		$ -	$ -	$ -	$ 100,000	$ 60,000,000	$ 60,000,000	$ 100,000			Shutdown 4 times/yr at $25k per (have put cost for 300 wood products mills and 100 kraft mills on the other tab - these would be 600 more boiler MACT facilities)	Industry comments on proposed rule; we have not included capital costs for redundant sensors.
in new MACT rules		Effort required to comply		600		$ -	$ -	$ -	$ 15,000	$ 9,000,000	$ 9,000,000	$ 15,000			One facility's estimate of additional manpower required	Industry comments on proposed rule
						$ -		$ -		$ 69,000,000	$ 69,000,000					
PM2.5 NAAQS fully implemented	PM2.5	ESP/FF upgrade	$ 3,000,000	5		$ 15,000,000	$ 329,384	$ 1,646,919	$ 65,000	$ 325,000	$ 1,971,919	$ 394,384		1,690	Assumes only a few boilers did not achieve low enough PM emissions under MACT or CISWI and need further control to meet PM2.5 NAAQS. CO2 increase calculated using 500 MWh electricity increase/yr/unit*DOE US avg 0.676 MT CO2/MWh.	2003 NERA study
	PM2.5	WESP	$ 10,000,000	10		$ 100,000,000	$ 1,097,946	$ 10,979,462	$ 1,800,000	$ 18,000,000	$ 28,979,462	$ 2,897,946	water		A few boilers may need WESP for H2SO4 or other condensible control.	URS 2008 cost estimate
	NOx	SNCR	$ 4,000,000	5		$ 20,000,000	$ 439,178	$ 2,195,892	$ 1,200,000	$ 6,000,000	$ 8,195,892	$ 1,639,178			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls to reduce nitrate formation.	URS engineering estimate for capital cost; NERA for operating cost
2011	NOx	SCR	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 301,000	$ 1,505,000	$ 5,896,785	$ 1,179,357	ammonia		Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls to reduce nitrate formation.	Published cost estimates range from $4MM to $12MM; operating cost from NERA
	NOx	Combustion controls	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls to reduce nitrate formation.	URS engineering estimate/client costs
	SO2	Scrubber	$ 8,000,000	0		$ -	$ 878,357	$ -	$ 1,500,000	$ -	$ -		water		Any boiler burning higher sulfur fuels will likely have been captured in the regs above.	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	SO2	Low sulfur fuel		0		$ -	$ -	$ -		$ -	$ -				Any boiler burning higher sulfur fuels will likely have been captured in the regs above.	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
						$ 177,500,000		$ 19,488,546		$ 25,830,000	$ 45,318,546				note - cost per facility assumes 1 boiler per facility	

Costs of Clean Air Rules for the Forest Products Industry

Industrial Boilers at Forest Products Facilities

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Proba-bility	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
Regional Haze	SO2	Scrubber	$ 8,000,000	0		$ -	$ 878,357	$ -	$ 1,500,000	$ -	$ -		water		Any boiler burning higher sulfur fuels will likely have been captured in the regs above.	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	SO2	Low sulfur fuel		0		$ -	$ -	$ -		$ -	$ -				Any boiler burning higher sulfur fuels will likely have been captured in the regs above.	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
	PM	ESP	$ 5,000,000	0		$ -	$ 548,973	$ -	$ 77,000	$ -	$ -		electricity	0	Probably adequate PM reductions in rules above	2003 NERA study ESP cost
	NOx	SNCR	$ 4,000,000	5		$ 20,000,000	$ 439,178	$ 2,195,892	$ 1,200,000	$ 6,000,000	$ 8,195,892	$ 1,639,178			Assumes small number of boilers that didn't get caught in regulation above now have to install controls for regional haze reductions	URS engineering estimate for capital cost; NERA for operating cost
BART -additional control to meet milestones following 2018	NOx	SCR	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 301,000	$ 1,505,000	$ 5,896,785	$ 1,179,357	ammonia		Assumes small number of boilers that didn't get caught in regulation above now have to install controls for regional haze reductions	Published cost estimates range from $4MM to $12MM; operating cost from NERA
						$ 60,000,000		$ 6,587,677		$ 7,505,000	$ 14,092,677				note - cost per facility assumes 1 boiler per facility	
Total Regulatory Cost						$ 7,920,743,399		$ 898,214,228		$ 1,367,874,800	$ 2,232,939,028			25,767		

Capital Recovery Factor Calcuation for Annualized Costs:

Interest Rate	Equipment Life, yrs	CRF
7.00%	15	0.110

Cost per facility for MACT, GACT, CAIR assumes 2 boilers per facility

Costs of Clean Air Rules for the Forest Products Industry

Wood Products Plant Sources (Other Than Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
Ozone NAAQS	NOx	LNB - direct fired units	$ 500,000	10		$ 5,000,000	$ 54,897	$ 548,973	$ -	$ -	$ 548,973	$ 54,897			Assumes units have projects where they need NOx reductions in ozone NAA and have to install controls on a direct fired unit.	Based on info from various industry projects
						$ -	$ -	$ -		$ -	$ -					
August 2011 for possible new lower standard, designations 2012, implementation 2014	VOC	Oxidizer	$ 5,000,000	5		$ 25,000,000	$ 548,973	$ 2,744,866	$ 1,000,000	$ 5,000,000	$ 7,744,866	$ 1,548,973	energy, NOx	9,225	Assumes a new catalytic oxidizer will have to be installed to control additional sources at 5 plants in ozone NA areas. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	2008 facility cost for new RCO; operating cost assumes $10/scfm x 100kscfm (EPA fact sheet says $6-20/scfm)
More NA Areas	NOx/VOC	More complex permitting/ permitting for more sources	$ 40,000	50		$ 2,000,000	$ 4,392	$ 219,589	$ -	$ -	$ 219,589	$ 4,392			The permitting process will become more complex for facilities in NAA. If NAA become Serious, more facilities will be Title V (50 tpy).	Conservative estimate of what permitting and LAER might cost (e.g., equipment upgrades)
						$ 32,000,000		$ 3,513,428		$ 5,000,000	$ 8,513,428					
NOx NAAQS *New 1-hour standard Final Jan 2010, designations 2012, impl. 2013*	NOx	LNB - direct fired units	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes units have projects where they can't model compliance with lower NOx NAAQS and have to install better burners on a direct fired unit.	Based on info from various industry projects
						$ -	$ -	$ -								
						$ 2,500,000		$ 274,487		$ -	$ 274,487					
Continuous Parametric Monitoring System Rule		Shutdown to QA		300		$ -	$ -	$ -	$ 100,000	$ 30,000,000	$ 30,000,000	$ 100,000			Shutdown 4 times/yr at $25k per	Industry comments on proposed rule
As part of MACT/ NSPS revs		Effort required to comply		300		$ -	$ -	$ -	$ 15,000	$ 4,500,000	$ 4,500,000	$ 15,000			One facility's estimate of additional manpower required	Industry comments on proposed rule
						$ -		$ -		$ 34,500,000	$ 34,500,000					
PM2.5 NAAQS fully implemented	PM2.5	ESP upgrade	$ 3,000,000	5		$ 15,000,000	$ 329,384	$ 1,646,919	$ 65,000	$ 325,000	$ 1,971,919	$ 394,384	electricity	338	Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to upgrade an ESP or WESP to comply. CO2 increase calculated using 100 MWh additional electricity/yr/unit*DOE US avg 0.676 MT CO2/MWh.	NERA study
October 2011	NOx	LNB - direct fired units	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls on a direct fired unit to improve combustion.	Based on info from various industry projects
						$ 17,500,000		$ 1,921,406		$ 325,000	$ 2,246,406					
PCWP MACT redo and remand	VOHAP	Catalytic Oxidizer	$ 5,000,000	85		$ 425,000,000	$ 548,973	$ 46,662,715	$ 1,000,000	$ 85,000,000	$ 131,662,715	$	energy, NOx	156,833	Assumes a new catalytic oxidizer will have to be installed to control additional sources, 1 for half of existing major wood products facilities. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	2008 facility cost for new RCO; operating cost assumes $10/scfm x 100kscfm (EPA fact sheet says $6-20/scfm)
minimal residual risk costs	VOHAP	Biofilter	$ 3,000,000	85		$ 255,000,000	$ 329,384	$ 27,997,629	$ 100,000	$ 8,500,000	1,548,973 $ 36,497,629	$ 429,384			Assumes a new biofilter will have to be installed to control additional sources, 1 for half of existing major wood products facilities	2008 facility cost for new press biofilter; vendor estimate of operating cost $1/acfm and 100,000 acfm assumed
ICR 2011, rule late 2013	VOHAP	Enclosure	$ 500,000	170		$ 85,000,000	$ 54,897	$ 9,332,543	$ 5,000	$ 850,000	$ 10,182,543	$ 59,897			Assumes enclosures will be needed on sources not currently controlled - includes avg of 1 new enclosure per plant, assumes 170 major sources	enclosure cost from MACT BID; EPA fact sheet for O&M cost
Sierra Club petition to redo MACTs	VOHAP	Work practices - lumber kilns	$ 55,000	225		$ 12,375,000	$ 6,039	$ 1,358,708	$ 1,300	$ 292,500	$ 1,651,208	$ 7,339			Assumes 225 major source lumber mills will have to implement and document work practices on lumber kilns (e.g., work practice implementation plan, inline moisture meters for lumber)	Industry provided cost to install inline moisture meters; annual operating cost assumes $25/hr*52 hrs/yr
	VOHAP	Work practices - wood products mills	$ 10,000	170		$ 1,700,000	$ 1,098	$ 186,651	$ 1,300	$ 221,000	$ 407,651	$ 2,398			Assumes 170 major source wood products plants will have to implement work practices on units without add-on VOC/HAP controls. Initial cost includes work practice implementation plan, training operators, setting up recordkeeping system.	Engineering estimate of initial cost; annual operating cost assumes $25/hr*52 hrs/yr
Note - assumes no lumber kiln control, existing control requirement remains 90% instead of increasing and forcing conversion of RCO to RTO								$ -		$ -						
						$ 779,075,000		$ 85,538,247		$ 94,863,500	$ 180,401,747					

Costs of Clean Air Rules for the Forest Products Industry

Wood Products Plant Sources (Other Than Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
SSM exemption changes	HAP	Shutdown process instead of vent	$ -	0		$ -	$ -	$ -	$ -	$ -	$ -				Plan maintenance outages. Shutdown equipment if malfunction. Plants will likely not change current operating practices during SSM events.	No costs assumed here
Assumes RDCME will remain and operation will not be significantly impacted	HAP	Duct to backup control	$ 2,000,000	0		$ -	$ 219,589	$ -	$ -	$ -	$ -				Assumes it is possible to duct sources to a backup control device (this is cost of ductwork only, not control). Not a likely option.	Based on info from various industry projects
	HAP	Install backup control	$ 5,000,000	0		$ -	$ 548,973	$ -	$ -	$ -	$ -		energy, NOx	0	Cost of installing a backup control device so process does not have to shut down when primary control is offline. Not a likely option.	2008 facility cost for new oxidizer
										$ -						
						$ -		$ -		$ -	$ -					
Wood Products NSPS *Reviewing need for NSPS for plywood/wood products, scope uncertain Possible rule 2013*	PM	WESP	$ 5,000,000	5		$ 25,000,000	$ 548,973	$ 2,744,866	$ 800,000	$ 4,000,000	$ 6,744,866	$ 1,348,973	water	1,690	Assumes mills will do projects that increase capacity and will have to install additional PM controls due to NSPS (e.g., need WESP to control condensible PM not captured by oxidizer). CO2 increase calculated using 500 MWh additional electricity/yr/unit*DOE US avg 0.676 MT CO2/MWh.	2008 facility cost for WESP; operating cost based on EPA fact sheet $8/scfm x 100kscfm
	NOx	LNB - direct fired units	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes mills will do projects that increase capacity and will have to install additional NOx controls due to NSPS	Based on info from various industry projects
						$ -	$ -	$ -		$ -	$ -					
						$ 27,500,000		$ 3,019,352		$ 4,000,000	$ 7,019,352					
Total Regulatory Cost						$ 858,575,000		$ 94,266,920		$ 138,688,500	$232,955,420			158,861		

Capital Recovery Factor Calcuation for Annualized Costs:

Interest Rate	Equipment Life, yrs	CRF
7.00%	15	0.110

Costs of Clean Air Rules for the Forest Products Industry

Wood Products Plant Sources (Other Than Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
Example Cost Analysis just for control of dry dryers under PCWP MACT (estimated 40 dry dryers at 31 plants):																
		Catalytic Oxidizer	$ 5,000,000	16		$ 80,000,000	$ 548,973	$ 8,783,570	$ 350,000	$ 5,600,000	$ 14,383,570	$ 898,973	energy, NOx	29,522	Assumes a new catalytic oxidizer will have to be installed to control dry dryers and 16 of 31 facilities will choose this control option. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	2008 facility cost for new RCO; operating cost assumes $10/scfm x 35kscfm (EPA fact sheet says $6-20/scfm)
		Biofilter	$ 3,000,000	15		$ 45,000,000	$ 329,384	$ 4,940,758	$ 35,000	$ 525,000	$ 5,465,758	$ 364,384			Assumes a new biofilter will have to be installed to control dry dryers and 15 of 31 facilities will choose this control option	2008 facility cost for new press biofilter; vendor estimate of operating cost $1/acfm and 35,000 acfm assumed
		Enclosure	$ 500,000	31		$ 15,500,000	$ 54,897	$ 1,701,817	$ 5,000	$ 155,000	$ 1,856,817	$ 59,897			New enclosure will be needed at each plant with dry dryers (est. 31 plants)	enclosure cost from MACT BID; EPA fact sheet for O&M cost
						$ 140,500,000		$ 15,426,145		$ 6,280,000	$ 21,706,145					

Costs of Clean Air Rules for the Forest Products Industry

Pulp and Paper Sources (Other Than Power Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Proba-bility	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
P&P Cluster MACT I / III redo	VOHAP	Steam strippers	$ 2,000,000	25		$ 50,000,000	$ 219,589	$ 5,489,731	$ 2,400,000	$ 60,000,000	$ 65,489,731	$ 2,619,589	energy	1,872,023	Assumes additional facilities will have to install steam strippers for additional HAP reductions. CO2 increase assumes coal/oil mix fired to make steam: avg 86.07 kg CO2/MMBtu (EPA GHG rule EF)*100 MMBtu/hr*8700 hr/yr/unit.	MACT BID for initial capital cost; operating cost assumes 100 MMBtu/hr heat input required to make steam, fuel cost $3/MMBtu
Minimal residual risk costs - 2011	VOHAP	Paper machine controls	$ 3,400,000	200		$ 680,000,000	$ 373,302	$ 74,660,345	$ 1,500,000	$ 300,000,000	$ 374,660,345	$ 3,746,603	energy	369,019	Assumes facilities will have to do some sort of emissions control on paper machines, could range from additives changes to add on controls. Avg 2 machines at 100 kraft mills (but there may be additional units at other types of facilities not captured here). CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	BE&K Capital cost for incineration controls on wet end/industry RTO BACT cost estimate.
Sierra Club petition to redo MACTs	VOHAP	Pipe additional sources to combustion	$ 2,000,000	25		$ 50,000,000	$ 219,589	$ 5,489,731	$ -	$ -	$ 5,489,731	$ 219,589			If CCA goes away or if additional sources require control (e.g., semi-chem washers). Assumes there is already an incineration device that can handle flow.	Cost of ductwork for a mill's HVLC control project.
						$ 780,000,000		$ 85,639,807		$ 360,000,000	$ 445,639,807					
P&P MACT II redo	HCl	Scrubber	$ 8,000,000	120		$ 960,000,000	$ 878,357	$ 105,402,840	$ 1,500,000	$ 180,000,000	$ 285,402,840	$ 3,805,371	water		Assumes HCl scrubbers will be needed on 75% of existing recovery furnaces	2003 NERA study boiler scrubber cost
Minimal residual risk costs - 2011	Organic HAP	BLOX control - RTO/scrubber	$ 8,000,000	27	50%	$ 108,000,000	$ 878,357	$ 23,715,639	$ 500,000	$ 13,500,000	$ 37,215,639	$ 2,756,714	energy/ water	49,818	Assumes facilities with DCE boilers will control BLOX on half of the boilers instead of converting DCE to NDCE. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	Industry project installation cost; operating cost assumes $20/scfm x 25kscfm (EPA presents large range in fact sheets)
	Organic HAP	Recovery Boiler-DCE to NDCE conversion	$ 20,000,000	26	50%	$ 260,000,000	$ 2,195,892	$ 57,093,205	$ -	$ -	$ 57,093,205	$ 4,391,785			Assumes facilities will convert DCE recovery boilers to NDCE boilers to meet new limits for half of the DCE units. Alternate of controlling BLOX would be less expensive if allowed.	Recent company cost (MACT BID estimated $18MM)
Note - assumes that installing RTO is not a control option to reduce lime kiln organic HAP emissions due to cost	Organic HAP	Organic HAP limits for lime kilns	$ 2,000,000	40		$ 80,000,000	$ 219,589	$ 8,783,570	$ 1,200,000	$ 48,000,000	$ 56,783,570	$ 1,419,589	fresh water, heat loss	1,497,618	Assumes 80 mills discontinue use of condensates in mud washing/caustic area, half of bleached mills install new stripper to handle these condensates. CO2 increase assumes coal/oil mix fired to make steam for stripper: avg 86.07 kg CO2/MMBtu (EPA GHG rule EF)*50 MMBtu/hr*8700 hr/yr/unit.	Assumes stripper capital cost is same as above stripper, operating cost is half.
	Organic HAP	Organic HAP limits for lime kilns	$ 75,000	40		$ 3,000,000	$ 8,235	$ 329,384	$ -	$ -	$ 329,384	$ 8,235			Assumes 80 mills discontinue use of condensates in mud washing/caustic area, half send condensates to WWTP or another controlled part of the Mill.	Piping cost for similar project in 2009 at a mill.
	Organic HAP	Organic HAP limits for semi-chem mills	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785		$ -	$ 4,391,785	$ 878,357	energy	9,225	Assumes RTO necessary on chem recovery units without current control; small number of semi-chem mills. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	
RTR proposal 2011; final 2012	Hg/dioxin	Carbon Injection plus fabric filter - lime kilns	$ 8,000,000	108		$ 864,000,000	$ 878,357	$ 94,862,556	$ 222,000	$ 23,976,000	$ 118,838,556	$ 1,584,514			Assumes fabric filter controls will be needed to meet new standards for Hg or dioxin on 75% of existing 140 LKs	URS engineering/ 2003 NERA study
	Hg/dioxin	Carbon Injection plus fabric filter - recovery boilers	$ 8,000,000	121		$ 968,000,000	$ 878,357	$ 106,281,197	$ 222,000	$ 26,862,000	$ 133,143,197	$ 1,775,243			Assumes fabric filter controls will be needed to meet new standards for Hg or dioxin on 75% of existing 161 RBs	URS engineering/ 2003 NERA study
Sierra Club petition to redo MACTs	PM/HAP	Smelt Tank Scrubber	$ 500,000	81		$ 40,500,000	$ 54,897	$ 4,446,682	$ 75,000	$ 6,075,000	$ 10,521,682	$ 210,434	water		Assumes smelt tank control upgrades will be needed on half of smelt tanks to meet lower PM standards or because bubble no longer allowed; could also duct to recovery furnace. Would control organic HAP also.	Facility cost estimates for installed cost; various BART and BACT cost estimates for annual operating cost.
	PM/HAP	PM limits for sulfite and semi-chem mills	$ 3,000,000	7		$ 21,000,000	$ 329,384	$ 2,305,687	$ 65,000	$ 455,000	$ 2,760,687	$ 394,384			Assumes 7 of the facilities burning liquor will need control upgrades.	Set cost equal to that of ESP upgrade.
	PM/HAP	RB ESP upgrades	$ 3,000,000			$ -	$ 329,384	$ -	$ 65,000	$ -	$ -	$ -	energy	0	Probably would not need to upgrade existing PM controls if FF/CI needed for Hg/dioxin reductions following ESP	2003 NERA study
	PM/HAP	LK ESP upgrades	$ 3,000,000			$ -	$ 329,384	$ -	$ 65,000	$ -	$ -	$ -	energy	0	Probably would not need to upgrade existing PM controls if FF/CI needed for Hg/dioxin reductions following ESP	2003 NERA study
						$ 3,344,500,000		$ 407,612,544		$ 298,868,000	$ 706,480,544					

Costs of Clean Air Rules for the Forest Products Industry

Pulp and Paper Sources (Other Than Power Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Probability	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
NSPS Subpart BB	NOx	LNB/Combustion Controls	$ 500,000	10		$ 5,000,000	$ 54,897	$ 548,973	$ -	$ -	$ 548,973	$ 54,897			Assumes mills do projects that trigger NSPS and NOx control	Based on info from various industry projects
	NOx	SCR	$ 8,000,000	1		$ 8,000,000	$ 878,357	$ 878,357	$ 301,000	$ 301,000	$ 1,179,357	$ 1,179,357	ammonia		Assumes mills do projects that trigger NSPS and significant NOx control (and that SCR is feasible)	Published cost estimates range from $4MM to $12MM
Part of integrated P&P rulemaking (2011?)	SO2	Scrubber	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 1,500,000	$ 7,500,000	$ 11,891,785	$ 2,378,357	water		Assumes mills do projects that trigger NSPS and SO2 control	2003 NERA study
	SO2	Low sulfur fuel		5		$ -	$ -	$ -		$ -	$ -	$ -			Assumes mills do projects that trigger NSPS and SO2 control	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
	PM	ESP upgrade	$ 3,000,000	10		$ 30,000,000	$ 329,384	$ 3,293,839	$ 65,000	$ 650,000	$ 3,943,839	$ 394,384		3,380	Assumes mills do projects that trigger NSPS and additional PM control. CO2 increase calculated using 500 MWh electricity increase/yr/unit*DOE US avg 0.676 MT CO2/MWh.	2003 NERA study
						$ 83,000,000		$ 9,112,954		$ 8,451,000	$ 17,563,954					
SSM exemption changes	HAP	Shutdown process instead of venting during APCD malfunction or maintenance		100		$ -	$ -	$ -		$ -	$ -	$ -			Facilities would have to plan not to operate during APCD maintenance instead of counting the time toward a venting allowance. Process would have to shut down during any prolonged APCD malfunction.	A cost of lost production could be assigned here, but has not been estimated for this exercise.
Changes in mill operation to account for loss of compliance exemption during SSM	HAP	Duct to backup control	$ 2,000,000	10		$ 20,000,000	$ 219,589	$ 2,195,892	$ -	$ -	$ 2,195,892	$ 219,589			Assumes it is possible to duct sources to an existing backup control device (this is cost of ductwork only, not control)	Cost of ductwork for a mill's HVLC project.
Assumes venting and APCD excursion allowances do not go away in Subparts S and MM.	HAP	Install backup control (e.g., RTO/ scrubber for HVLC)	$ 8,000,000	10		$ 80,000,000	$ 878,357	$ 8,783,570	$ 300,000	$ 3,000,000	$ 11,783,570	$ 1,178,357	energy, NOx	18,451	Cost of installing a backup control device so process does not have to shut down when primary control is offline. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	2006 facility cost for new RTO/scrubber; operating cost conservatively est using $20/scfm x 15kscfm
						$ -	$ -	$ -		$ -	$ -					
						$ 100,000,000		$ 10,979,462		$ 3,000,000	$ 13,979,462					
Continuous Parametric Monitoring System Rule		Shutdown to QA		100		$ -		$ -	$ 100,000	$ 10,000,000	$ 10,000,000	$ 100,000			Shutdown 4 times/yr at $25k per	Industry comments on proposed rule
As part of MACT/ NSPS revs		Effort required to comply		100		$ -		$ -	$ 15,000	$ 1,500,000	$ 1,500,000	$ 15,000			One facility's estimate of additional manpower required	Industry comments on proposed rule
						$ -		$ -		$ 11,500,000	$ 11,500,000					
Ozone NAAQS	NOx	Combustion controls	$ 500,000	50		$ 25,000,000	$ 54,897	$ 2,744,866	$ -	$ -	$ 2,744,866	$ 54,897			Assumes RF/LK need combustion controls as a result of need for NOx reductions in NAA	Based on info from various industry projects
	NOx	SCR	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 301,000	$ 1,505,000	$ 5,896,785	$ 1,179,357	ammonia		Assumes units need combustion controls as a result of need for more NOx reductions in NAA (and that SCR is feasible)	Published cost estimates range from $4MM to $12MM
August 2011 for possible new lower standard, designations 2012, implementation 2014	VOC	Oxidizer	$ 5,000,000	5		$ 25,000,000	$ 548,973	$ 2,744,866		$ -	$ 2,744,866	$ 548,973	energy, NOx	9,225	May need additional VOC control in areas where VOC controls ozone and not NOx. CO2 increase calculated using 4 MMBtu/hr natural gas*8700 hr/yr*53.02 kg CO2/MMBtu (EPA GHG rule EF).	2008 facility cost for new oxidizer
More NA areas	NOx/VOC	More complex permitting/ permitting for more sources	$ 40,000	50		$ 2,000,000	$ 4,392	$ 219,589	$ -	$ -	$ 219,589	$ 4,392			The permitting process will become more complex for facilities in NAA. If NAA become Serious, more facilities will be Title V (50 tpy).	Conservative estimate of what permitting and LAER might cost (e.g., equipment upgrades)
						$ 92,000,000		$ 10,101,105		$ 1,505,000	$ 11,606,105					
CAIR Replacement	SO2	Wet Scrubber	$ 8,000,000	50		$ 400,000,000	$ 878,357	$ 43,917,850	$ 1,500,000	$ 75,000,000	$ 118,917,850	$ 2,378,357	water		Assumes recovery boilers covered by CAIR and need SO2 controls	2003 NERA study
	PM	ESP upgrade	$ 3,000,000	5		$ 15,000,000	$ 329,384	$ 1,646,919	$ 65,000	$ 325,000	$ 1,971,919	$ 394,384	energy	1,690	Assumes recovery boilers covered by CAIR and need better PM controls. CO2 increase calculated using 500 MWh electricity increase/yr/unit*DOE US avg 0.676 MT CO2/MWh.	2003 NERA study
	NOx	Combustion controls	$ 500,000	25		$ 12,500,000	$ 54,897	$ 1,372,433	$ -	$ -	$ 1,372,433	$ 54,897			Assumes recovery boilers covered by CAIR and need minimum NOx controls (units not caught under ozone NA)	Based on info from various industry projects
EPA working on CAIR replacement 3 - proposal and final 2012, implement 2015	NOx	SCR	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 301,000	$ 1,505,000	$ 5,896,785	$ 1,179,357	ammonia		Assumes recovery boilers covered by CAIR and need high level of NOx control (and that SCR is actually feasible)	Published cost estimates range from $4MM to $12MM
						$ 467,500,000		$ 51,328,987		$ 76,830,000	$ 128,158,987					

Costs of Clean Air Rules for the Forest Products Industry

Pulp and Paper Sources (Other Than Power Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Proba-bility	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
NOx NAAQS	NOx	LNB/Combustion Controls	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes units have projects where they can't model compliance with lower NOx NAAQS and have to install combustion controls	Based on info from various industry projects
New 1-hour standard proposed June 2009; Final Jan 2010, designations 2012	NOx	SCR	$ 8,000,000	1		$ 8,000,000	$ 878,357	$ 878,357	$ 301,000	$ 301,000	$ 1,179,357	$ 1,179,357	ammonia		Assumes units have projects where they can't model compliance with lower NOx NAAQS and have to install significant NOx control (and SCR is feasible)	Published cost estimates range from $4MM to $12MM
						$ 10,500,000		$ 1,152,844		$ 301,000	$ 1,453,844					
SO2 NAAQS	SO2	Scrubber	$ 8,000,000	5		$ 40,000,000	$ 878,357	$ 4,391,785	$ 1,500,000	$ 7,500,000	$ 11,891,785	$ 2,378,357	water		Assumes units have projects where they can't model compliance with lower SO2 NAAQS and have to install scrubber	2003 NERA study
New 1-hour standard final 2010, designations 2012, implementation 2013	SO2	Low sulfur fuel		10		$ -	$ -	$ -		$ -	$ -	$ -			Assumes units have projects where they can't model compliance with lower SO2 NAAQS and have to switch to lower S fuel	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
						$ 40,000,000		$ 4,391,785		$ 7,500,000	$ 11,891,785					
PM2.5 NAAQS fully implemented	PM2.5	ESP upgrade	$ 3,000,000	5		$ 15,000,000	$ 329,384	$ 1,646,919	$ 65,000	$ 325,000	$ 1,971,919	$ 394,384	energy	1,690	Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to upgrade an ESP on RB or LK to comply. CO2 increase calculated using 500 MWh electricity increase/yr/unit*DOE US avg 0.676 MT CO2/MWh.	2003 NERA study
October 2011	NOx	SCR	$ 8,000,000	1		$ 8,000,000	$ 878,357	$ 878,357	$ 301,000	$ 301,000	$ 1,179,357	$ 1,179,357			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls to reduce nitrate formation (and that SCR is feasible).	Published cost estimates range from $4MM to $12MM
	NOx	LNB/Combustion Controls	$ 500,000	5		$ 2,500,000	$ 54,897	$ 274,487	$ -	$ -	$ 274,487	$ 54,897			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install NOx controls to reduce nitrate formation.	Based on info from various industry projects
	SO2	Scrubber	$ 8,000,000	10		$ 80,000,000	$ 878,357	$ 8,783,570	$ 1,500,000	$ 15,000,000	$ 23,783,570	$ 2,378,357	water		Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to install SO2 controls to reduce sulfate formation (would also reduce PM).	2003 NERA study
	SO2	Low sulfur fuel	$ 2,000,000	5		$ 10,000,000	$ 219,589	$ 1,097,946		$ -	$ 1,097,946	$ 219,589			Assumes units have projects where they can't model compliance with PM2.5 NAAQS and have to use lower sulfur fuels to reduce sulfate formation.	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
						$ 115,500,000		$ 12,681,279		$ 15,626,000	$ 28,307,279					

Costs of Clean Air Rules for the Forest Products Industry

Pulp and Paper Sources (Other Than Power Boilers)

Rule/Timing	Pollutant	Control	Initial Investment per Unit	Number of Units Upgraded/ Additional Units Affected	% Proba-bility	Total Cost (initial investment)	Annualized Capital Cost per Unit	Total Annualized Capital Cost	Typical Annual Operating Cost per Unit	Total Annualized Operating Cost	Total Annualized Cost	Cost Per Facility	Collateral Emissions/ Energy Increases	Estimated CO2 increases, metric tons	Notes	Cost Notes
H2S listed as HAP	H2S	Scrubber	$ 4,000,000	50		$ 200,000,000	$ 439,178	$ 21,958,925	$ 750,000	$ 37,500,000	$ 59,458,925	$ 1,189,178	water		Install/upgrade scrubbers to control H2S emissions	Assume cost is half of boiler scrubber
Sierra Club letter sent 3/09	H2S	Duct additional sources to control	$ 2,000,000	50		$ 100,000,000	$ 219,589	$ 10,979,462	$ -	$ -	$ 10,979,462	$ 219,589	SO2 from combustion		Assumes this will pick up additional sources of H2S that are not currently controlled and will require ducting to existing control device/boiler	Cost of ductwork for a mill's HVLC project.
	H2S	Tall Oil System H2S limits - scrubber upgrade	$ 200,000	30		$ 6,000,000	$ 21,959	$ 658,768	$ -	$ -	$ 658,768	$ 21,959			Assumes that tall oil systems at 30 mills will need H2S reduction that can be accomplished by upgrading the scrubber. Worst case cost, not captured here, would be routing to NCG system.	Cost of mill's tall oil scrubber system upgrade.
	H2S	Discontinue use of condensates as water at uncontrolled sources	$ -	10		$ -	$ -	$ -	$ -	$ -	$ -	$ -	incr fresh water use, heat loss		H2S reductions can be achieved by eliminating use of condensates and replacing with fresh water at processes that are not currently controlled. Condensates would either be re-routed or stripped.	No additional cost, assume captured under LK organic HAP limits above
	H2S	WWTP upgrades	$ 35,000,000	67		$ 2,345,000,000	$ 3,842,812	$ 257,468,395	$ 2,170,000	$ 145,390,000	$ 402,858,395	$ 6,012,812	trucking sludge to landfill		Assume 67 kraft mills with ASB systems convert to activated sludge or UNOX. Mills could also be required to enclose and control WWTP, but those costs are not presented here at this time.	URS engineering estimate for converting 25MGD system from ASB to activated sludge; cost expected to be similar for UNOX. Operating cost is disposing of 155,000 tons sludge at $14/ton (actual mill cost)
	H2S	Steam stripper	$ 2,000,000	0		$ -	$ 219,589	$ -	$ 1,200,000	$ -	$ -		energy	0	Install or reconfigure stripper to preferentially strip TRS compounds from condensates (set affected units to zero to make sure not double counting from MACT I above)	MACT BID for initial capital cost; operating cost assumes 50 MMBtu/hr heat input required to make steam, fuel cost $3/MMBtu
						$ 2,651,000,000		$ 291,065,550		$ 182,890,000	$ 473,955,550					
Regional Haze	SO2	Scrubber	$ 8,000,000	2		$ 16,000,000	$ 878,357	$ 1,756,714	$ 1,500,000	$ 3,000,000	$ 4,756,714	$ 2,378,357			Assumes units that didn't have to put on scrubbers for rules above now need a scrubber	2003 NERA study scrubber cost for capital cost; combination of NERA study and URS BACT estimates for operating cost.
	SO2	Low sulfur fuel		2		$ -	$ -	$ -		$ -	$ -	$ - water			Assumes units that didn't have to switch above now need to	A switch in fuel type may require capital to modify boiler or controls, but depending on fuel costs at the time, could result in savings.
	PM	ESP	$ 5,000,000			$ -	$ 548,973	$ -	$ 77,000	$ -	$ -		electricity	0	adequate PM reductions probably achieved under previous rules	2003 NERA study ESP cost
BART -additional control to meet milestones following 2018	NOx	SCR	$ 8,000,000	2		$ 16,000,000	$ 878,357	$ 1,756,714	$ 301,000	$ 602,000	$ 2,358,714	$ 1,179,357			Assumes units not caught up above now need significant NOx reductions (and that SCR is feasible)	Published cost estimates range from $4MM to $12MM; operating cost from NERA
						$ 32,000,000		$ 3,513,428		$ 3,602,000	$ 7,115,428					
Total Regulatory Cost						$ 7,716,000,000		$ 887,579,746		$ 970,073,000	$ 1,857,652,746			3,832,139		

Capital Recovery Factor Calcuation for Annualized Costs:

Interest Rate	Equipment Life, yrs	CRF
7.00%	15	0.110

ammonia

Appendix C
Detailed Boiler MACT Cost Spreadsheets

FacilityID	UnitID	Unit Count	ajor Source	State	lassificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
ALAbitibiBowaterCP	Power Boiler #1	1	Major Source	AL	Boiler	300	300	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALAbitibiBowaterCP	Power Boiler #2	1	Major Source	AL	Boiler	300	300	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALAbitibiBowaterCP	Power Boiler #3	1	Major Source	AL	Boiler	300	300	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALAbitibiBowaterCP	Power Boiler #4	1	Major Source	AL	Boiler	300	300	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALBoiseWhitePaperJackson	102-0001-Z013	1	Major Source	AL	Boiler	435	435	8400	1964	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	0	96.23577545	3.764224548	0	96.23578	Biomass	no	1	0.039	0.112902	-0.0739	65.46%	0.035	0.000291	0.034709		4.6E-06	6.22E-07	3.98E-06
ALBrewton	SB-1	1	Major Source	AL	Boiler	68	68	8700	1974	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.333333	-0.29433	88.30%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALChapmanForestProducts	EU 001 Wood Fired Boiler	1	Major Source	AL	Boiler	86.25	86.25	8760	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.298518	-0.25952	86.94%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALChapmanForestProducts	EU 002 Wood Fired Boiler	1	Major Source	AL	Boiler	47.38	47.38	8760	1993	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.230285	-0.19129	83.06%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALChapmanForestProducts	EU 003 Wood Fired Boiler	1	Major Source	AL	Boiler	47.38	47.38	8760	1967	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.27293	-0.23393	85.71%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGeorgiaPacificNaheola	Z015 - CB1	1	Major Source	AL	Boiler	425	425	8760	1958	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	38.6035845	61.3964155	0	0	61.39642	Biomass	combo	1	0.039	N/A	N/A	#VALUE!	0.035	0.008305	0.026695		4.6E-06	2.14E-06	2.46E-06
ALGeorgiaPacificNaheola	Z016 - CB2	1	Major Source	AL	Boiler	318	318	8760	1962	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	56.1006735	43.89932654	0	0	56.10067	Coal	combo	1	0.039	N/A	N/A	#VALUE!	0.035	0.01883	0.01617		4.6E-06	1.43E-06	3.17E-06
ALGeorgiaPacificNaheola	Z017 - PB3	1	Major Source	AL	Boiler	379	379	5000	1970	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ALGPBelkLumber	EU 001 Wood Fired Boiler	1	Major Source	AL	Boiler	69	69	8760	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.026667	0.012333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGPBrewtonMill	BR-PSG0-S021 No. 2 Power Boiler	1	Major Source	AL	Boiler	390	390	8640	1963	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	79.53986768	0	0	79.53987	Biomass	no	1	0.039	0.025833	0.013167		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGPBrewtonMill	BR-PSG0-S026 No. 3 Power Boiler	1	Major Source	AL	Boiler	608	608	8640	1981	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.007556	0.031444		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGPBrewtonMill	BR-PSG0-S018 No. 1 Power Boiler	1	Major Source	AL	Boiler	289	289	2880	1956	N/A	load following	False	Liquid	Light Liquid	No HAP APCD Control	0	0	34.32321744	0	0	Biomass	no	0	0.0075	0.022333	-0.01483	66.42%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ALGPEngineeredWoodProductsThornsby	EU 001 Wood Fired Boiler	1	Major Source	AL	Boiler	61.77	61.77	8760	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.18312	-0.14412	78.70%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGPPetermanPly	Boiler w/Multiclone and	1	Major Source	AL	Boiler	224	224	8305	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGPTalladegaPly	Waste Boiler w Multiclone and ESP	1	Major Source	AL	Boiler	185	185	8520	1975	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALGulfLumber	Boiler #1	1	Major Source	AL	Boiler	68	68	7500	1983	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALIPCourtland	No.2 Combination Boiler / 11CU201	1	Major Source	AL	Boiler	735	735	8511	1979	PC	load following	False	Coal	Coal	ScrubberElectrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.000282	0.034718		4.6E-06	5.38E-07	4.06E-06
ALIPCourtland	No. 1 Combination Boiler / 11CU101	1	Major Source	AL	Boiler	398	398	1437	1970	Stoker/SlopedGrate/Other	Standby	False	Biomass	Wet Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.004179	0.030821		4.6E-06	6.08E-07	3.99E-06
ALIPCourtland	No. 3 Combination Boier / 11CU301	1	Major Source	AL	Boiler	710	710	8291	1993	FB	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	87.74449361	3.710686781	0	87.74449	Biomass	no	1	0.039	0.004917	0.034083		0.035	0.000208	0.034792		4.6E-06	4.14E-07	4.19E-06
ALIPPineHill	109-0001-Z010	1	Major Source	AL	Boiler	770	770	8400	1968	PC	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.035333	0.003667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALIPPineHill	109-0001-Z007	1	Major Source	AL	Boiler	705	705	8400	1968	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	0.114	-0.075	65.79%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALIPPrattville	Z008	1	Major Source	AL	Boiler	630	630	8471	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	33.2403294	66.75967059	0	0	66.75967	Biomass	combo	1	0.039	0.045611	-0.00661	14.49%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALIPPrattville	Z006	1	Major Source	AL	Boiler	707	707	8553	1967	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	80.61485909	0	0	80.61486	Biomass	no	1	0.039	0.025611	0.013389		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALIPRiverdale	No. 1 Bark Boiler / BK01	1	Major Source	AL	Boiler	245	245	8400	1979	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALK-CMobile	Bark Boiler #7	1	Major Source	AL	Boiler	750	750	8760	0	Stoker/SlopedGrate/Other		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALK-CMobile	Power Boiler #6	1	Major Source	AL	Boiler	500	500	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALManningtonWoodFloors	BB01	1	Major Source	AL	Boiler	28.2	28.2	8760	1991	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.009667	0.029333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALManningtonWoodFloors	BB02	1	Major Source	AL	Boiler	28.2	28.2	8760	2005	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.009667	0.029333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALMeadwestvacoCottonton46	No.1 Wood Residue Boiler	1	Major Source	AL	Boiler	337	337	8520	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	1	0.039	0.0441	-0.0051	11.56%	0.035	0.000964	0.034036		4.6E-06	1.21E-06	3.39E-06
ALMeadwestvacoCottonton46	No.2 Wood Residue Boiler	1	Major Source	AL	Boiler	550	550	8520	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALMeadwestvacoCottonton46	No.3 Wood Residue Boiler	1	Major Source	AL	Boiler	915	915	8520	1990	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	1	0.039	0.033367	0.005633		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALP&WAlabamaRiver	Power Boiler #1	1	Major Source	AL	Boiler	440	440	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALP&WAlabamaRiver	Power Boiler #2	1	Major Source	AL	Boiler	190	190	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALP&WAlabamaRiver	Power Boiler #3	1	Major Source	AL	Boiler	440	440	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALRock-TennDemopolis	Power Boiler #3	1	Major Source	AL	Boiler	250	250	8760	0	Stoker/SlopedGrate/Other		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALRock-TennDemopolis	Power Boiler #1	1	Major Source	AL	Boiler	225	225	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALScotchLumber	EU 001 (Wood-Fired Boiler)	1	Major Source	AL	Boiler	98.5	98.5	8400	1988	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALSeamanTimber	1	1	Major Source	AL	Boiler	28.7	28.7	7500	1996	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	ajor Source	State	lassificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCL%red	Hg Limit	Hg Emissions	Hg Difference
ALSmurfit-Stone	Waste Boiler #1	1	Major Source	AL	Boiler	225	225	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALSmurfit-Stone	Waste Boiler #2	1	Major Source	AL	Boiler	375	375	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALSmurfit-Stone	Power Boiler #1	1	Major Source	AL	Boiler	170	170	8760	0	N/A		False	Liquid	Heavy Liquid	ScrubberWetElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ALSmurfit-Stone	Power Boiler #2	1	Major Source	AL	Boiler	170	170	8760	0	N/A		False	Liquid	Heavy Liquid	ScrubberWetElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ALWestervelt	Wellons - Unit 001	1	Major Source	AL	Boiler	98	98	8200	1997	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALWestervelt	Teaford - Unit 003	1	Major Source	AL	Boiler	99	99	8400	2006	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALWestFraserCitronelle	Boiler-1	1	Major Source	AL	Boiler	90	90	7800	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALWestFraserMaplesville	Boiler-1	1	Major Source	AL	Boiler	119	119	8708	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.070446	-0.03145	44.64%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ALWeyerhaeuserMillport	Boiler No. 1	1	Major Source	AL	Boiler	115	115	8100	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	0	100	0	0	100	Biomass	no	0	0.039	0.314527	-0.27553	87.60%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARAnthonyForestProducts	SN-12	1	Major Source	AR	Boiler	29.56	29.56	8592	1997	Fuel Cell	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.129252	-0.09025	69.83%	0.035	0.0002	0.0348		4.6E-06	8.24E-07	3.78E-06
ARAnthonyForestProducts	SN-13	1	Major Source	AR	Boiler	29.56	29.56	8592	1997	Fuel Cell	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARAnthonyForestProducts	SN-16	1	Major Source	AR	Boiler	29.75	29.75	8592	2002	Fuel Cell	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDeltaNaturalKraft	Hog Fuel Boiler (SN-05)	1	Major Source	AR	Boiler	160	160	8600	1976	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.332306	-0.29331	88.26%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDelticTimberWaldo	Wood Fired Boiler No. 1 (SN-13)	1	Major Source	AR	Boiler	60	60	8760	1995	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDelticTimberWaldo	Wood Fired Boiler No. 2 (SN-14)	1	Major Source	AR	Boiler	60	60	8760	1995	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDelticTimberWaldo	Wood Fired Boiler No. 3 (SN-20)	1	Major Source	AR	Boiler	60	60	8760	2005	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDel-Tin	SN-05	1	Major Source	AR	Boiler	291	291	8760	1997	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDomtarIndustries	PB2	1	Major Source	AR	Boiler	820	820	8520	1975	Stoker/SlopedGrate/Other	load following		Coal	Coal	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDomtarIndustries	PB1	1	Major Source	AR	Boiler	580	580	8049	1967	Stoker/SlopedGrate/Other	load following		Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARDomtarIndustries	PB3	1	Major Source	AR	Boiler	790	790	8160	1990	Stoker/SlopedGrate/Other	load following		Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
AREvergreenPackaging	BB	1	Major Source	AR	Boiler	500	500	8570	1958	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
AREvergreenPackaging	PB1	1	Major Source	AR	Boiler	600	600	6000	1958	N/A	Base-loaded	True	Liquid	Heavy Liquid	No HAP APCD Control	0	0	40.5398746	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ARGBPMorrilton	SN-02	1	Major Source	AR	Boiler	162	162	2880	1968	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.259667	-0.22067	84.98%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGBPMorrilton	SN-04	1	Major Source	AR	Boiler	452	452	8400	1965	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.041277	-0.00228	5.52%	0.035	0.001336	0.033664		4.6E-06	1.22E-06	3.38E-06
ARGeorgiaPacificCrossett93	SN-WB1 Wood Boiler	1	Major Source	AR	Boiler	245	245	8400	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	8.33E-05	0.034917		4.6E-06	N/A	N/A
ARGeorgiaPacificCrossett93	SN-WB2 Wood Boiler	1	Major Source	AR	Boiler	245	245	8400	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGeorgiaPacificFordyce	SN - 01 Wood Fuel Boiler	1	Major Source	AR	Boiler	185	185	8147	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.210333	-0.17133	81.46%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPCrossett92	SN-03	1	Major Source	AR	Boiler	1001	1001	8400	1984	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.031633	0.007367		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPCrossett92	SN-22	1	Major Source	AR	Boiler	720	720	8500	1973	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Wet Scrubber	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPFordyceOSB	SN - 01A Thermal Oil Heaters (#1)	1	Major Source	AR	Process Heater	40	40	8000	1999	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPFordyceOSB	SN - 01A Thermal Oil Heaters (#2)	1	Major Source	AR	Process Heater	40	40	8000	1999	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPGurdonPlyLumber	Residue Fired Boiler	1	Major Source	AR	Boiler	135	135	8400	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARGPGurdonPlyLumber	Residue Fired Boiler	1	Major Source	AR	Boiler	135	135	8640	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARLeolaLumberMill	SN-01A	1	Major Source	AR	Boiler	94.15	94.15	8400	1994	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.003667	0.035333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARLeolaLumberMill	SN-01B	1	Major Source	AR	Boiler	94.15	94.15	8400	1994	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.005567	0.033433		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARLeolaLumberMill	SN-19	1	Major Source	AR	Boiler	28.8	28.8	8400	1999	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARPotlatchForestCypressBend	Power Boiler #1	1	Major Source	AR	Boiler	479	479	8700	1976	N/A	load following	True	Liquid	Heavy Liquid	No HAP APCD Control	0	0	0	0	0	Biomass	no	0	0.0075	0.023261	-0.01576	67.76%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ARPotlatchForestPrescott	McBurney Boiler	1	Major Source	AR	Boiler	175	175	8400	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.023567	0.015433		0.035	0.004267	0.030733		4.6E-06	N/A	N/A
ARPotlatchForestWarren	Wellons Boiler	1	Major Source	AR	Boiler	280	280	8400	1990	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.0008	0.0382		0.035	0.001567	0.033433		4.6E-06	5.41E-07	4.06E-06
ARRiversideFurniturePlant5	SN-01 Wood-fired Boiler	1	Major Source	AR	Boiler	19.5	19.5	8760	1987	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARTemple-Inland	PWBTHERM48	1	Major Source	AR	Process Heater	40	40	5600	1994	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARTemple-Inland	PDTHERM48	1	Major Source	AR	Process Heater	40	40	6150	1994	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
ARTemple-Inland	HTFTHERM48	1	Major Source	AR	Process Heater	40	40	7100	1994	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARWestFraserHuttig	SN-24	1	Major Source	AR	Boiler	29.63	29.63	8290	2004	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.183333	-0.14433	78.73%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARWestFraserHuttig	SN-01	1	Major Source	AR	Boiler	118	118	8650	1972	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.243667	-0.20467	83.99%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARWeyerhaeuser	SN-06	1	Major Source	AR	Boiler	78.5	78.5	8520	1972	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	0	100	0	0	100	Biomass	no	0	0.039	0.298	-0.259	86.91%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ARWeyerhaeuserDierksMill	SN-45	1	Major Source	AR	Boiler	249	249	8400	1997	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.00851	0.03049		0.035	0.001	0.034		4.6E-06	6.24E-07	3.98E-06
AZCatalystPaperSnowflake	Power Boiler #2 Coal	1	Major Source	AZ	Boiler	1132	1132	8640	1975	PC	load following	False	Coal	Coal	ScrubberElectrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.0315	0.0075		0.035	0.000116	0.034884		4.6E-06	N/A	N/A
AZCatalystPaperSnowflake	Power Boiler #3 Natural Gas	1	Major Source	AZ	Boiler	337	337	8400	2002	N/A	Standby	True	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
CAHumboldtFlakeboard143	NS-028	1	Major Source	CA	Boiler	40	40	6000	1971	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	No HAP APCD Control	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
CARoseburgWeed	Boiler	1	Major Source	CA	Boiler	169.74	169.74	8400	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.016467	0.022533		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
CASierraPine-Rocklin	SPRKBL01	1	Major Source	CA	Boiler	71.7	71.7	8424	1976	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	ScrubberElectrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.031074	0.007926		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLCFRC252	Boiler #3 (McBurney)	1	Major Source	FL	Boiler	85	85	8592	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.00308	0.03192		4.6E-06	3.68E-07	4.23E-06
FLCFRC252	Boilers #4 & #5 (Hurst)	1	Major Source	FL	Boiler	29.9	29.9	8592	1994	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLGPHawthorne	EU 001 Wood Fired Boiler	1	Major Source	FL	Boiler	224	224	8556	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	99.99980871	0	0	99.99981	Biomass	no	1	0.039	0.004	0.035		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLGPHosfordOSB	011-THERMAL OIL HEATER #1	1	Major Source	FL	Process Heater	40	40	8000	2003	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLGPHosfordOSB	011-THERMAL OIL HEATER #2	1	Major Source	FL	Process Heater	40	40	8000	2003	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLGPPalatka	EU16	1	Major Source	FL	Boiler	512.7	512.7	8400	1965	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	75.88820041	24.11179959	0	75.8882	Biomass	no	1	0.039	0.13	-0.091	70.00%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLIPPensacola	Power Boiler 3 / EU ID 33	1	Major Source	FL	Boiler	347	347	8577	1961	PC	load following	True	Coal	Coal	Venturi Scrubber	99.9692341	0	0	0	99.96923	Coal	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	8.32E-06	-3.7E-06
FLIPPensacola	Power Boiler 4 / EU ID 37	1	Major Source	FL	Boiler	666	666	8360	1981	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Venturi Scrubber	11.4089608	80.97907581	0	0	80.97908	Biomass	combo	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	9.81E-07	3.62E-06
FLNorthFloridaLumber	3-3900-150	1	Major Source	FL	Boiler	23	23	8064	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLNorthFloridaLumber	4-5700-01	1	Major Source	FL	Boiler	42.9	42.9	8400	1979	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLRayonierPerformance	PB06	1	Major Source	FL	Boiler	525	525	8592	1983	FB	load following	False	Biomass	Wet Biomass	ScrubberElectrostatic Precipitator	0	86.97087675	0	0	86.97088	Biomass	no	1	0.039	0.048373	-0.00937	19.38%	0.035	0.006428	0.028572		4.6E-06	2.84E-07	4.32E-06
FLSmurfit-Stone	7PB	1	Major Source	FL	Boiler	1021	1021	8421	1981	PC	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.003237	0.035763		0.035	0.08275	-0.04775	57.70%	4.6E-06	2.99E-06	1.61E-06
FLSmurfit-Stone	Power Boiler #4	1	Major Source	FL	Boiler	375	375	8760	0	PC		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLSmurfit-Stone	5PB	1	Major Source	FL	Boiler	805	805	8530	1968	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	55.86707367	44.13292633	0	55.86707	Biomass	no	0	0.039	0.002667	0.036333		0.035	0.006247	0.028753		4.6E-06	2.05E-07	4.4E-06
FLSmurfit-Stone	Power Boiler #3	1	Major Source	FL	Boiler	375	375	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLSmurfitStonePanamaCity	No. 4 Combination Boiler	1	Major Source	FL	Boiler	545	545	8760	0	Stoker/SlopedGrate/Other		False	Coal	Coal	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
FLSmurfitStonePanamaCity	No. 3 Combination Boiler	1	Major Source	FL	Boiler	505	505	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAAbitibiBowater	Power Boiler #1	1	Major Source	GA	Boiler	275	275	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GACaraustar	CB01	1	Major Source	GA	Boiler	313	313	8592	1982	PC	load following	True	Coal	Coal	Fabric Filter	100	0	0	0	100	Coal	no	0	0.039	0.074667	-0.03567	47.77%	0.035	0.035267	-0.00027	0.76%	4.6E-06	1.54E-06	3.06E-06
GAGPCedarSprings	U501 - Power Boiler No 2	1	Major Source	GA	Boiler	784	784	8200	1967	PC	load following	True	Coal	Coal	Venturi Scrubber	88.3636364	0	0	0	88.36364	Coal	no	0	0.039	0.044333	-0.00533	12.03%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAGPCedarSprings	U500 - Power Boiler No 1	1	Major Source	GA	Boiler	784	784	8200	1963	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Venturi Scrubber	58.6560364	34.20652999	0	0	58.65604	Coal	combo	1	0.039	0.065667	-0.02667	40.61%	0.035	0.001553	0.033447		4.6E-06	1.42E-06	3.18E-06
GAGPCelluloseBrunswick	U700 -- No. 4 Power Boiler	1	Major Source	GA	Boiler	800	800	8568	1961	Stoker/SlopedGrate/Other	Standby	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	78.62667093	5.046531014	0	78.62667	Biomass	no	1	0.039	0.0054	0.0336		0.035	0.003107	0.031893		4.6E-06	6.05E-07	4E-06
GAGPCelluloseBrunswick	U707 -- No. 7 Power Boiler	1	Major Source	GA	Boiler	208	208	2100	2003	N/A	Base-loaded	True	Liquid	Light Liquid	Electrostatic Precipitator	0	0	100	0	0	Biomass	no	0	0.0075	0.005233	0.002267		0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
GAGPCelluloseBrunswick	U706 -- No. 6 Power Boiler	1	Major Source	GA	Boiler	370	370	8568	1999	N/A	Base-loaded	True	Liquid	Light Liquid	Electrostatic Precipitator	0	0	100	0	0	Biomass	no	0	0.0075	0.008267	-0.00077	9.27%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
GAGPMadisonPly	800 Wood Waste Boiler	1	Major Source	GA	Boiler	355	355	8500	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.002667	0.036333		0.035	8.33E-05	0.034917		4.6E-06	5.79E-07	4.02E-06
GAGPMonticelloPlywood	EU700 - Wood Waste Boiler	1	Major Source	GA	Boiler	235.3	235.3	8520	1985	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.012	0.027		0.035	N/A	N/A	#VALUE!	4.6E-06	5.24E-07	4.08E-06
GAGPSRMRiincon	EU BO01	1	Major Source	GA	Boiler	422	422	8400	1986	FB	load following	False	Coal	Coal	Fabric FilterDry Sorbent Injection	0	0	0	0	0	Biomass	no	0	0.039	0.04585	-0.00685	14.94%	0.035	0.003967	0.031033		4.6E-06	1.26E-06	3.34E-06
GAGPSRMRiincon	EU BO02	1	Major Source	GA	Boiler	422	422	8400	1990	FB	Base-loaded	False	Coal	Coal	Fabric FilterDry Sorbent Injection	100	0	0	0	100	Coal	no	0	0.039	0.0109	0.0281		0.035	0.006533	0.028467		4.6E-06	5.67E-07	4.03E-06
GAGPSRMRiincon	EU BO03	1	Major Source	GA	Boiler	422	422	8400	1995	FB	load following	False	Coal	Coal	Fabric FilterDry Sorbent Injection	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAGPWarmSprings	EU600 Wood Fuel Boiler	1	Major Source	GA	Boiler	180	180	8520	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.061	-0.022	36.07%	0.035	0.001199	0.033801		4.6E-06	1.36E-06	3.24E-06
GAGPWarrenton	400B Wood Waste Boiler	1	Major Source	GA	Boiler	85.7	85.7	7565	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.035333	0.003667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAGPWoodClaxton	400	1	Major Source	GA	Boiler	86	86	7000	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.036667	0.002333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCL%red	Hg Limit	Hg Emissions	Hg Difference
GAGraphicPackaging	Bark Boiler #2	1	Major Source	GA	Boiler	375	375	8760	0	PC		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAGraphicPackaging	Power Boiler #1	1	Major Source	GA	Boiler	188	188	8760	0	PC		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAGraphicPackaging	Power Boiler #2	1	Major Source	GA	Boiler	188	188	8760	0	PC		False	Coal	Coal	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAInternationalPaperAugusta Mills	PB2A	1	Major Source	GA	Boiler	686	686	8600	1965	PC	load following	False	Coal	Coal	Electrostatic Precipitator	95.0161347	0	0	0	95.01613	Coal	no	0	0.039	0.0195	0.0195		0.035	0.171333	-0.13633	79.57%	4.6E-06	3.86E-06	7.37E-07
GAInternationalPaperAugusta Mills	PB1A	1	Major Source	GA	Boiler	680	680	8600	1959	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	66.5223908	29.73588096	0	0	66.52239	Coal	combo	1	0.039	0.262333	-0.22333	85.13%	0.035	N/A	N/A	#VALUE!	4.6E-06	1.21E-06	3.39E-06
GAInternationalPaperAugusta Mills	PB3A	1	Major Source	GA	Boiler	560	560	8600	1989	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	93.75578168	0	0	93.75578	Biomass	no	1	0.039	0.039	0		0.035	N/A	N/A	#VALUE!	4.6E-06	6E-07	4E-06
GAInterstateResources	Power Boiler #2	1	Major Source	GA	Boiler	250	250	8760	0	FB		False	Biomass	Wet Biomass	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAInterstateResources	Power Boiler #3	1	Major Source	GA	Boiler	188	188	8760	0	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
GAIPSavannah	No. 13 Power Boiler - PB13	1	Major Source	GA	Boiler	1280	1280	8506	1982	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	84.5172681	15.48273189	0	0	84.51727	Coal	combo	0	0.039	0.016	0.023		0.035	0.0145	0.0205		4.6E-06	N/A	N/A
GALangboardWillacoochee	EU24	1	Major Source	GA	Boiler	185	185	8760	1998	FB	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GALouisianaPacificAthens	TOH Wood Burner	1	Major Source	GA	Process Heater	40	40	8200	2004	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAP&GAlbany	B002	1	Major Source	GA	Boiler	216	216	8277	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	0.0107	0.0283		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAP&GAlbany	B001	1	Major Source	GA	Boiler	187	187	7597	1972	N/A	Standby	False	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
GAPCAValdosta	1006	1	Major Source	GA	Boiler	243	243	8400	1953	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.078417	-0.03942	50.27%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAPCAValdosta	1005	1	Major Source	GA	Boiler	360	360	8448	1964	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.083533	-0.04453	53.31%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GARayonierBaxley	PB01	1	Major Source	GA	Boiler	58.74	58.74	8300	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.132444	-0.09344	70.55%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GARayonierBaxley	PB02	1	Major Source	GA	Boiler	61.54	61.54	8400	1987	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.015267	0.023733		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GARayonierJesupMill	PB01	1	Major Source	GA	Boiler	176	176	8352	1954	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	97.2825637	2.717436299	0	97.28256	Biomass	no	0	0.039	0.114333	-0.07533	65.89%	0.035	0.000367	0.034633		4.6E-06	1.19E-06	3.41E-06
GARayonierJesupMill	PB02	1	Major Source	GA	Boiler	313	313	8352	1955	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Dry ScrubberCyclone or Multiclone	0	65.59155381	34.40844619	0	65.59155	Biomass	no	0	0.039	0.093333	-0.05433	58.21%	0.035	0.002333	0.032667		4.6E-06	N/A	N/A
GARayonierJesupMill	PB03	1	Major Source	GA	Boiler	612	612	8352	1973	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Venturi Scrubber	0	79.88612095	19.05169589	0	79.88612	Biomass	no	0	0.039	0.099	-0.06	60.61%	0.035	0.001	0.034		4.6E-06	N/A	N/A
GARoseburgForestVienna	600-wood fired boiler	1	Major Source	GA	Boiler	53.3	53.3	8194	1969	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	1.9E-06	2.7E-06
GASPNewsprint	PB1	1	Major Source	GA	Boiler	249	249	7752	1979	PC	load following	False	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.044333	-0.00533	12.03%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GASPNewsprint	PB2	1	Major Source	GA	Boiler	550	550	8496	1989	FB	load following	False	Coal	Coal	Electrostatic Precipitator	30.0045638	0	50.03171372	0	30.00456	Coal	no	0	0.039	0.020333	0.018667		0.035	0.027294	0.007706		4.6E-06	2.94E-07	4.31E-06
GATempleInlandRome	PB4	1	Major Source	GA	Boiler	565	565	8757	1962	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.003667	0.035333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GATempleInlandRome	WF	1	Major Source	GA	Boiler	856	856	8757	2004	FB	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.023867	0.015133		0.035	0.001837	0.033163		4.6E-06	3.57E-07	4.24E-06
GATempleInlandThomson	BW-B001	1	Major Source	GA	Boiler	40	40	6165	1974	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GATempleInlandThomson	Coen	1	Major Source	GA	Process Heater	30	30	6165	1997	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAWestFraserFolkston	FOB2	1	Major Source	GA	Boiler	29.26	29.26	6680	1996	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAWestFraserFolkston	FOB1	1	Major Source	GA	Boiler	28.5	28.5	6767	1969	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAWeyerhaeuserCoOglethorpe	Power Boiler (U400)	1	Major Source	GA	Boiler	660	660	8400	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.044667	-0.00567	12.69%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
GAWYPortWentworth	Power Boiler #4	1	Major Sour	GA	Boiler	375	375			Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	Electrostatic Precipitat	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
IA3MKnoxville	EPN 007-031 Boiler 2	1	Major Source	IA	Boiler	72	72	4340	1974	N/A	Base-loaded	False	Liquid	Light Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
IA3MKnoxville	EPN 007-030 Boiler 1	1	Major Source	IA	Boiler	72	72	5524	1974	N/A	Base-loaded	False	Liquid	Light Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
IAJELD-WENDubuque	Wood Fired Boiler	1	Major Source	IA	Boiler	86	86	8760	1947	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
IDChilcoLakeSawmill	HFB1	1	Major Source	ID	Boiler	125	125	8500	1977	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrified Filter Bed (EFB)	0	100	0	0	100	Biomass	no	0	0.039	0.02087	0.01813		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
IDMoyieSprings Lumber420	HFB1	1	Major Source	ID	Boiler	125	125	8500	1972	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrified Filter Bed (EFB)	0	100	0	0	100	Biomass	no	0	0.039	0.028986	0.010014		0.035	0.000383	0.034617		4.6E-06	1.02E-06	3.58E-06
IDPotlatch	PB-1 CE	1	Major Source	ID	Boiler	27.6	27.6	8544	1964	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.005867	0.033133		0.035	2.83E-05	0.034972		4.6E-06	8.8E-07	3.72E-06
IDPotlatch	PB-2 Riley	1	Major Source	ID	Boiler	92	92	8544	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.003433	0.035567		0.035	N/A	N/A	#VALUE!	4.6E-06	9.17E-07	3.68E-06
IDPotlatch	PB-3 Hurst	1	Major Source	ID	Boiler	39.675	39.675	8640	1987	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	8.5E-07	3.75E-06
IDRileyCreekLumber	HFB1	1	Major Source	ID	Boiler	70.23	70.23	8500	1976	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.002112	0.036888		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
IDRileyCreekLumber	HFB2	1	Major Source	ID	Boiler	67.69	67.69	8500	1975	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.045012	-0.00601	13.36%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INJasperSeating9	Wood-Fired Boiler B1	1	Major Source	IN	Boiler	10.5	10.5	8760	1968	Stoker/SlopedGrate/Other		False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
INKimballOfficeJasper	B-1A	1	Major Source	IN	Boiler	20.5	20.5	3500	1995	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INKimballOfficeSalem	Boiler 1	1	Major Source	IN	Boiler	39.5	39.5	4000	1986	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INKimballOfficeSalem	Boiler 2	1	Major Source	IN	Boiler	39.5	39.5	4000	1986	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INNOFJasper	Boiler 3	1	Major Source	IN	Boiler	20.978	20.978	3500	1981	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INNOFJasper	Boiler 1	1	Major Source	IN	Boiler	10.487	10.487	3500	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
INNOFJasper	Boiler 2	1	Major Source	IN	Boiler	10.487	10.487	3500	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
KYDomtarHawesville	Biofuel Boiler B-900	1	Major Source	KY	Boiler	1050	1050	8400	1997	FB	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	0	84.7460045	0	0	84.746	Biomass	no	0	0.039	0.004467	0.034533		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
KYHONCoOwensboro	EP01	1	Major Source	KY	Boiler	108.0458 84716157	108.0458847	5760	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
KYNewPage-Wickliffe	B09	1	Major Source	KY	Boiler	631	631	8433	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	87.17182666	0	0	87.17183	Biomass	no	1	0.039	0.009633	0.029367		0.035	0.001683	0.033317		4.6E-06	6E-07	0.000004
KYWeyerhaeuserEKY	MP 01-01	1	Major Source	KY	Process Heater	75	75	5458	1994	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	80.6352618	0	0	80.63526	Biomass	no	0	0.039	0.052	-0.013	25.00%	0.035	0.01383	0.02117		4.6E-06	N/A	N/A
KYWeyerhaeuserEKY	MP 01-02	1	Major Source	KY	Process Heater	75	75	5458	1994	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	74.18034906	0	0	74.18035	Biomass	no	0	0.039	0.052	-0.013	25.00%	0.035	0.01383	0.02117		4.6E-06	N/A	N/A
KYWeyerhaeuserEKY	MP 01-03	1	Major Source	KY	Process Heater	75	75	5458	1994	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	84.56775423	0	0	84.56775	Biomass	no	0	0.039	0.052	-0.013	25.00%	0.035	0.01383	0.02117		4.6E-06	N/A	N/A
LABoiseCascadeFlorien	B-1	1	Major Source	LA	Boiler	138	138	8592	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.230618	-0.19162	83.09%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LABoiseCascadeOakdale	B-1	1	Major Source	LA	Boiler	138	138	8592	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.038681	0.000319		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LABoiseNewsprintDeRidder	69-03	1	Major Source	LA	Boiler	1591.3	1591.3	8400	1969	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	0	70.52097331	5.357175702	0	70.52097	Biomass	no	1	0.039	0.113	-0.074	65.49%	0.035	1.76E-05	0.034982		4.6E-06	1.84E-07	4.42E-06
LABoiseNewsprintDeRidder	79-01	1	Major Source	LA	Boiler	454.29	454.29	8400	1979	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	0	78.79034704	0	0	78.79035	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAGPLogansportPly	EQT-0009	1	Major Source	LA	Boiler	222	222	8760	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	1	0.039	0.1658	-0.1268	76.48%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAGPPortHudson	Combination Boiler No. 1	1	Major Source	LA	Boiler	459.2	459.2	5728	1969	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Venturi Scrubber	0	94.26277582	0	0	94.26278	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAGPPortHudson	EQT0109 - No. 6 CFB Boiler	1	Major Source	LA	Boiler	1205	1205	8400	2006	FB	load following	True	Biomass	Wet Biomass	Limestone InjectionElectrostatic	83.0112489	13.93135275	3.057398327	0	83.01125	Coal	combo	1	0.039	0.010007	0.028993		0.035	0.0007	0.0343		4.6E-06	N/A	N/A
LAGPSpringhillWood	01-79 Woodwaste Fired Boiler	1	Major Source	LA	Boiler	208.8	208.8	8400	1979	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAGraphic Packaging	Bark Boiler	1	Major Source	LA	Boiler	750	750	8760		Stoker/SlopedGrate/Other	#N/A	False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAHoodIndustries	EQT001 (wood-fired boiler No. 1)	1	Major Source	LA	Boiler	62.4	62.4	8400	1976	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAHoodIndustries	EQT002 (wood-fired boiler No. 2)	1	Major Source	LA	Boiler	62.4	62.4	8400	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAHuntNatalbany	EQT0001	1	Major Source	LA	Boiler	92.3	92.3	8592	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAHuntPollock	EQT0005	1	Major Source	LA	Boiler	61.5	61.5	8592	1989	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAHuntPollock	EQT0017	1	Major Source	LA	Boiler	80	80	8592	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAInternationalPaperRedRiver Mill	EQT011 Hogged Fuel Boiler No. 2	1	Major Source	LA	Boiler	940	940			Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAIPMansfield	1-78 - No. 1 Power Boiler / EQT005	1	Major Source	LA	Boiler	760	760			Stoker/SlopedGrate/Other	#N/A		Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAIPMansfield	2-78 - No. 2 Power Boiler	1	Major Source	LA	Boiler	760	760			Stoker/SlopedGrate/Other	#N/A		Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.002653	0.032347		4.6E-06	3.88E-08	4.56E-06
LASmurfit-Stone	Power Boiler #2	1	Major Source	LA	Boiler	750	750	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LATempleInlandBogalusa	No. 10C Boiler	1	Major Source	LA	Boiler	494.4	494.4	8600	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LATempleInlandBogalusa	No. 12 Boiler	1	Major Source	LA	Boiler	787.5	787.5	8600	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAWestFraserJoyce	74B	1	Major Source	LA	Boiler	58.3	58.3	6800	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.6	-0.561	93.50%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAWestFraserJoyce	74A	1	Major Source	LA	Boiler	58.3	58.3	7550	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.399	-0.36	90.23%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAWestFraserJoyce	75A	1	Major Source	LA	Boiler	154.2	154.2	8000	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	0.618333	-0.57933	93.69%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAWeyerhaeuser1043	EQT - 0010	1	Major Source	LA	Boiler	100	100	8400	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.030146	0.008854		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
LAWeyerhaeuserDodson	ES-017 WFB	1	Major Source	LA	Boiler	233	233	8200	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.019	0.02		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MAHollingsworth&vose	Boiler #1	1	Major Source	MA	Boiler	49.5	49.5	8400	1988	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MAMWCustomPapers	#1 Boiler	1	Major Source	MA	Boiler	37.5	37.5	8760	0	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MAMWCustomPapers	#2 Boiler	1	Major Source	MA	Boiler	48	48	8760	0	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MANewarkAmerica	Boiler #2	1	Major Source	MA	Boiler	230	230	7500	2000	N/A	load following	True	Liquid	Light Liquid	No HAP APCD Control	0	0	0	0	0	Biomass	no	0	0.0075	0.0025	0.005		0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MDNewPage-Luke	No. 24	1	Major Source	MD	Boiler	590	590	8616	1959	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	99.0811881	0	0.91881192	0	99.08119	Coal	no	0	0.039	0.0174	0.0216		0.035	N/A	N/A	#VALUE!	4.6E-06	1.97E-05	-1.5E-05

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
MDNewPage-Luke	No. 25	1	Major Source	MD	Boiler	785	785	8640	1965	PC	load following	True	Coal	Coal	Fabric Filter	100	0	0	0	100	Coal	no	0	0.039	0.012567	0.026433		0.035	0.032333	0.002667		4.6E-06	5.21E-06	-6.1E-07
MEDomtarBaileyville	#9 Power Boiler	1	Major Source	ME	Boiler	625	625	8644	1971	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	0	0.039	0.15	-0.111	74.00%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MEHuberEngineeredWoodLLC	Boiler No.1	1	Major Source	ME	Boiler	84	84			Stoker/SlopedGrate/Other	#N/A		Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MEKatahdinPaperCo	EB1	1	Major Source	ME	Boiler	370	370	4500	1953	N/A	load following	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEKatahdinPaperCo	EB2	1	Major Source	ME	Boiler	370	370	4500	1953	N/A	load following	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEKatahdinPaperCo	EB3	1	Major Source	ME	Boiler	498	498	8300	1980	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MELincolnPaper&Tissue	#8 Power Boiler	1	Major Source	ME	Boiler	433	433	8600	1991	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	89.56851608	10.36406801	0	89.56852	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.003203	0.031797		4.6E-06	9.09E-07	3.69E-06
MELincolnPaper&Tissue	#7 Tissue Machine Dryer	1	Major Source	ME	Process Heater	14.976	14.976	8400	1978	N/A		False	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEMadisonPaper	#7 Boiler ME6737	1	Major Source	ME	Boiler	117	117	5150	1991	N/A	Base-loaded	True	Liquid	Heavy Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEMadisonPaper	#6 Boiler ME6454	1	Major Source	ME	Boiler	99	99	8250	1980	N/A	load following	True	Liquid	Heavy Liquid	Spray Dryer	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEMadisonPaper	#4 Boiler ME5949	1	Major Source	ME	Boiler	119	119	8450	1968	N/A	load following	True	Liquid	Heavy Liquid	Spray Dryer	0	0	100	0	0	Biomass	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MENewPage-Rumford	Cogen#6	1	Major Source	ME	Boiler	630	630	8000	1990	FB	Base-loaded	False	Biomass	Dry Biomass	InjectionElectrostatic Precipitator	12.2049719	57.43989926	3.195629338	0	57.4399	Biomass	combo	0	0.039	0.001475	0.037525		0.035	0.011839	0.023161		4.6E-06	8.22E-07	3.78E-06
MENewPage-Rumford	PB#3	1	Major Source	ME	Boiler	300	300	1900	1948	N/A	Standby	True	Liquid	Heavy Liquid	Venturi Scrubber	0	0	73.19148936	0	0	Biomass	no	0	0.0075	0.02	-0.0125	62.50%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MENewPage-Rumford	Cogen#7	1	Major Source	ME	Boiler	630	630	8000	1990	FB	Base-loaded	False	Biomass	Dry Biomass	InjectionElectrostatic Precipitator	12.1239147	57.49813574	3.199404525	0	57.49814	Biomass	combo	0	0.039	0.001475	0.037525		0.035	0.013607	0.021393		4.6E-06	8.22E-07	3.78E-06
MERedShield	Riley Boiler	1	Major Sour	ME	Boiler	188	188			Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	Electrostatic Precipitat	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MERedShield	Power Boiler #5	1	Major Source	ME	Boiler	250	250	8760	0	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MESappiWestbrook	Power Boiler #20	1	Major Sour	ME	Boiler	188	188			N/A	#N/A		Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MESappiWestbrook	Power Boiler #17	1	Major Sour	ME	Boiler	213	213			N/A	#N/A		Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MESappiWestbrook	Power Boiler #18	1	Major Sour	ME	Boiler	213	213			N/A	#N/A		Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MESappiWestbrook	Power Boiler #21	1	Major Sour	ME	Boiler	844	844			PC	#N/A		Coal	Coal	Electrostatic Precipitat	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MESDWarren	#21 Boiler	1	Major Source	ME	Boiler	1074	1074	8440	1981	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	28.6138666	67.60790872	1.081996092	0	67.60791	Biomass	combo	0	0.039	0.029667	0.009333		0.035	0.011333	0.023667		4.6E-06	1.11E-07	4.49E-06
MESDWarren	Power Boiler #20	1	Major Source	ME	Boiler	188	188	8760	0	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MESDWarrenSomerset	No1 Power Boiler	1	Major Source	ME	Boiler	848	848	8375	1975	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	92.01078652	7.989213478	0	92.01079	Biomass	no	1	0.039	0.0225	0.0165		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MESDWarrenSomerset	No2 Power Boiler	1	Major Source	ME	Boiler	1300	1300	8533	1989	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	DryScrubberElectrostatic Precipitator	0	62.4595014	29.93520612	0	62.4595	Biomass	no	1	0.039	0.01187	0.02713		0.035	0.000229	0.034771		4.6E-06	5.78E-07	4.02E-06
MEVersoPaper	Boiler #8	1	Major Source	ME	Boiler	814	814	8400	1984	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	14.5458823	46.62256337	29.33682042	0	46.62256	Biomass	combo	0	0.039	0.012	0.027		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MEVersoPaper	Boiler #5	1	Major Source	ME	Boiler	371	371	1300	1966	N/A	Standby	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MEVersoPaperAndroscoggin	WFI	1	Major Source	ME	Boiler	480	480	8400	1976	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	0	87.19900338	12.80099662	0	87.199	Biomass	no	1	0.039	0.092	-0.053	57.61%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIDecorativePanels	Boiler #1	1	Major Source	MI	Boiler	96	96	8000	1957	Stoker/SlopedGrate/Other	load following	True	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIDecorativePanels	Boiler #2	1	Major Source	MI	Boiler	96	96	8000	1957	Stoker/SlopedGrate/Other		True	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIDecorativePanels	Boiler #3	1	Major Source	MI	Boiler	79	79	8000	1962	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Cyclone or Multiclone	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIEBEddyPaper	EUBOILER5	1	Major Source	MI	Boiler	196	196	8500	1969	PC	load following	False	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.115	-0.08	69.57%	4.6E-06	7.43E-06	-2.8E-06
MILPCSagola	TOH-Wood	1	Major Source	MI	Process Heater	60	60	8400	1987	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Dry Electrostatic Granular Filter	0	100	0	0	100	Biomass	no	1	0.039	0.289894	-0.25089	86.55%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIManistiquePaper	EUBLR001	1	Major Source	MI	Boiler	1047.795	1047.795	8616	1964	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.025564	0.013436		0.035	0.11	-0.075	68.18%	4.6E-06	3.37E-06	1.23E-06
MIManistiquePaper	EUBLR002	1	Major Source	MI	Boiler	739.62	739.62	8616	1977	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.025564	0.013436		0.035	0.11	-0.075	68.18%	4.6E-06	3.37E-06	1.23E-06
MIMenominee	#5 Boiler	1	Major Source	MI	Boiler	81.8	81.8	8400	1950	Stoker/SlopedGrate/Other	Standby	False	Coal	Coal	Fabric Filter	100	0	0	0	100	Coal	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIMenominee	#3 Boiler	1	Major Source	MI	Boiler	101	101	8544	1962	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	100	0	0	0	100	Coal	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.151	-0.116	76.82%	4.6E-06	6.6E-06	-2E-06
MINeenahPaperMI	Boiler 1	1	Major Source	MI	Boiler	202	202	8520	1958	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	100	0	0	0	100	Coal	no	0	0.039	0.009033	0.029967		0.035	0.145256	-0.11026	75.90%	4.6E-06	8.78E-07	3.72E-06
MINewPageEscanaba	Power Boiler #11	1	Major Source	MI	Boiler	938	938	8760	1981	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MINewPageEscanaba	Power Boiler #7	1	Major Source	MI	Boiler	154	154	8760	1947	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MINewPageEscanaba	Power Boiler #8	1	Major Source	MI	Boiler	563	563	8760	1968	N/A		False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MINewPageEscanaba	Power Boiler #9	1	Major Source	MI	Boiler	563	563	8760	1972	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIPackagingCorpofAmerica	EUBOILER1	1	Major Source	MI	Boiler	240	240	8712	1950	PC	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
MISmurfitStoneOntonagon	No. 1 Riley Boiler	1	Major Source	MI	Boiler	375	375	8200		PC	#N/A	True	Coal	Coal	InjectionElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MIVersoPaperQuinnesec	Waste Fuel Boiler	1	Major Source	MI	Boiler	624	624	8589	1981	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	0.0063	0.0327		0.035	0.002533	0.032467		4.6E-06	1.33E-08	4.59E-06
MN3MHutchinson	EU002 - Boiler 4	1	Major Source	MN	Boiler	110	110	3500	1967	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MN3MHutchinson	EU001 - Boiler 3	1	Major Source	MN	Boiler	110	110	5000	1967	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MNAndersonCorpBayport	Boiler 11 EU620	1	Major Source	MN	Boiler	52	52	7008	2006	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	0	80.63403738	0	0	80.63404	Biomass	no	0	0.039	0.003978	0.035022		0.035	0.0004	0.0346		4.6E-06	N/A	N/A
MNAndersonCorpBayport	Boiler 12 EU621	1	Major Source	MN	Boiler	52	52	7008	2006	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	0	80.63403738	0	0	80.63404	Biomass	no	0	0.039	0.003978	0.035022		0.035	0.0004	0.0346		4.6E-06	N/A	N/A
MNBoisePaper1212	EU 430 Boiler #2	1	Major Source	MN	Boiler	395	395	8350	1956	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	92.33629867	7.663701327	0	92.3363	Biomass	no	1	0.039	0.00188	0.03712		0.035	N/A	N/A	#VALUE!	4.6E-06	1.34E-06	3.26E-06
MNGPDuluth	EU31 Boiler #1	1	Major Source	MN	Boiler	43	43	8400	1971	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MNGPDuluth	EU32 Boiler #2	1	Major Source	MN	Boiler	43	43	8400	1971	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
MNGPDuluth	EU34 Boiler #4	1	Major Source	MN	Boiler	60	60	8400	1974	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MNGPDuluth	EU35 Boiler#5	1	Major Source	MN	Boiler	17	17	8400	1975	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MNGPDuluth	EU33 Boiler #3	1	Major Source	MN	Boiler	43	43	8400	1971	N/A	load following	False	Liquid	Heavy Liquid	Electrostatic Precipitator	0	0	100	0	0	Biomass	no	0	0.0075	0.011017	-0.00352	31.92%	0.00033	0.000742	-0.00041	55.53%	3.5E-06	1.05E-07	3.4E-06
MNNorbordMinnesota	Konus No. 1	1	Major Source	MN	Process Heater	20	20	8200	1980	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Wet Biomass	Multiclone/Electrified Filter Bed (EFB)	0	100	0	0	100	Biomass	no	1	0.039	0.114	-0.075	65.79%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MNNorbordMinnesota	Konus No. 2	1	Major Source	MN	Process Heater	20	20	8200	1980	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Wet Biomass	Multiclone/Electrified Filter Bed (EFB)	0	100	0	0	100	Biomass	no	1	0.039	0.114	-0.075	65.79%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MNSappiCloquet	EU002	1	Major Source	MN	Boiler	300	300	8363	1965	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	4.48E-07	4.15E-06
MNSappiCloquet	EU004	1	Major Source	MN	Boiler	430	430	8532	1980	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	7.2E-07	3.88E-06
MNVersoPaper	EU018 Bros	1	Major Source	MN	Boiler	119	119	3700	1934	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Venturi Scrubber	100	0	0	0	100	Coal	no	0	0.039	0.05	-0.011	22.00%	0.035	N/A	N/A	#VALUE!	4.6E-06	2.81E-05	-2.3E-05
MNVersoPaper	EU006 B&W	1	Major Source	MN	Boiler	368	368	8520	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	70.5864405	20.18134521	2.334740365	0	70.58644	Coal	combo	1	0.039	0.046333	-0.00733	15.83%	0.035	0.0033	0.0317		4.6E-06	3.88E-07	4.21E-06
MNWausauPaper-Brainerd	EU 002	1	Major Source	MN	Boiler	54	54	2100	1945	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.017778	0.021222		0.035	0.081441	-0.04644	57.02%	4.6E-06	1.72E-06	2.88E-06
MNWausauPaper-Brainerd	EU 003	1	Major Source	MN	Boiler	107	107	8400	1958	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.031667	0.007333		0.035	0.080514	-0.04551	56.53%	4.6E-06	1.72E-06	2.88E-06
MNWausauPaper-Brainerd	EU 004	1	Major Source	MN	Boiler	107	107	8400	1958	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.016167	0.022833		0.035	0.103362	-0.06836	66.14%	4.6E-06	3.67E-06	9.33E-07
MNWeyerhaeuserIronton	EU 001 - 4 Cell Furnace	1	Major Source	MN	Process Heater	225	225	8114	1990	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.028662	0.010338		0.035	0.0033	0.0317		4.6E-06	N/A	N/A
MSBowaterSouth	Bark Boiler	1	Major Source	MS	Boiler	234	234	8600	1989	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	92.99788788	3.76048334	0	92.99789	Biomass	no	1	0.039	0.026	0.013		0.035	0.000333	0.034667		4.6E-06	4.72E-07	4.13E-06
MSGeorgiaPacificMonticello	AA-403 (UT-3) Combination Boiler	1	Major Source	MS	Boiler	917	917	8400	1967	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	0	94.19760252	0.046687697	0	94.1976	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPBaySprings	AA-001 (Boiler No. 1)	1	Major Source	MS	Boiler	73	73	7811	1972	Stoker/SlopedGrate/Other		False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPBaySprings	AA-003 (Boiler No. 2)	1	Major Source	MS	Boiler	59.42	59.42	7811	1990	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPGlosterPly	AA-002	1	Major Source	MS	Boiler	48	48	7875	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.220667	-0.18167	82.33%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPGlosterPly	AA-001	1	Major Source	MS	Boiler	48	48	7881	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.261333	-0.22233	85.08%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPGlosterPly	AA-003	1	Major Source	MS	Boiler	98	98	7883	1967	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.299	-0.26	86.96%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPLouisvillePly	AD-003 (Boiler #3)	1	Major Source	MS	Boiler	124	124	8343	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.127	-0.088	69.29%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPNewAugusta	AA-015 Power Boiler	1	Major Source	MS	Boiler	642	642	8520	1983	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.0018	0.0372		0.035	0.001	0.034		4.6E-06	1.1E-06	3.5E-06
MSGPTaylorsvillePly	AA-700	1	Major Source	MS	Boiler	155	155	8652	1979	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPTaylorsvillePly	AA-500	1	Major Source	MS	Boiler	169	169	8724	1969	Stoker/SlopedGrate/Other		False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSGPTylertownMill	AA-001, Woodwaste Boiler	1	Major Source	MS	Boiler	30	30	8688	1978	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSHankinsLumber	Boiler #1 (AA-001)	1	Major Source	MS	Boiler	65	65	8000	1981	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.00026	0.03474		4.6E-06	N/A	N/A
MSHankinsLumber	Boiler #2 (AA-002)	1	Major Source	MS	Boiler	23	23	8000	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSHoodBeaumont	AA-030 (Wood-Fired Boiler)	1	Major Source	MS	Boiler	140	140	8400	1994	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSHoodWaynesboro	AA-001 (Wood-Fired Boiler)	1	Major Source	MS	Boiler	100	100	8400	1971	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.000211	0.034789		4.6E-06	N/A	N/A
MSHoodWiggins	AA-001 (Wood-Fired Boiler No. 1)	1	Major Source	MS	Boiler	65	65	8400	1971	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSHoodWiggins	AA-002 (Wood-Fired Boiler No. 2)	1	Major Source	MS	Boiler	65	65	8400	1971	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.001067	0.033933		4.6E-06	N/A	N/A
MSHoodWiggins	AA-003 (Wood-Fired Boiler No. 3)	1	Major Source	MS	Boiler	90	90	8400	1975	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	7.75E-07	3.82E-06
MSIPVicksburg	Power Boiler-AA-006	1	Major Source	MS	Boiler	870	870	8400	1967	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Wet Scrubber	0	88.24659211	0	0	88.24659	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCL%red	Hg Limit	Hg Emissions	Hg Difference
MSNorbordMS	Wellons No. 1	1	Major Source	MS	Process Heater	100	100	8400	1995	Fuel Cell	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.008944	0.030056		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSNorbordMS	Wellons No. 2	1	Major Source	MS	Process Heater	100	100	8400	1995	Fuel Cell	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.008944	0.030056		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSNorbordMS	Wellons No. 3	1	Major Source	MS	Process Heater	100	100	8400	1995	Fuel Cell	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.008944	0.030056		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSSandersonPlumbing	AD-001	1	Major Source	MS	Boiler	11.29	11.29	5808	1994	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	0	0	0	0	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.000633	0.034367		4.6E-06	2.01E-06	2.59E-06
MSShuqualakLumber	Boiler 1 (AA-101)	1	Major Source	MS	Boiler	42	42	8000	1988	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSShuqualakLumber	Boiler 2 (AA-102)	1	Major Source	MS	Boiler	15	15	8000	1979	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSShuqualakLumber	Boiler 3 (AA-107)	1	Major Source	MS	Boiler	29	29	8000	1998	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSShuqualakLumber	Boiler 4 (AA-108)	1	Major Source	MS	Boiler	29	29	8000	2004	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSWeyerhaeuser1398	Boiler No. 1	1	Major Source	MS	Boiler	140	140	8200	1976	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.50863	-0.46963	92.33%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSWeyerhaeuser1398	Boiler No. 2	1	Major Source	MS	Boiler	28.9	28.9	8200	2002	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	2.234024	-2.19502	98.25%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSWeyerhaeuserBruce	AA-001 No. 1 Boiler	1	Major Source	MS	Boiler	70	70	8496	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	0	100	0	0	100	Biomass	no	0	0.039	0.302	-0.263	87.09%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MSWeyerhaeuserBruce	AA-002 No. 2 Boiler	1	Major Source	MS	Boiler	115	115	8496	1992	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	0	0.039	0.005494	0.033506		0.035	0.000507	0.034493		4.6E-06	9.93E-07	3.61E-06
MSWeyerhaeuserColumbus	AA-012	1	Major Source	MS	Boiler	1400	1400	8570	1979	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	14.8262321	76.92055489	2.313984958	0.128555	76.92055	Biomass	combo	0	0.039	0.022667	0.016333		0.035	N/A	N/A	#VALUE!	4.6E-06	4.59E-07	4.14E-06
MTPlumCreek	Core Coen	1	Major Source	MT	Process Heater	50	50	8400	1985	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MTPlumCreek	Face Coen	1	Major Source	MT	Process Heater	50	50	8500	0	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MTPlumCreek	Line 2 Coen	1	Major Source	MT	Process Heater	85	85	8500	2000	Dutch Oven/Susp. Burner	Base-loaded	True	Biomass	Dry Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MTPlumCreek	Wellons Plywood	1	Major Source	MT	Process Heater	30	30	8500	1965	Fuel Cell	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MTPlumCreek	Hog Fuel Boiler	1	Major Source	MT	Boiler	292	292	8700	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
MTRoseburgMissoula	Boiler	1	Major Source	MT	Boiler	55	55	8400	1969	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone		0	1.217587622		0	0	1.217588	Biomass	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.003417	0.031583		4.6E-06	4.08E-07	4.19E-06
MTSmurfitStone	Multi-Fuel Boiler	1	Major Source	MT	Boiler	402.5	402.5	8520		Stoker/SlopedGrate/Other	#N/A	False	Biomass	Dry Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCBlueRidgePaper	G11037	1	Major Source	NC	Boiler	364	364	7800	1930	PC	load following	True	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.0785	-0.0395	50.32%	0.035	0.060333	-0.02533	41.99%	4.6E-06	4.24E-06	3.6E-07
NCBlueRidgePaper	G11038	1	Major Source	NC	Boiler	364	364	7890	1930	PC	load following	True	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.074667	-0.03567	47.77%	0.035	0.060333	-0.02533	41.99%	4.6E-06	4.24E-06	3.6E-07
NCBlueRidgePaper	G11039	1	Major Source	NC	Boiler	399	399	8150	1946	PC	load following	True	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.063833	-0.02483	38.90%	0.035	0.041	-0.006	14.63%	4.6E-06	3.13E-06	1.47E-06
NCBlueRidgePaper	G11040	1	Major Source	NC	Boiler	535	535	8350	1986	PC	load following	True	Coal	Coal	Electrostatic Precipitator	100	0	0	0	100	Coal	no	0	0.039	0.035833	0.003167		0.035	0.006933	0.028067		4.6E-06	2.1E-06	2.5E-06
NCBlueRidgePaper	G11042	1	Major Source	NC	Boiler	380	380	7700	1952	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	67.8933946	32.10660538	0	0	67.89339	Coal	combo	1	0.039	0.22	-0.181	82.27%	0.035	0.0028	0.0322		4.6E-06	3.42E-06	1.18E-06
NCDomtar	65-25-0310 (No. 2 Hog Fuel Boiler)	1	Major Source	NC	Boiler	889	889	8279	1982	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Multiclone/Electrified Filter Bed (EFB)	29.1516149	70.6691113	0.179273819	0	70.66911	Biomass	combo	0	0.039	0.021833	0.017167		0.035	0.102367	-0.06737	65.81%	4.6E-06	1.95E-06	2.65E-06
NCDomtar	66-25-2050 (No. 1 Package Boiler)	1	Major Source	NC	Boiler	360	360	1342	1996	N/A	Standby	True	Liquid	Light Liquid	Scrubber (unknown)	0	0	100	0	0	Biomass	no	0	0.0075	0.016147	-0.00865	53.55%	0.00033	0.007904	-0.00757	95.82%	3.5E-06	5.03E-06	-1.5E-06
NCDomtar	64-25-0290 (No. 1 Hog Fuel Boiler)	1	Major Source	NC	Boiler	747.5	747.5	8337	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Multiclone/Electrified Filter Bed (EFB)	17.6021553	82.12547152	0.272373193	0	82.12547	Biomass	combo	0	0.039	0.025983	0.013017		0.035	0.013417	0.021583		4.6E-06	2.47E-06	2.13E-06
NCGPAhoskieCNS	ES-B1 - Wood Fired Boiler	1	Major Source	NC	Boiler	91.8	91.8	7000	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.163333	-0.12433	76.12%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCGPDudley	ES-B1	1	Major Source	NC	Boiler	254	254	8500	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.133333	-0.09433	70.75%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCGPRoxboro	ES-1 Wood fired Boiler	1	Major Source	NC	Boiler	70	70	8400	1985	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.284333	-0.24533	86.28%	0.035	0.000217	0.034783		4.6E-06	2.67E-07	4.33E-06
NCGPWhiteville	ES-B2	1	Major Source	NC	Boiler	241.5	241.5	8664	1984	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	0	100	0	0	100	Biomass	no	0	0.039	0.103333	-0.06433	62.26%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCInternationalPaperRiegelwood	PB2	1	Major Source	NC	Boiler	425	425	8400	1957	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	12.7551416	60.6741094	26.57074895	0	60.67411	Biomass	combo	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCInternationalPaperRiegelwood	PB1	1	Major Source	NC	Boiler	250	250	5000	1951	N/A	Standby	False	Liquid	Heavy Liquid	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
NCInternationalPaperRiegelwood	PB5	1	Major Source	NC	Boiler	600	600	8400	1978	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Venturi Scrubber	11.5526316	74.77354722	13.67382119	0	74.77355	Biomass	combo	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCJacksonPaperSylva	JP-021	1	Major Source	NC	Boiler	145.1	145.1	8592	1982	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Venturi Scrubber	0	92.35407109	0	0	92.35407	Biomass	no	0	0.039	0.199287	-0.16029	80.43%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCJeld-Wen	Boiler 1	1	Major Source	NC	Boiler	43.6	43.6	8400	1988	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	0	100	0	0	100	Biomass	no	0	0.039	0.198333	-0.15933	80.34%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCKapStone	PB1	1	Major Source	NC	Boiler	550	550	8600	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	42.5487419	57.45125807	0	0	57.45126	Biomass	combo	1	0.039	0.194333	-0.15533	79.93%	0.035	N/A	N/A	#VALUE!	4.6E-06	4.01E-06	5.87E-07
NCKapStone	PKG2	1	Major Source	NC	Boiler	185	185	2000	1974	N/A	Standby	False	Liquid	Heavy Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	0.170333	-0.16283	95.60%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
NCLAPacificRoxboro	TOH#1w	1	Major Source	NC	Process Heater	40	40	3700	1995	Dutch Oven/Susp. Burner	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCLAPacificRoxboro	TOH#2w	1	Major Source	NC	Process Heater	40	40	3700	1995	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCLPRoaringRiver	Boiler #2	1	Major Source	NC	Boiler	79	79	8400	1969	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	0	100	0	0	100	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.000253	0.034747		4.6E-06	9.13E-07	3.69E-06

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
NCLPRoaringRiver	Boiler #1	1	Major Source	NC	Boiler	44	44	1000	1969	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
NCLPRoaringRiver	Boiler #3	1	Major Source	NC	Boiler	183	183	8400	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	0	0	0	0	0	Biomass	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.003633	0.031367		4.6E-06	0.000008	-3.4E-06
NCSeaboardLumber	ES-3	1	Major Source	NC	Boiler	55.82	55.82	8400	2005	FB	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	0	100	0	0	100	Biomass	no	1	0.039	0.052406	-0.01341	25.58%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCSeaboardLumber	ES-NB	1	Major Source	NC	Boiler	33	33	8400	1979	FB	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCSeaboardLumber	ES-SB	1	Major Source	NC	Boiler	33	33	8400	1979	FB	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCUniboardUSA	Suspension Burner ID 1430	1	Major Source	NC	Process Heater	60	60	8200	1996	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCWestFraser	ES-BW-1	1	Major Source	NC	Boiler	104.336	104.336	8675	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCWeyerhaeuserGrifton	ES-SEH-2901	1	Major Source	NC	Process Heater	57.16	57.16	8400	1989	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.020167	0.018833		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCWeyerhaeuserGrifton	ES-SEH-3901	1	Major Source	NC	Process Heater	98	98	8400	1998	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	0	0	0	0	0	Biomass	no	0	0.039	0.020167	0.018833		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCWeyerhaeuserGrifton	ES-SHE-1901	1	Major Source	NC	Process Heater	57.16	57.16	8400		Fuel Cell	#N/A	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NCWeyerhaeuser-Vanceboro	ES 150-001	1	Major Source	NC	Boiler	579	579	6000	1969	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	0	0	100	0	0	Biomass	no	0	0.0075	0.1411	-0.1336	94.68%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
NCWeyerhaeuser-Vanceboro	ES 161-001	1	Major Source	NC	Boiler	287	287	8760	1996	N/A	load following	True	Liquid	Heavy Liquid	Dry Scrubber	0	0	100	0	0	Biomass	no	0	0.0075	0.037	-0.0295	79.73%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
NYFinchPaper	#9 Woodwaste Boiler (BLR-1749)	1	Major Source	NY	Boiler	172.5	172.5	8520	1977	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
NYIntlPaperTiconderoga	PB1	1	Major Source	NY	Boiler	855	855	8520	1970	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Dry ScrubberCyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.081725	-0.04273	52.28%	0.035	0.001795	0.033205		4.6E-06	2.52E-07	4.35E-06
OHAppletonIdeas	Boiler 2 (B002)	1	Major Source	OH	Boiler	156	156	8400	1960	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.016667	0.022333		0.035	0.094	-0.059	62.77%	4.6E-06	4.38E-06	2.15E-07
OHAppletonIdeas	Boiler 4 (B003)	1	Major Source	OH	Boiler	245	245	8539	1968	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.043333	-0.00433	10.00%	0.035	0.115	-0.08	69.57%	4.6E-06	3.94E-07	4.21E-06
OHGlatfelterChillicothe	Power Boiler #7	1	Major Source	OH	Boiler	375	375	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
OHGlatfelterChillicothe	Power Boiler #8	1	Major Source	OH	Boiler	500	500	8760	0	PC		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
OHGlatfelterChillicothe	Power Boiler #6	1	Major Source	OH	Boiler	288	288	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
OHRockTennCincinnati	B001	1	Major Source	OH	Boiler	81	81	8136	1960	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.016333	0.022667		0.035	0.213667	-0.17867	83.62%	4.6E-06	N/A	N/A
OHSmartPapersHoldingsLLC	B010	1	Major Source	OH	Boiler	420	420	8540	1928	PC	load following	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.001	0.038		0.035	N/A	N/A	#VALUE!	4.6E-06	6.16E-06	-1.6E-06
OHSmurfitCoshocton	B006	1	Major Source	OH	Boiler	644	644	8625	1982	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.0675	-0.0285	42.22%	0.035	0.000155	0.034845		4.6E-06	8.91E-07	3.71E-06
OKGPMuskogeeMill	B-2	1	Major Source	OK	Boiler	345	345	7320	1975	PC	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.012333	0.022667		4.6E-06	2.67E-06	1.93E-06
OKGPMuskogeeMill	B-4	1	Major Source	OK	Boiler	460	460	8496	1982	PC	load following	True	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.032333	0.002667		4.6E-06	0.000002	2.6E-06
OKGPMuskogeeMill	B-3	1	Major Source	OK	Boiler	460	460	8640	1979	PC	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.004667	0.034333		0.035	0.030333	0.004667		4.6E-06	4.67E-07	4.13E-06
OKIPValliant	Bark Boiler EUG-D1	1	Major Source	OK	Boiler	900	900			Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
OKIPValliant	Power Boiler EUG-D2	1	Major Source	OK	Boiler	945	945	8642	1972	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
OKPanPacificProducts	EU 100	1	Major Source	OK	Boiler	45	45	6500	1995	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.061074	-0.02207	36.14%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
OKWeyerhaeuserWrightCity	EUG 19	1	Major Source	OK	Boiler	240	240	8400	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.026256	0.012744		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORBBSMMedford	B1	1	Major Source	OR	Boiler	57.5	57.5	8760	1955	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.006333	0.032667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORBBSMMedford	B2	1	Major Source	OR	Boiler	80.5	80.5	8760	1964	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.006333	0.032667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORBBSMMedford	B3	1	Major Source	OR	Boiler	115	115	8760	1991	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.006333	0.032667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORBlueHeronPaper	G Boiler	1	Major Source	OR	Boiler	112	112	8712	1949	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.018008	0.020992		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORBoiseBuilding	B2	1	Major Source	OR	Boiler	80	80	8600	1970	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.000433	0.034567		4.6E-06	N/A	N/A
ORCascadePacificPulp	PB1EU	1	Major Source	OR	Boiler	230	230	8603	1968	N/A	Base-loaded	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.040333	-0.03283	81.40%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ORFlakeboardEugene	Boiler-2	1	Major Source	OR	Boiler	51	51	7700	1987	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.000757	0.038243		0.035	0.000233	0.034767		4.6E-06	1.36E-07	4.46E-06
ORGeorgiaPacificWaunaMill	EU33 - Power Boiler	1	Major Source	OR	Boiler	191.8946 13356164	191.8946134	8400	1965	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.044102	-0.0366	82.99%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ORGeorgiaPacificWaunaMill	EU35 - Fluidized Bed Boiler	1	Major Source	OR	Boiler	179	179	8400	1996	FB	Base-loaded	False	Biomass	Dry Biomass	Fabric FilterDry Sorbent Injection	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.007104	0.031896		0.035	0.003239	0.031761		4.6E-06	7.62E-07	3.84E-06
ORGPToledo	EU13 - Power Boiler #1	1	Major Source	OR	Boiler	187.5	187.5	8600	1957	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.10925	-0.10175	93.14%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
ORJeldWenKlamanthFalls	BLRG	1	Major Source	OR	Boiler	74	74	8760	1988	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORRosboroSpringfield	DV 01.1	1	Major Source	OR	Boiler	50	50	8700	1946	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.12	-0.081	67.50%	0.035	0.0056	0.0294		4.6E-06	1.65E-06	2.95E-06
ORRosboroSpringfield	DV 01.2	1	Major Source	OR	Boiler	50	50	8700	1946	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
ORRosboroSpringfield	DV 01.3	1	Major Source	OR	Boiler	50	50	8700	1946	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORRoseburgCoquille	Boiler 1	1	Major Source	OR	Boiler	127.65	127.65	8400	1959	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.03445	0.00055		4.6E-06	1.25E-06	3.35E-06
ORRoseburgForestDillard	Boiler #1	1	Major Source	OR	Boiler	309	309	8500	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.000939	0.034061		4.6E-06	2.28E-06	2.32E-06
ORRoseburgForestDillard	Boiler #2	1	Major Source	OR	Boiler	309	309	8500	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.00224	0.03276		4.6E-06	1.64E-06	2.96E-06
ORRoseburgForestDillard	Boiler #6	1	Major Source	OR	Boiler	520	520	8500	1976	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.00079	0.03421		4.6E-06	5.04E-07	4.1E-06
ORRoseburgRiddle2	Boiler #1	1	Major Source	OR	Boiler	126.5	126.5	8500	1967	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.0014	0.0336		4.6E-06	6.94E-07	3.91E-06
ORRoseburgRiddle2	Boiler #2	1	Major Source	OR	Boiler	80.5	80.5	8500	1974	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.000567	0.034433		4.6E-06	7.45E-07	3.85E-06
ORSierraPine	SPMDBL01	1	Major Source	OR	Boiler	103.5	103.5	7077	1992	Dutch Oven/Susp. Burner	load following	True	Biomass	Dry Biomass	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORSierraPineSpringfield	SPSPCU01	1	Major Source	OR	Process Heater	20	20	8760	1970	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORSierraPineSpringfield	SPSPCU03	1	Major Source	OR	Process Heater	30	30	8760	1975	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORSierraPineSpringfield	SPSPCU04	1	Major Source	OR	Process Heater	30	30	8760	1975	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORSPNewsprint	B10-EU	1	Major Source	OR	Boiler	567	567	7880	1980	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.007667	0.031333		0.035	0.076933	-0.04193	54.51%	4.6E-06	2.77E-06	1.83E-06
ORSPNewsprint	B9-EU	1	Major Source	OR	Boiler	274	274	8400	1975	Stoker/SlopedGrate/Other	Standby	False	Biomass	Dry Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORStimsonLumberForestGrove	Boiler 1	1	Major Source	OR	Boiler	76	76	8400	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORStimsonLumberForestGrove	Boiler 2	1	Major Source	OR	Boiler	76	76	8400	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
ORStimsonLumberForestGrove	Boiler 3	1	Major Source	OR	Boiler	76	76	8400	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
PAAppletonPapers	#033	1	Major Source	PA	Boiler	205.03	205.03	8400	1995	N/A	Standby	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
PAAppletonPapers	#036	1	Major Source	PA	Boiler	180	180	8400	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.178398	-0.1394	78.14%	0.035	0.007184	0.027816		4.6E-06	1.03E-05	-5.7E-06
PACraftMaster	No3 Boiler Source ID 033	1	Major Source	PA	Boiler	273.2	273.2	8600	1996	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.019511	0.019489		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
PADomtarJohnsonburg	#81 Coal Boiler	1	Major Source	PA	Boiler	246	246	8640	1984	PC	load following	True	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.012667	0.026333		0.035	0.000833	0.034167		4.6E-06	3.77E-06	8.33E-07
PADomtarJohnsonburg	#82 Coal Boiler	1	Major Source	PA	Boiler	246.6666667	246.6666667	8640	1984	PC	load following	True	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.012667	0.026333		0.035	0.000833	0.034167		4.6E-06	4.13E-06	4.72E-07
PAPHGlatfelter	PB3	1	Major Source	PA	Boiler	140.1	140.1	1374	1948	PC	Standby	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.005259	0.033741		0.035	0.061998	-0.027	43.55%	4.6E-06	3.15E-06	1.45E-06
PAPHGlatfelter	PB4	1	Major Source	PA	Boiler	363.7	363.7	8550	1956	PC	load following	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.005225	0.033775		0.035	0.061997	-0.027	43.55%	4.6E-06	3.14E-06	1.46E-06
PAPHGlatfelter	PB1	1	Major Source	PA	Boiler	262.3	262.3	8574	1965	PC	Base-loaded	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.005214	0.033786		0.035	0.062003	-0.027	43.55%	4.6E-06	3.15E-06	1.45E-06
PAPHGlatfelter	PB5	1	Major Source	PA	Boiler	545	545	8412	1989	FB	Base-loaded	False	Biomass	Wet Biomass	InjectionElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.005212	0.033788		0.035	0.021022	0.013978		4.6E-06	1.43E-06	3.17E-06
PAProctorGambleMehoopany PA	Boiler #1 (031)	1	Major Source	PA	Boiler	242	242	8400	1966	N/A	load following	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
PATeamTen	033A Babcock and Wilcox No. 7 Boiler	1	Major Source	PA	Boiler	236	236	8400	1957	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
PATemple-Inland	Westec	1	Major Source	PA	Process Heater	50	50	7100	1994	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
PATemple-Inland	GEKA	1	Major Source	PA	Process Heater	66	66	7250	1994	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCBowaterCoatedPaper	Combination Boiler No. 1	1	Major Source	SC	Boiler	405	405	8600	1959	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.042	-0.003	7.14%	0.035	0.0165	0.0185		4.6E-06	7.66E-07	3.83E-06
SCBowaterCoatedPaper	Power Boiler	1	Major Source	SC	Boiler	375	375	1000	1959	N/A	Standby	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.183333	-0.17583	95.91%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
SCBowaterCoatedPaper	Combination Boiler No. 2	1	Major Source	SC	Boiler	720	720	8600	1968	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.10415	-0.06515	62.55%	0.035	0.00185	0.03315		4.6E-06	2.43E-07	4.36E-06
SCChesterWoodProducts	Boiler	1	Major Source	SC	Boiler	142	142	8640	1981	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCCogenSouth	B001 - Main Boiler	1	Major Source	SC	Boiler	1337	1337	8592	1999	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Spray Dryer/Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.014846	0.024154		0.035	0.000523	0.034477		4.6E-06	9.17E-07	3.68E-06
SCCollumsLumber	01	1	Major Source	SC	Boiler	33.5	33.5	8200	1988	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.233333	-0.19433	83.29%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCGPProsperityPly	B, Wood Fired Boiler	1	Major Source	SC	Boiler	200	200	8520	1989	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.089333	-0.05033	56.34%	0.035	N/A	N/A	#VALUE!	4.6E-06	8.51E-07	3.75E-06
SCGPRussellville	Wood-fired boiler	1	Major Source	SC	Boiler	248.67	248.67	8400	1986	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.057	-0.018	31.58%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCInternationalPaperEastover	No. 2 Power Boiler	1	Major Source	SC	Boiler	500	500	8500	1989	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.0104	0.0286		0.035	0.002517	0.032483		4.6E-06	6.28E-08	4.54E-06
SCInternationalPaperEastover	No. 1 Power Boiler	1	Major Source	SC	Boiler	545	545	8600	1982	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.022442	0.016558		0.035	0.145667	-0.11067	75.97%	4.6E-06	N/A	N/A
SCIPGeorgetown	PB01	1	Major Source	SC	Boiler	592	592	8616	1982	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.006053	0.028947		4.6E-06	N/A	N/A
SCIPGeorgetown	PB02	1	Major Source	SC	Boiler	592	592	8616	1982	Stoker/SlopedGrate/Other	load following	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	0.006053	0.028947		4.6E-06	N/A	N/A
SCMarlboroPaper	Hogged Fuel Boiler	1	Major Source	SC	Boiler	470	470	8400	1989	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.005333	0.033667		0.035	6.64E-05	0.034934		4.6E-06	9.62E-07	3.64E-06

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
SCNewSouthCamden	WWB1	1	Major Source	SC	Boiler	92	92	8400	1982	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.248667	-0.20967	84.32%	0.035	0.000867	0.034133		4.6E-06	4.39E-07	4.16E-06
SCNewSouthCoConway	WWB1	1	Major Source	SC	Boiler	92	92	8400	1983	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.326667	-0.28767	88.06%	0.035	0.001198	0.033802		4.6E-06	4.76E-07	4.12E-06
SCNewSouthLumberCoDarlington	BLR1	1	Major Source	SC	Boiler	28.93	28.93	8400	1994	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.216333	-0.17733	81.97%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCNewSouthLumberCoDarlington	BLR3	1	Major Source	SC	Boiler	28.7	28.7	8400	1997	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.254	-0.215	84.65%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCRoseburgForestRussellville	Boiler	1	Major Source	SC	Boiler	30.8	30.8	8480	1971	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	1.15E-06	3.45E-06
SCSimpsonLumberGeorgetown	02	1	Major Source	SC	Boiler	63.7	63.7	8592	1975	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCSimpsonLumberGeorgetown	B03	1	Major Source	SC	Boiler	28.7	28.7	8592	1998	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCSmurfitStone	Unit 15: Boiler #3	1	Major Source	SC	Boiler	343	343	8380	1963	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.009167	0.029833		0.035	0.001267	0.033733		4.6E-06	6.67E-07	3.93E-06
SCSmurfitStone	Unit 16: Boiler #4	1	Major Source	SC	Boiler	955	955	8380	1987	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.018533	0.020467		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCSonocoHartsville	Boiler Number 9	1	Major Source	SC	Boiler	180	180	8111	1997	FB	Base-loaded	False	Coal	Coal	Fabric FilterDry Sorbent Injection	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.015022	0.023978		0.035	0.055333	-0.02033	36.75%	4.6E-06	7.63E-07	3.84E-06
SCSonocoHartsville	Boiler Number 3	1	Major Source	SC	Boiler	178	178	8345	1950	PC	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.41	-0.371	90.49%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCSonocoHartsville	Boiler Number 4	1	Major Source	SC	Boiler	380	380	8400	1957	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.005667	0.033333		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCWestFraserNewberry	B2	1	Major Source	SC	Boiler	28.7	28.7	8169	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCWestFraserNewberry	B3	1	Major Source	SC	Boiler	28.7	28.7	8196	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
SCWestFraserNewberry	B1	1	Major Source	SC	Boiler	28.7	28.7	8386	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TNArborCraft	B-1	1	Major Source	TN	Boiler	17.14	17.14	8000	1990	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TNArborCraft	B-2	1	Major Source	TN	Boiler	17.14	17.14	8000	1990	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TNBowaterNewsprint	Power Boiler No. 1	1	Major Source	TN	Boiler	214	214	8600	1956	PC	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.026	0.013		0.035	0.008667	0.026333		4.6E-06	6.93E-06	-2.3E-06
TNBowaterNewsprint	Power Boiler No. 2	1	Major Source	TN	Boiler	460	460	8600	1957	PC	load following	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TNBowaterNewsprint	Power Boiler No. 3	1	Major Source	TN	Boiler	460	460	8600	1957	PC	load following	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.013	0.026		0.035	0.008	0.027		4.6E-06	2.77E-06	1.83E-06
TNBowaterNewsprint	Bubbling Fluidized Bed Boiler	1	Major Source	TN	Boiler	877	877	8600	1997	FB	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.034	0.005		0.035	0.009233	0.025767		4.6E-06	3.57E-07	4.24E-06
TNDomtar2384	HFB1-1	1	Major Source	TN	Boiler	544	544	8760	1998	FB	Base-loaded	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.096	-0.057	59.38%	0.035	0.0031	0.0319		4.6E-06	8.1E-07	3.79E-06
TNPackagingCorpCounce	Combination Boiler #2	1		TN	Boiler	860	860			Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TNPackagingCorpCounce	Combination Boiler #1	1	Major Source	TN	Boiler	400	400	5689	1961	N/A	Standby	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	0.011864	-0.01153	97.22%	3.5E-06	N/A	N/A
TXAnthonyForestProd-ATL	EP 10.1 Superior	1	Major Source	TX	Boiler	24	24	8592	1996	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.114067	-0.07507	65.81%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXAnthonyForestProd-ATL	EP 11.1 Hurst	1	Major Source	TX	Boiler	28.7	28.7	8592	1997	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.142	-0.103	72.54%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXDibollTemple-Inland	COEN	1	Major Source	TX	Process Heater	28	28	7500	1989	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXDibollTemple-Inland	PB-44	1	Major Source	TX	Boiler	40	40	7500	1970	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	2.65E-05	0.034973		4.6E-06	1.26E-06	3.34E-06
TXGPClevelandPlyLumber	GRP-SBOIL	1	Major Source	TX	Boiler	289.8	289.8	8568	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXInternationalPaperQueenCity	PB02	1	Major Source	TX	Boiler	1084	1084	8400		Stoker/SlopedGrate/Other	#N/A		Biomass	Wet Biomass	venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXLPCarthage	TOH Primary Wood Burner	1	Major Source	TX	Process Heater	32	32	8600	1996	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXLPJasperOSB	Suspension Burner #3	1	Major Source	TX	Process Heater	125.9642	125.9642	5613	1993	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXLPJasperOSB	Thermal Oil Heater - Wood	1	Major Source	TX	Process Heater	34	34	7200	1993	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXMeadWestvacoEvadale	21-2081	1	Major Source	TX	Boiler	318	318	8400	1994	Stoker/SlopedGrate/Other	Standby	True	Biomass	Wet Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasJefferson	North Teaford	1	Major Source	TX	Process Heater	175	175	7000	2005	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasJefferson	South Teaford	1	Major Source	TX	Process Heater	175	175	7000	2005	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasNacogdoches	Core McConnell	1	Major Source	TX	Process Heater	40	40	8000	1986	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasNacogdoches	Konus No. 1	1	Major Source	TX	Process Heater	16	16	8000	1986	Fuel Cell	Base-loaded	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.037333	0.001667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasNacogdoches	Konus No. 2	1	Major Source	TX	Process Heater	16	16	8000	1986	Fuel Cell	Base-loaded	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.037333	0.001667		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasNacogdoches	Surface McConnell	1	Major Source	TX	Process Heater	40	40	8000	1986	Dutch Oven/Susp. Burner	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXNorbordTexasNacogdoches	Teaford	1	Major Source	TX	Process Heater	60	60	8000	2006	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXPinelandTemple-Inland	EPN22	1	Major Source	TX	Boiler	175	175	8000	1973	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCL%red	Hg Limit	Hg Emissions	Hg Difference
TXPinelandTemple-Inland	EPN91	1	Major Source	TX	Process Heater	22	22	8000	1985	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXPinelandTemple-Inland	EPN92	1	Major Source	TX	Process Heater	22	22	8000	2005	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXTempleInlandFiberboard	FB-25	1	Major Source	TX	Boiler	230	230	8640	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	1.03E-06	3.57E-06
TXTemple-InlandOrange	Bark Boiler	1	Major Source	TX	Boiler	394	394	8760	0	Stoker/SlopedGrate/Other		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
TXwestfraser	Boiler-1	1	Major Source	TX	Boiler	90.7	90.7	8472	1980	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.045165	-0.00616	13.65%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VAATCPanels	Babcock & Wilcox Boiler	1	Major Source	VA	Boiler	46	46	8280	1971	Dutch Oven/Susp. Burner	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	2.03E-06	2.57E-06
VAATCPanels	Coen Burner	1	Major Source	VA	Process Heater	40	40	8280	1989	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VABassettFiberboard	BL2	1	Major Source	VA	Boiler	35	35	6000	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VABassettFiberboard	BL1	1	Major Source	VA	Boiler	25.1	25.1	8400	1969	N/A	load following	False	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
VABearIslandPaperCoAshland	Unit Ref #2 (Combo Boiler)	1	Major Source	VA	Boiler	243	243	8760	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.0897	-0.0547	60.98%	4.6E-06	2.7E-06	1.9E-06
VAGeorgiaPacificBrooknealGladys	5600	1	Major Source	VA	Process Heater	240	240	8000	1995	Fuel Cell	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	2.443333	-2.40433	98.40%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VAGeorgiaPacificEmporia	WWB	1	Major Source	VA	Boiler	179.4	179.4	8500	1977	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.204667	-0.16567	80.94%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VAGPBigIsland2703	PWR04 - No. 4 Power Boiler	1	Major Source	VA	Boiler	284	284	8529	1943	PC	Base-loaded	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.013129	0.025871		0.035	0.013053	0.021947		4.6E-06	2.5E-06	2.1E-06
VAGPBigIsland2703	PWR05 - No. 5 Power Boiler	1	Major Source	VA	Boiler	334	334	8567	1947	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.021033	0.017967		0.035	0.00948	0.02552		4.6E-06	4.87E-07	4.11E-06
VAGPJarrattFiberboard	EP-15 No. 3 Keeler Boiler	1	Major Source	VA	Boiler	86.6	86.6	8400	1978	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.013667	0.021333		4.6E-06	7.4E-06	-2.8E-06
VAGreif	BLR01	1	Major Source	VA	Boiler	225	225	5141	1975	N/A	load following	True	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
VAGreif	BLR05	1	Major Source	VA	Boiler	244	244	8640	2000	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.004563	0.034437		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VAGreif	BLR02	1	Major Source	VA	Boiler	225	225	8640	1975	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
VAMeadWestVaco-CovingtonVA	PWR007	1	Major Source	VA	Boiler	440	440	8200	1950	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0378	0.0012		0.035	N/A	N/A	#VALUE!	4.6E-06	1.29E-06	3.31E-06
VAMeadWestVaco-CovingtonVA	PWR008	1	Major Source	VA	Boiler	580	580	8300	1955	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0378	0.0012		0.035	N/A	N/A	#VALUE!	4.6E-06	1.29E-06	3.31E-06
VAMeadWestVaco-CovingtonVA	PWR009	1	Major Source	VA	Boiler	807	807	8500	1964	Stoker/SlopedGrate/Other	Base-loaded	True	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0378	0.0012		0.035	N/A	N/A	#VALUE!	4.6E-06	1.29E-06	3.31E-06
VAMeadWestVaco-CovingtonVA	PWR006	1	Major Source	VA	Boiler	550	550	8600	1940	PC	Base-loaded	True	Coal	Coal	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0378	0.0012		0.035	N/A	N/A	#VALUE!	4.6E-06	1.29E-06	3.31E-06
VASmurfitStoneHopewell	Combination Boiler	1	Major Source	VA	Boiler	846	846	8575	1979	PC	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.021297	0.017703		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
VASmurfitStoneWestpt	PB08	1	Major Source	VA	Boiler	553	553	8047	1964	PC	load following	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.013753	0.025247		0.035	0.007381	0.027619		4.6E-06	9.48E-07	3.65E-06
VASmurfitStoneWestpt	PB10	1	Major Source	VA	Boiler	659	659	8285	1981	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.024411	0.014589		0.035	0.002882	0.032118		4.6E-06	5.5E-06	-9E-07
WABoiseKettleFallsPlywood	B1	1	Major Source	WA	Boiler	45	45	8400	1975	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Multiclone/Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.01804	0.02096		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WABoisePaperWallula	Hog Fuel Boiler	1	Major Source	WA	Boiler	270.25	270.25	8500	1978	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	ScrubberElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	8.93E-05	0.034911		4.6E-06	N/A	N/A
WAGPCamas	No. 3 Power Boiler	1	Major Source	WA	Boiler	276	276	8000	1948	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	0.000335	0.034665		4.6E-06	9.96E-07	3.6E-06
WAGPCamas	No. 5 Power Boiler	1	Major Source	WA	Boiler	318	318	8340	1970	N/A	load following	True	Liquid	Heavy Liquid	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WAGraysHarborPaper	No. 6 Boiler (EU2)	1	Major Source	WA	Boiler	210	210	4750	1952	Dutch Oven/Susp. Burner		False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.204333	-0.16533	80.91%	0.035	0.044967	-0.00997	22.16%	4.6E-06	2.74E-06	1.86E-06
WAGraysHarborPaper	No. 8 Boiler (EU1)	1	Major Source	WA	Boiler	400	400	7646	1976	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.11	-0.071	64.55%	0.035	0.003667	0.031333		4.6E-06	2.42E-06	2.18E-06
WAJeldWenWhiteSwan	Boiler 1	1	Major Source	WA	Boiler	47.3	47.3	8400	1984	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WAJeldWenWhiteSwan	Boiler 2	1	Major Source	WA	Boiler	37.8	37.8	3000	1997	N/A	load following	False	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WAKimberlyClarkEverett	Cogeneration Boiler	1	Major Source	WA	Boiler	435	435	8180	1995	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.006558	0.032442		0.035	0.094873	-0.05987	63.11%	4.6E-06	1.83E-06	2.77E-06
WANipponPaper	#9 Package Boiler	1	Major Source	WA	Boiler	115	115	1600	1964	N/A	Standby	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.041136	-0.03364	81.77%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WANipponPaper	#8 Hog Fuel Boiler	1	Major Source	WA	Boiler	161	161	8550	1953	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.093943	-0.05494	58.49%	0.035	0.006333	0.028667		4.6E-06	2.03E-06	2.57E-06
WANipponPaper	#10 Package Boiler	1	Major Source	WA	Boiler	115	115	3000	1982	N/A	Standby	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	0.030633	-0.02313	75.52%	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WAPonderayAbibo	FBB boiler	1	Major Source	WA	Boiler	64	64	8600	0	FB		False	Biomass	Dry Biomass	Fabric FilterDry Sorbent Injection	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WAPort Townsend	Power Boiler	1	Major Sour	WA	Boiler	188	188			N/A	#N/A		Liquid	Heavy Liquid	No HAP APCD Contro	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WASierraPacific	Co-Gen	1	Major Source	WA	Boiler	287.5	287.5	8400	2006	Stoker/SlopedGrate/Other	Base-loaded	True	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WASimpsonLumberCompany	EU1	1	Major Source	WA	Boiler	185	185	8500	1986	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	2.5E-06	2.1E-06
WASimpsonTacoma2784	#7 PB	1	Major Source	WA	Boiler	345	345	8700	1991	Stoker/SlopedGrate/Other	load following	True	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.004627	0.034373		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

FacilityID	UnitID	Unit Count	Major Source	State	Classificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
WAWeyerhaeuser_Raymond	Hog Fuel Boiler EU1	1	Major Source	WA	Boiler	115	115	8550	1996	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.001317	0.037683		0.035	0.000267	0.034733		4.6E-06	1.86E-06	2.74E-06
WAWeyerhaeuserLongview	No. 11 Hog Fuel Boiler	1	Major Source	WA	Boiler	632.5	632.5	8400	1975	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	InjectionElectrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.002667	0.036333		0.035	0.021667	0.013333		4.6E-06	N/A	N/A
WIAlgoma	B02	1	Major Source	WI	Boiler	21	21	3949	1986	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WIAlgoma	B03	1	Major Source	WI	Boiler	34	34	4751	1987	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WIAppleton	B22 Coal Fired Boiler	1	Major Source	WI	Boiler	44	44	8232	1947	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Cyclone or Multiclone	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	1.3E-06	3.3E-06
WIAppletonCoated	B23	1	Major Source	WI	Boiler	341	341	8520	1985	Stoker/SlopedGrate/Other	Base-loaded	True	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WIDomtar2814	B11, S11	1	Major Source	WI	Boiler	120	120	7728	1972	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.0031	0.0359		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WIDomtar2814	B10, S10	1	Major Source	WI	Boiler	200	200	8400	1976	N/A	Base-loaded	False	Liquid	Light Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WIDomtarNekoosa	B22 - Boiler No. 7	1	Major Source	WI	Boiler	148.4	148.4	1468	1942	Stoker/SlopedGrate/Other	Standby	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0209	0.0181		0.035	0.10514	-0.07014	66.71%	4.6E-06	3.93E-06	6.7E-07
WIDomtarNekoosa	B20 - Boiler No. 1	1	Major Source	WI	Boiler	153.4	153.4	8640	1947	PC	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0209	0.0181		0.035	0.10514	-0.07014	66.71%	4.6E-06	3.93E-06	6.7E-07
WIDomtarNekoosa	B21 - Boiler No. 2	1	Major Source	WI	Boiler	153.4	153.4	8640	1952	PC	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0209	0.0181		0.035	0.10514	-0.07014	66.71%	4.6E-06	3.93E-06	6.7E-07
WIDomtarNekoosa	B24 - Boiler No. 10	1	Major Source	WI	Boiler	303.2	303.2	8640	1966	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.0209	0.0181		0.035	0.10514	-0.07014	66.71%	4.6E-06	3.93E-06	6.7E-07
WIFlambeauRiverPaper	B24	1	Major Source	WI	Boiler	249	249	8400	1982	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Wet Biomass	Venturi Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.061083	-0.02208	36.15%	0.035	0.004577	0.030423		4.6E-06	3.03E-06	1.57E-06
WIGPGreenBay2818	B25 - Stoker Boiler #5	1	Major Source	WI	Boiler	200	200	4080	1950	Stoker/SlopedGrate/Other	Standby	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	11.29802	-11.259	99.65%	0.035	N/A	N/A	#VALUE!	4.6E-06	1.39E-06	3.21E-06
WIGPGreenBay2818	B29 - Fluidized Bed Boiler #9	1	Major Source	WI	Boiler	486	486	7896	1992	FB	Base-loaded	False	Coal	Coal	Fabric FilterDry Sorbent Injection	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.990467	-0.95147	96.06%	0.035	0.002828	0.032172		4.6E-06	4.3E-07	4.17E-06
WIGPGreenBay2818	B26 - Stoker Boiler #6	1	Major Source	WI	Boiler	350	350	8304	1962	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	3.059554	-3.02055	98.73%	0.035	0.039678	-0.00468	11.79%	4.6E-06	3.56E-06	1.04E-06
WIGPGreenBay2818	B28 - Stoker Boiler #8	1	Major Source	WI	Boiler	235	235	8304	1975	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	3.975124	-3.93612	99.02%	0.035	0.039678	-0.00468	11.79%	4.6E-06	3.56E-06	1.04E-06
WIGPGreenBay2818	B27 - Cyclone Boiler #7	1	Major Source	WI	Boiler	615	615	8328	1969	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	1.408985	-1.36998	97.23%	0.035	0.039678	-0.00468	11.79%	4.6E-06	3.56E-06	1.04E-06
WIGPGreenBay2818	Sludge-Fired Boiler 10	1	Major Source	WI	Boiler	95	95	8376	1998	FB	Base-loaded	True	Biomass	Wet Biomass	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.002017	0.036983		0.035	0.072067	-0.03707	51.43%	4.6E-06	1.07E-05	-6.1E-06
WIGreenBayPackagingMillDivision	Boiler B26- Coal Fired Boiler	1	Major Source	WI	Boiler	229	229	8760	1977	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.00064	0.03836		0.035	0.172	-0.137	79.65%	4.6E-06	1.03E-06	3.57E-06
WILPHayward	K1 Line 1 Konus	1	Major Source	WI	Process Heater	19.4	19.4	6575	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WILPHayward	K2 Line 1 Konus	1	Major Source	WI	Process Heater	19.4	19.4	6575	1979	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WILPHayward	K3 Line 2 Konus	1	Major Source	WI	Process Heater	23.8	23.8	6575	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WILPHayward	K4 Line 2 Konus	1	Major Source	WI	Process Heater	23.8	23.8	6575	1981	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrified Filter Bed (EFB)	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WINeenahPaperAppleton	Union Boiler (B22)	1	Major Source	WI	Boiler	60	60	5900	1957	N/A	load following	False	Liquid	Heavy Liquid	No HAP APCD Control	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.0075	N/A	N/A	#VALUE!	0.00033	N/A	N/A	#VALUE!	3.5E-06	N/A	N/A
WINewPageBiron	B24	1	Major Source	WI	Boiler	445.16	445.16	8324	1986	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.003733	0.035267		0.035	0.000587	0.034413		4.6E-06	2.69E-06	1.91E-06
WINewPageBiron	B23	1	Major Source	WI	Boiler	340	340	8349	1958	PC	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.033667	0.005333		0.035	0.076167	-0.04117	54.05%	4.6E-06	7.69E-06	-3.1E-06
WINewPageKimberly	B21	1	Major Source	WI	Boiler	137.5	137.5	8760	1951	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.089933	-0.05093	56.63%	0.035	0.154333	-0.11933	77.32%	4.6E-06	1.73E-06	2.87E-06
WINewPageKimberly	B22	1	Major Source	WI	Boiler	165	165	8760	1957	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.089933	-0.05093	56.63%	0.035	0.154333	-0.11933	77.32%	4.6E-06	1.73E-06	2.87E-06
WINewPage-Whiting	B24	1	Major Source	WI	Boiler	211.4	211.4	8626	1976	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.054767	-0.01577	28.79%	0.035	0.002733	0.032267		4.6E-06	8.69E-06	-4.1E-06
WINewPage-WisconsinRapids	Power Boiler 1 - B21	1	Major Source	WI	Boiler	412.3	412.3	8623	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.018033	0.020967		0.035	0.0008	0.0342		4.6E-06	2.28E-06	2.32E-06
WINewPage-WisconsinRapids	Power Boiler 2 - B20	1	Major Source	WI	Boiler	412.3	412.3	8623	1966	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.009833	0.029167		0.035	0.0009	0.0341		4.6E-06	1.85E-06	2.75E-06
WIPCATomahawk	B24	1	Major Source	WI	Boiler	250.6	250.6	8312	1977	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.044833	-0.00583	13.01%	0.035	0.167533	-0.13253	79.11%	4.6E-06	N/A	N/A
WIPCATomahawk	B27	1	Major Source	WI	Boiler	122	122	8381	1955	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.044833	-0.00583	13.01%	0.035	0.167533	-0.13253	79.11%	4.6E-06	N/A	N/A
WIPCATomahawk	B28	1	Major Source	WI	Boiler	190.9	190.9	8397	1956	Stoker/SlopedGrate/Other	Base-loaded	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.044833	-0.00583	13.01%	0.035	0.167533	-0.13253	79.11%	4.6E-06	N/A	N/A
WIThilmanyLLC	B07	1	Major Source	WI	Boiler	204	204	7989	1948	Stoker/SlopedGrate/Other	load following	False	Biomass	Wet Biomass	Wet Scrubber	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	1	0.039	0.211333	-0.17233	81.55%	0.035	0.012647	0.022353		4.6E-06	5.16E-06	-5.6E-07
WIThilmanyLLC	B11	1	Major Source	WI	Boiler	379	379	8400	1967	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.1799	-0.1409	78.32%	0.035	0.2072	-0.1722	83.11%	4.6E-06	1.85E-06	2.76E-06
WIThilmanyLLC	B09	1	Major Source	WI	Boiler	192.4	192.4	8657	1957	Stoker/SlopedGrate/Other		False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.1799	-0.1409	78.32%	0.035	0.2072	-0.1722	83.11%	4.6E-06	1.85E-06	2.76E-06
WIThilmanyPapersNicoletMill	B23	1	Major Source	WI	Boiler	105	105	8616	1960	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.002939	0.036061		0.035	0.088	-0.053	60.23%	4.6E-06	2.86E-06	1.74E-06
WIThilmanyPapersNicoletMill	B24	1	Major Source	WI	Boiler	105	105	8616	1963	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.002939	0.036061		0.035	0.088	-0.053	60.23%	4.6E-06	2.86E-06	1.74E-06
WIWausau	# 5 Power Boiler (B24)	1	Major Source	WI	Boiler	143	143	8520	1966	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.002307	0.036693		0.035	0.061333	-0.02633	42.93%	4.6E-06	3.52E-06	1.08E-06
WIWausau	# 6 Power Boiler (B20)	1	Major Source	WI	Boiler	211.7	211.7	8600	1975	Stoker/SlopedGrate/Other	load following	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.008287	0.030713		0.035	0.055967	-0.02097	37.46%	4.6E-06	3.2E-06	1.4E-06

FacilityID	UnitID	Unit Count	ajor Source	State	lassificatio	apacity (m	apacity_Numeri	Hours Per Y	ear Installe	Combustor Design	Duty Cycle	y NOx Burn	CT Fuel Categ	Baseline Fuel Cat	Total Control	Coal %	Biomass %	Liquid %	Gas 2 %	Max Fuel%	Max Fuel	Biomass/Coal Combo Boiler?	Wet Biomass?	PM Limit	PM Emissions	PM Difference	PM %red	HCL Limit	HCL Emissions	HCL Difference	HCl%red	Hg Limit	Hg Emissions	Hg Difference
WIWausauRhine	B20	1	Major Source	WI	Boiler	91	91	3000	1934	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.021	0.018		0.035	N/A	N/A	#VALUE!	4.6E-06	2.42E-06	2.18E-06
WIWausauRhine	B21	1	Major Source	WI	Boiler	91	91	3000	1929	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.021	0.018		0.035	N/A	N/A	#VALUE!	4.6E-06	2.42E-06	2.18E-06
WIWausauRhine	B22	1	Major Source	WI	Boiler	91	91	3000	1929	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.021	0.018		0.035	N/A	N/A	#VALUE!	4.6E-06	2.42E-06	2.18E-06
WIWausauRhine	B23	1	Major Source	WI	Boiler	91	91	3000	1941	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Fabric Filter	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.021	0.018		0.035	N/A	N/A	#VALUE!	4.6E-06	2.42E-06	2.18E-06
WIWausauRhine	B26	1	Major Source	WI	Boiler	300	300	8600	1958	Stoker/SlopedGrate/Other	Base-loaded	False	Coal	Coal	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.008933	0.030067		0.035	0.010343	0.024657		4.6E-06	1.01E-06	3.59E-06
WVGPMtHopeOSB	5600 - Wellons Energy System	1	Major Source	WV	Process Heater	240	240	8000	1995	Fuel Cell	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.044333	-0.00533	12.03%	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WVJELD-WENCraigsville	Wood Fired Boiler	1	Major Source	WV	Boiler	62.5	62.5	8760	1998	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	N/A	N/A	#VALUE!	0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A
WVWeyerhaeuserBuckhannon	001-01	1	Major Source	WV	Process Heater	116	116	8376	1995	Stoker/SlopedGrate/Other	load following	False	Biomass	Dry Biomass	Electrostatic Precipitator	Data Not Provided	Data Not Provided	Data Not Provided	Data Not Provided	0	Data Not P	no	0	0.039	0.003841	0.035159		0.035	N/A	N/A	#VALUE!	4.6E-06	N/A	N/A

Represents Biomass, Coal, Liquid, Gas2

Shaded units indicate changes to EPA inventory

Deleted limited use units

New In Inventory

Added to Old, not in New (probably didn't get ICR)

CISWI units kept in CISWI, not here

554 Subtotal for filtered units (F9 to update)

1593 Total Unit Count

all boilers:	green	332	216	311
all boilers:	red	294	237	90

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
ALAbitibiBowaterCP	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$4,462,402	$8,924,805	$1,000,000	$0	$14,387,207	$1,579,638	$223,120	$1,368,970	$287,812
ALAbitibiBowaterCP	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$4,462,402	$8,924,805	$1,000,000	$0	$14,387,207	$1,579,638	$223,120	$1,368,970	$287,812
ALAbitibiBowaterCP	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$4,462,402	$8,924,805	$1,000,000	$0	$14,387,207	$1,579,638	$223,120	$1,368,970	$287,812
ALAbitibiBowaterCP	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$4,462,402	$8,924,805	$1,000,000	$0	$14,387,207	$1,579,638	$223,120	$1,368,970	$287,812
ALBoiseWhitePaperJackson		0.005	0.009345	-0.00434	46.50%	490	400.4394	89.56063		4	5	3	3	322	1			1			$9,759,500	$0	$1,000,000	$0	$10,759,500	$1,181,335	$278,843	$0	$407,962
ALBrewton	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$3,205,084	$0	$1,000,000	$1,373,607	$5,578,691	$612,510	$91,574	$0	$63,773
ALChapmanForestProducts	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	1			2	2		$3,696,490	$0	$1,000,000	$1,584,210	$6,280,700	$689,587	$105,614	$0	$80,889
ALChapmanForestProducts	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	1			2	2		$2,580,424	$0	$1,000,000	$1,105,896	$4,686,320	$514,533	$73,726	$0	$44,435
ALChapmanForestProducts	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	1			2	2		$2,580,424	$0	$1,000,000	$1,105,896	$4,686,320	$514,533	$73,726	$0	$44,435
ALGeorgiaPacificNaheola		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$5,499,578	$0	$1,000,000	$4,124,683	$10,624,261	$1,166,487	$274,979	$0	$398,583
ALGeorgiaPacificNaheola		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$4,621,173	$0	$1,000,000	$3,465,880	$9,087,053	$997,710	$231,059	$0	$298,234
ALGeorgiaPacificNaheola	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$8,984,989	$10,268,559	$1,000,000	$3,850,710	$24,104,258	$2,646,518	$256,714	$1,201,537	$252,611
ALGPBelkLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$1,385,692	$2,385,692	$261,936	$0	$0	$64,711
ALGPBrewtonMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$3,917,383	$4,917,383	$539,902	$0	$0	$365,759
ALGPBrewtonMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$5,113,278	$6,113,278	$671,205	$0	$0	$570,209
ALGPBrewtonMill	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2		$7,636,120	$8,726,994	$1,000,000	$3,272,623	$20,635,737	$2,265,693	$218,175	$888,904	$186,883
ALGPEngineeredWoodProductsThornsby	#VALUE!	0.005	N/A	N/A	#VALUE!	490	996.9221	-506.922	50.85%	1	4	4	4	321	1			2	1		$3,025,524	$0	$1,000,000	$1,296,653	$5,322,177	$584,346	$86,444	$0	$57,931
ALGPPetermanPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,744,939	$0	$1,000,000	$2,808,705	$7,553,644	$829,350	$187,247	$0	$210,077
ALGPTalladegaPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,338,866	$0	$1,000,000	$2,504,150	$6,843,016	$751,326	$166,943	$0	$173,501
ALGulfLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2		$3,205,084	$0	$1,000,000	$1,373,607	$5,578,691	$612,510	$91,574	$0	$63,773
ALIPCourtland		0.004	N/A	N/A	#VALUE!	160	170.3968	-10.3968	6.10%	2	6	2	2	322	2			2	1		$7,639,561	$0	$1,000,000	$5,729,671	$14,369,231	$1,577,664	$381,978	$0	$614,848
ALIPCourtland		0.005	N/A	N/A	#VALUE!	490	160.3697	329.6303		4	5	3	3	322	2			2			$9,252,602	$0	$1,000,000	$0	$10,252,602	$1,125,681	$264,360	$0	$373,262
ALIPCourtland		0.02	0.003299	0.016701		430	39.81268	390.1873		5	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
ALIPPineHill	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		2		2			$0	$15,711,600	$1,000,000	$0	$16,711,600	$1,834,844	$0	$3,063,767	$644,126
ALIPPineHill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1			2	2		$7,450,912	$0	$1,000,000	$5,588,184	$14,039,097	$1,541,417	$372,546	$0	$661,179
ALIPPrattville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1			2	2		$6,964,666	$0	$1,000,000	$5,223,500	$13,188,166	$1,447,990	$348,233	$0	$590,841
ALIPPrattville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$5,597,691	$6,597,691	$724,391	$0	$0	$663,055
ALIPRiverdale	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$6,915,661	$0	$1,000,000	$2,963,855	$10,879,515	$1,194,512	$197,590	$0	$229,772
ALK-CMobile	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	4	5	3	3	322	2		2	2	2		$13,532,274	$0	$1,000,000	$5,799,546	$20,331,820	$2,232,325	$386,636	$0	$627,396
ALK-CMobile	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$6,062,866	$12,125,733	$1,000,000	$0	$19,188,599	$2,106,805	$303,143	$1,989,459	$418,264
ALManningtonWoodFloors	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1309.168	-819.168	62.57%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$810,040	$1,810,040	$198,733	$0	$0	$26,447
ALManningtonWoodFloors	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1309.168	-819.168	62.57%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$810,040	$1,810,040	$198,733	$0	$0	$26,447
ALMeadwestvacoCottonton46		0.005	N/A	N/A	#VALUE!	490	2734.408	-2244.41	82.08%	4	5	3	3	322	1			2	1		$8,373,595	$0	$1,000,000	$3,588,684	$12,962,279	$1,423,189	$239,246	$0	$316,053
ALMeadwestvacoCottonton46	#VALUE!	0.005	N/A	N/A	#VALUE!	490	259.641	230.359		5	6	2	2	322	2			2			$6,419,683	$0	$1,000,000	$0	$7,419,683	$814,641	$320,984	$0	$515,814
ALMeadwestvacoCottonton46	#VALUE!	0.005	N/A	N/A	#VALUE!	490	121.8274	368.1726		4	5	3	3	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$858,126
ALP&WAlabamaRiver	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$9,826,653	$0	$1,000,000	$4,211,423	$15,038,076	$1,651,100	$280,762	$0	$412,651
ALP&WAlabamaRiver	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$3,392,721	$0	$1,000,000	$2,544,541	$6,937,262	$761,674	$169,636	$0	$178,190
ALP&WAlabamaRiver	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$9,826,653	$0	$1,000,000	$4,211,423	$15,038,076	$1,651,100	$280,762	$0	$412,651
ALRock-TennDemopolis	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	4	5	3	3	322	2		2	2	2		$7,000,000	$0	$1,000,000	$3,000,000	$11,000,000	$1,207,741	$200,000	$0	$239,844
ALRock-TennDemopolis	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$6,571,183	$0	$1,000,000	$2,816,221	$10,387,404	$1,140,481	$187,748	$0	$211,015
ALScotchLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$4,003,094	$0	$1,000,000	$1,715,612	$6,718,706	$737,678	$114,374	$0	$92,378
ALSeamanTimber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,267

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
ALSmurfit-Stone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$3,754,962	$0	$1,000,000	$2,816,221	$7,571,183	$831,275	$187,748	$0	$211,015
ALSmurfit-Stone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$5,101,698	$0	$1,000,000	$3,826,274	$9,927,972	$1,090,038	$255,085	$0	$351,691
ALSmurfit-Stone	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	1	4	2	2	322	2				2		$3,173,696	$0	$0	$2,380,272	$5,553,968	$609,796	$158,685	$0	$0
ALSmurfit-Stone	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	1	4	2	2	322	2				2		$3,173,696	$0	$0	$2,380,272	$5,553,968	$609,796	$158,685	$0	$0
ALWestervelt	#VALUE!	0.005	N/A	N/A	#VALUE!	490	432.518	57.48204		5	6	2	2	321	2			2			$2,280,508	$0	$1,000,000	$0	$3,280,508	$360,182	$114,025	$0	$91,909
ALWestervelt	#VALUE!	0.005	N/A	N/A	#VALUE!	490	159.4541	330.5459		5	6	2	2	321	2			2			$2,294,442	$0	$1,000,000	$0	$3,294,442	$361,712	$114,722	$0	$90,608
ALWestFraserCitronelle	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2		$3,792,098	$0	$1,000,000	$1,625,185	$6,417,283	$704,583	$108,346	$0	$84,406
ALWestFraserMaplesville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	1			2	2		$4,483,965	$0	$1,000,000	$1,921,699	$7,405,664	$813,102	$128,113	$0	$111,603
ALWeyerhaeuserMillport	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$4,392,914	$0	$1,000,000	$1,882,678	$7,275,592	$798,821	$125,512	$0	$105,252
ARAnthonyForestProducts		4	0.007409	-3.992591		690	654.2629	35.73714		5	6	5	5	321	1						$1,944,271	$0	$0	$0	$1,944,271	$213,470	$55,551	$0	$0
ARAnthonyForestProducts	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	5	5	321	2						$1,944,271	$0	$0	$0	$1,944,271	$213,470	$55,551	$0	$0
ARAnthonyForestProducts	#VALUE!	4	N/A	N/A	#VALUE!	690	541.3322	148.6678		5	6	5	5	321	2						$1,951,759	$0	$0	$0	$1,951,759	$214,293	$55,765	$0	$0
ARDeltaNaturalKraft	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	322	1			2	2		$5,355,574	$0	$1,000,000	$2,295,246	$8,650,820	$949,814	$153,016	$0	$146,437
ARDelticTimberWaldo	#VALUE!	0.005	N/A	N/A	#VALUE!	490	199.1758	290.8242		5	6	2	2	321	2			2			$1,698,974	$0	$1,000,000	$0	$2,698,974	$296,333	$84,949	$0	$56,271
ARDelticTimberWaldo	#VALUE!	0.005	N/A	N/A	#VALUE!	490	266.9093	223.0907		5	6	2	2	321	2			2			$1,698,974	$0	$1,000,000	$0	$2,698,974	$296,333	$84,949	$0	$56,271
ARDelticTimberWaldo	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,698,974	$0	$1,000,000	$1,274,231	$3,973,205	$436,236	$84,949	$0	$56,271
ARDel-Tin	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$4,381,590	$0	$1,000,000	$3,286,193	$8,667,783	$951,676	$219,080	$0	$266,332
ARDomtarIndustries	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	1	4	4	322	322	2			2	2		SEE CISWI								
ARDomtarIndustries	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		SEE CISWI								
ARDomtarIndustries	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		SEE CISWI								
AREvergreenPackaging	#VALUE!	0.005	N/A	N/A	#VALUE!	490	502.7179	-12.7179	2.53%	4	5	3	3	322	2			2	1		$10,610,016	$0	$1,000,000	$4,547,150	$16,157,166	$1,773,970	$303,143	$0	$457,616
AREvergreenPackaging	#VALUE!	4	N/A	N/A	#VALUE!	10	20.95782	-10.9578	52.29%	5	6	6	6	322	2	2	2		1		$11,836,540	$13,527,475	$1,000,000	$5,072,803	$31,436,818	$3,451,594	$338,187	$1,902,170	$399,912
ARGBPMorrilton	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1068.183	-578.183	54.13%	5	6	5	5	322	1				2	1	$5,395,641	$0	$1,000,000	$2,312,418	$8,708,059	$956,098	$154,161	$0	$151,931
ARGBPMorrilton		0.005	0.011704	-0.0067	57.28%	490	459.7391	30.26088		4	5	3	3	322	1				1		$9,986,587	$0	$1,000,000	$0	$10,986,587	$1,206,268	$285,331	$0	$423,905
ARGeorgiaPacificCrossett93	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2		$6,915,661	$0	$1,000,000	$2,963,855	$10,879,515	$1,194,512	$197,590	$0	$224,232
ARGeorgiaPacificCrossett93	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,951,806	$0	$1,000,000	$2,963,855	$7,915,661	$869,097	$197,590	$0	$224,232
ARGeorgiaPacificFordyce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2		$5,843,016	$0	$1,000,000	$2,504,150	$9,347,166	$1,026,269	$166,943	$0	$169,318
ARGPCrossett92	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322				2	2		$0	$0	$1,000,000	$6,896,325	$7,896,325	$866,974	$0	$0	$938,781
ARGPCrossett92	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2		$13,204,852	$0	$1,000,000	$5,659,222	$19,864,074	$2,180,969	$377,281	$0	$675,247
ARGPFordyceOSB	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
ARGPFordyceOSB	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
ARGPGurdonPlyLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	339.1004	150.8996		4	5	3	3	321	2			2			$4,836,535	$0	$1,000,000	$0	$5,836,535	$640,820	$138,187	$0	$123,556
ARGPGurdonPlyLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	321.0572	168.9428		4	5	3	3	321	2			2			$4,836,535	$0	$1,000,000	$0	$5,836,535	$640,820	$138,187	$0	$123,556
ARLeolaLumberMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	237.9658	252.0342		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$86,169
ARLeolaLumberMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	391.8251	98.17495		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$86,169
ARLeolaLumberMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,914,122	$0	$1,000,000	$820,338	$3,734,459	$410,024	$54,689	$0	$27,010
ARPotlatchForestCypressBend	#VALUE!	4	N/A	N/A	#VALUE!	10	57.5983	-47.5983	82.64%	5	6	6	6	322	1	2	2		1		$10,340,352	$11,817,546	$1,000,000	$4,431,580	$27,589,478	$3,029,176	$295,439	$1,518,565	$319,263
ARPotlatchForestPrescott	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$2,422,033	$3,422,033	$375,721	$0	$0	$160,166
ARPotlatchForestWarren		0.005	0.010353	-0.00535	51.70%	490	285.9735	204.0265		5	6	2	2	321					1		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$256,265
ARRiversideFurniturePlant5	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,514,798	$0	$1,000,000	$649,199	$3,163,998	$347,390	$43,280	$0	$17,847
ARTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
ARTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
ARTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
ARWestFraserHuttig	#VALUE!	0.005	N/A	N/A	#VALUE!	490	64.80667	425.1933		5	6	5	5	321	1			2			$1,947,032	$0	$1,000,000	$0	$2,947,032	$323,568	$55,629	$0	$27,788
ARWestFraserHuttig	#VALUE!	0.005	N/A	N/A	#VALUE!	490	475.1572	14.84284		5	6	5	5	321	1			2			$4,461,319	$0	$1,000,000	$0	$5,461,319	$599,623	$127,466	$0	$110,665
ARWeyerhaeuser	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$3,493,460	$0	$1,000,000	$1,497,197	$5,990,658	$657,742	$99,813	$0	$71,846
ARWeyerhaeuserDierksMill		4	0.021378	3.978622		690	152.1682	537.8318		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
AZCatalystPaperSnowflake	#VALUE!	0.004	N/A	N/A	#VALUE!	160	2.226869	157.7731		1	4	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$1,141,869
AZCatalystPaperSnowflake	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$8,373,595	$9,569,823	$1,000,000	$3,588,684	$22,532,103	$2,473,904	$239,246	$1,036,542	$217,923
CAHumboldtFlakeboard143	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
CARoseburgWeed	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$2,378,087	$3,378,087	$370,896	$0	$0	$159,189
CASierraPine-Rocklin	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	4	5	2	2	321				2	2		$0	$0	$1,000,000	$1,417,976	$2,417,976	$265,481	$0	$0	$65,622
FLCFRC252		0.005	N/A	N/A	#VALUE!	490	363.9491	126.0509		1	4	4	4	321	2			2			$3,664,252	$0	$1,000,000	$0	$4,664,252	$512,110	$104,693	$0	$79,717
FLCFRC252	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,957,658	$0	$1,000,000	$838,996	$3,796,654	$416,852	$55,933	$0	$28,042
FLGPHawthorne	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$2,808,705	$3,808,705	$418,175	$0	$0	$210,077
FLGPHosfordOSB	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
FLGPHosfordOSB	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
FLGPPalatka	#VALUE!	0.005	N/A	N/A	#VALUE!	490	301.1009	188.8991		5	6	2	2	322	1			2			$6,154,800	$0	$1,000,000	$0	$7,154,800	$785,559	$307,740	$0	$480,832
FLIPPensacola	44.71%	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	2			1	2		$8,521,808	$0	$1,000,000	$0	$9,521,808	$1,045,443	$243,480	$0	$332,903
FLIPPensacola		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$12,601,393	$0	$1,000,000	$5,400,597	$19,001,991	$2,086,316	$360,040	$0	$624,603
FLNorthFloridaLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,672,518	$0	$1,000,000	$716,793	$3,389,311	$372,128	$47,786	$0	$21,570
FLNorthFloridaLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,431,131	$0	$1,000,000	$1,041,913	$4,473,045	$491,116	$69,461	$0	$40,233
FLRayonierPerformance		0.02	N/A	N/A	#VALUE!	430	72.01906	357.9809		1	4	2	2	322	1						$6,242,975	$0	$0	$0	$6,242,975	$685,445	$312,149	$0	$0
FLSmurfit-Stone		0.004	N/A	N/A	#VALUE!	160	15.2574	144.7426		5	6	2	2	322		1		2			$0	$18,609,788	$1,000,000	$0	$19,609,788	$2,153,049	$0	$4,062,475	$854,095
FLSmurfit-Stone	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$8,927,972	$0	$1,000,000	$0	$9,927,972	$1,090,038	$255,085	$0	$359,765
FLSmurfit-Stone		0.005	N/A	N/A	#VALUE!	490	387.5904	102.4096		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$736,761
FLSmurfit-Stone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$8,927,972	$0	$1,000,000	$3,826,274	$13,754,245	$1,510,142	$255,085	$0	$351,691
FLSmurfitStonePanamaCity	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2		$11,173,055	$0	$1,000,000	$4,788,452	$16,961,507	$1,862,282	$319,230	$0	$455,908
FLSmurfitStonePanamaCity	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2		$10,673,549	$0	$1,000,000	$4,574,378	$16,247,928	$1,783,935	$304,959	$0	$473,611
GAAbitibiBowater	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$7,411,970	$0	$1,000,000	$3,176,559	$11,588,529	$1,272,358	$211,771	$0	$257,907
GACaraustar		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	3	1	1	322	1	1		2			$4,577,439	$9,154,878	$1,000,000	$0	$14,732,318	$1,617,529	$0	$1,428,292	$300,284
GAGPCedarSprings	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	1		2	2			$13,897,084	$0	$1,000,000	$0	$14,897,084	$1,635,620	$397,060	$0	$655,838
GAGPCedarSprings		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	1			2	2		$13,897,084	$0	$1,000,000	$5,955,893	$20,852,977	$2,289,545	$397,060	$0	$735,269
GAGPCelluloseBrunswick		0.005	N/A	N/A	#VALUE!	490	217.2575	272.7425		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$750,274
GAGPCelluloseBrunswick	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	2	2	322		2	2		2		$0	$7,164,139	$1,000,000	$2,686,552	$10,850,691	$1,191,348	$0	$639,765	$134,504
GAGPCelluloseBrunswick	#VALUE!	4	N/A	N/A	#VALUE!	10	1.453583	8.546417		5	6	2	2	322	1	2	2				$5,060,775	$10,121,550	$1,000,000	$0	$16,182,325	$1,776,732	$253,039	$1,138,044	$239,262
GAGPMadisonPly		0.005	0.002012	0.002988		490	2475.007	-1985.01	80.20%	5	6	2	2	321					1		$0	$0	$0	$3,702,493	$3,702,493	$406,514	$0	$0	$0
GAGPMonticelloPlywood		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$2,892,880	$3,892,880	$427,417	$0	$0	$220,674
GAGPSRMRiincon		0.002	N/A	N/A	#VALUE!	82	N/A	N/A	#VALUE!	3	2	1	1	322	1			2			$5,476,252	$0	$1,000,000	$0	$6,476,252	$711,058	$0	$0	$353,015
GAGPSRMRiincon		0.002	N/A	N/A	#VALUE!	82	N/A	N/A	#VALUE!	3	2	1	1	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$353,015
GAGPSRMRiincon	#VALUE!	0.002	N/A	N/A	#VALUE!	82	N/A	N/A	#VALUE!	3	2	1	1	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$353,015
GAGPWarmSprings		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$5,747,746	$0	$1,000,000	$2,463,320	$9,211,065	$1,011,325	$164,221	$0	$168,812
GAGPWarrenton	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$1,578,141	$2,578,141	$283,066	$0	$0	$78,435
GAGPWoodClaxton	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$1,581,453	$2,581,453	$283,430	$0	$0	$78,710

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
GAGraphicPackaging	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$8,927,972	$0	$1,000,000	$0	$9,927,972	$1,090,038	$255,085	$0	$359,765
GAGraphicPackaging	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$5,899,684	$0	$1,000,000	$0	$6,899,684	$757,548	$168,562	$0	$180,362
GAGraphicPackaging	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$5,899,684	$0	$1,000,000	$0	$6,899,684	$757,548	$168,562	$0	$180,362
GAInternationalPaperAugusta Mills		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1			2		$0	$14,659,544	$1,000,000	$0	$15,659,544	$1,719,334	$0	$2,729,538	$573,858
GAInternationalPaperAugusta Mills		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	1				2	2	$12,759,668	$0	$1,000,000	$5,468,429	$19,228,097	$2,111,142	$364,562	$0	$637,733
GAInternationalPaperAugusta Mills		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322					2	2	$0	$0	$1,000,000	$4,867,098	$5,867,098	$644,176	$0	$0	$525,192
GAInterstateResources	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	1	4	2	2	322	2						$4,000,000	$0	$0	$0	$4,000,000	$439,178	$200,000	$0	$0
GAInterstateResources	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2			2	$5,899,684	$6,742,496	$1,000,000	$2,528,436	$16,170,616	$1,775,447	$168,562	$596,013	$125,306
GAIPSavannah	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322					2	2	$0	$0	$1,000,000	$7,992,511	$8,992,511	$987,329	$0	$0	$1,171,496
GALangboardWillacoochee	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	5	6	2	2	321	2						$3,338,866	$0	$0	$0	$3,338,866	$366,590	$166,943	$0	$0
GALouisianaPacificAthens	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2				2	2	$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
GAP&GAlbany	#VALUE!	0.005	N/A	N/A	#VALUE!	490	384.4832	105.5168		5	6	2	2	322					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$202,574
GAP&GAlbany	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2			2	$5,880,835	$6,720,954	$1,000,000	$2,520,358	$16,122,147	$1,770,125	$168,024	$575,173	$120,924
GAPCAValdosta	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3420.103	-2930.1	85.67%	4	5	3	3	322	1				2	1	$6,881,733	$0	$1,000,000	$2,949,314	$10,831,047	$1,189,191	$196,621	$0	$227,896
GAPCAValdosta	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3420.103	-2930.1	85.67%	4	5	3	3	322	1				2	1	$8,711,953	$0	$1,000,000	$3,733,694	$13,445,647	$1,476,260	$248,913	$0	$337,624
GARayonierBaxley	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	1				2	2	$2,935,583	$0	$1,000,000	$1,258,107	$5,193,690	$570,239	$83,874	$0	$53,761
GARayonierBaxley	#VALUE!	0.005	N/A	N/A	#VALUE!	490	350.2887	139.7113		5	6	2	2	321					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$56,323
GARayonierJesupMill		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	1				2	2	$5,670,765	$0	$1,000,000	$2,430,328	$9,101,093	$999,251	$162,022	$0	$161,081
GARayonierJesupMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	2	6	5	5	322	1				2	2	$8,010,519	$0	$1,000,000	$3,433,079	$12,443,598	$1,366,240	$228,872	$0	$286,467
GARayonierJesupMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	347.8726	142.1274		4	5	3	3	322	1				2		$11,978,016	$0	$1,000,000	$0	$12,978,016	$1,424,916	$342,229	$0	$560,122
GARoseburgForestVienna		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2				2	2	$2,769,302	$0	$1,000,000	$1,186,844	$4,956,146	$544,158	$79,123	$0	$48,782
GASPNewsprint	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	1	2			2		$3,990,392	$7,980,785	$1,000,000	$0	$12,971,177	$1,424,166	$199,520	$1,136,245	$238,884
GASPNewsprint		0.002	N/A	N/A	#VALUE!	82	117.6226	-35.6226	30.29%	5	6	2	2	322					2	1	$0	$0	$1,000,000	$4,814,762	$5,814,762	$638,430	$0	$0	$460,090
GATempleInlandRome	#VALUE!	0.005	N/A	N/A	#VALUE!	490	130.3333	359.6667		5	6	2	2	322					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$529,881
GATempleInlandRome		0.02	0.009674	0.010326		430	129.2	300.8		5	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
GATempleInlandThomson	#VALUE!	0.2	N/A	N/A	#VALUE!	470	563.5428	-93.5428	16.60%	5	6	2	2	321	2				2	1	$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
GATempleInlandThomson	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2				2	2	$1,961,583	$0	$1,000,000	$840,679	$3,802,262	$417,468	$56,045	$0	$27,457
GAWestFraserFolkston	#VALUE!	0.005	N/A	N/A	#VALUE!	490	13303.34	-12813.3	96.32%	5	6	5	5	321	2				2	1	$1,932,407	$0	$1,000,000	$828,174	$3,760,582	$412,892	$55,212	$0	$26,780
GAWestFraserFolkston	#VALUE!	0.005	N/A	N/A	#VALUE!	490	9463.896	-8973.9	94.82%	5	6	5	5	321	2				2	1	$1,902,133	$0	$1,000,000	$815,200	$3,717,333	$408,143	$54,347	$0	$26,084
GAWeyerhaeuserCoOglethorpe	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	1				2	2	$12,533,155	$0	$1,000,000	$5,371,352	$18,904,507	$2,075,613	$358,090	$0	$604,053
GAWYPortWentworth	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2				2	2	$5,101,698	$0	$1,000,000	$3,826,274	$9,927,972	$1,090,038	$255,085	$0	$355,443
IA3MKnoxville	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2			2	$3,316,909	$3,790,753	$1,000,000	$1,421,532	$9,529,194	$1,046,254	$94,769	$221,457	$46,559
IA3MKnoxville	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2			2	$3,316,909	$3,790,753	$1,000,000	$1,421,532	$9,529,194	$1,046,254	$94,769	$221,457	$46,559
IAJELD-WENDubuque	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2				2	2	$3,690,057	$0	$1,000,000	$1,581,453	$6,271,510	$688,578	$105,430	$0	$78,710
IDChilcoLakeSawmill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	51.0253	438.9747		5	6	2	2	321					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$114,404
IDMoyieSprings Lumber420		0.005	N/A	N/A	#VALUE!	490	1883.684	-1393.68	73.99%	5	6	2	2	321					2	1	$0	$0	$1,000,000	$1,979,262	$2,979,262	$327,107	$0	$0	$114,404
IDPotlatch		4	0.5656	3.4344		690	272.1349	417.8651		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
IDPotlatch		0.005	N/A	N/A	#VALUE!	490	454.9756	35.02441		5	6	2	2	321					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$84,201
IDPotlatch		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2				2	2	$1,325,581	$0	$1,000,000	$994,185	$3,319,766	$364,492	$66,279	$0	$36,312
IDRileyCreekLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	161.3135	328.6865		5	6	2	2	321					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$64,277
IDRileyCreekLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1308.888	-818.888	62.56%	5	6	2	2	321	1				2	1	$1,826,462	$0	$1,000,000	$1,369,847	$4,196,309	$460,732	$91,323	$0	$61,952
INJasperSeating9	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2				2	2	$1,044,835	$0	$1,000,000	$447,786	$2,492,621	$273,676	$29,852	$0	$9,610

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
INKimballOfficeJasper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,560,941	$0	$1,000,000	$668,975	$3,229,915	$354,627	$44,598	$0	$18,762
INKimballOfficeSalem	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	5	5	321	2	2		2	2		$2,313,621	$2,644,139	$1,000,000	$991,552	$6,949,312	$762,997	$66,103	$180,248	$37,895
INKimballOfficeSalem	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	5	5	321	2	2		2	2		$2,313,621	$2,644,139	$1,000,000	$991,552	$6,949,312	$762,997	$66,103	$180,248	$37,895
INNOFJasper	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	5	5	321	2	2		2	2		$1,582,678	$1,808,775	$1,000,000	$678,290	$5,069,743	$556,630	$45,219	$95,728	$20,126
INNOFJasper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$1,044,058	$0	$1,000,000	$447,454	$2,491,512	$273,555	$29,830	$0	$9,598
INNOFJasper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$1,044,058	$0	$1,000,000	$447,454	$2,491,512	$273,555	$29,830	$0	$9,598
KYDomtarHawesville	#VALUE!	0.02	N/A	N/A	#VALUE!	430	111.6637	318.3363		5	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
KYHONCoOwensboro	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$4,231,545	$0	$1,000,000	$1,813,519	$7,045,064	$773,510	$120,901	$0	$98,887
KYNewPage-Wickliffe		0.005	N/A	N/A	#VALUE!	490	265.0952	224.9048		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$591,779
KYWeyerhaeuserEKY	#VALUE!	4	N/A	N/A	#VALUE!	690	109.5222	580.4778		5	6	2	2	321	1						$1,942,373	$0	$0	$0	$1,942,373	$213,262	$97,119	$0	$0
KYWeyerhaeuserEKY	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321	1						$1,942,373	$0	$0	$0	$1,942,373	$213,262	$97,119	$0	$0
KYWeyerhaeuserEKY	#VALUE!	4	N/A	N/A	#VALUE!	690	109.5222	580.4778		5	6	2	2	321	1						$1,942,373	$0	$0	$0	$1,942,373	$213,262	$97,119	$0	$0
LABoiseCascadeFlorien	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2		$4,900,738	$0	$1,000,000	$2,100,316	$8,001,054	$878,473	$140,021	$0	$126,302
LABoiseCascadeOakdale	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1448.817	-958.817	66.18%	5	6	5	5	321				2	1		$0	$0	$1,000,000	$2,100,316	$3,100,316	$340,398	$0	$0	$126,302
LABoiseNewsprintDeRidder		0.005	N/A	N/A	#VALUE!	490	602.5834	-112.583	18.68%	4	5	3	3	322	1			2	1		$21,251,289	$0	$1,000,000	$9,107,695	$31,358,984	$3,443,048	$607,180	$0	$1,492,390
LABoiseNewsprintDeRidder	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$10,016,914	$0	$1,000,000	$4,292,963	$15,309,877	$1,680,942	$286,198	$0	$426,053
LAGPLogansportPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	342.8737	147.1263		1	4	4	4	321	1			2			$6,518,472	$0	$1,000,000	$0	$7,518,472	$825,488	$186,242	$0	$208,201
LAGPPortHudson	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1260.465	-770.465	61.13%	4	5	3	3	322	2			2	1		$10,081,732	$0	$1,000,000	$4,320,742	$15,402,475	$1,691,109	$288,049	$0	$430,658
LAGPPortHudson	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	2	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
LAGPSpringhillWood	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2		$6,283,076	$0	$1,000,000	$2,692,747	$9,975,823	$1,095,292	$179,516	$0	$191,100
LAGraphic Packaging	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$13,532,274	$0	$1,000,000	$5,799,546	$20,331,820	$2,232,325	$386,636	$0	$703,382
LAHoodIndustries	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1768.444	-1278.44	72.29%	5	6	5	5	321	2			2	1		$3,044,001	$0	$1,000,000	$1,304,572	$5,348,573	$587,245	$86,971	$0	$58,521
LAHoodIndustries	#VALUE!	0.005	N/A	N/A	#VALUE!	490	2329.841	-1839.84	78.97%	5	6	5	5	321	2			2	1		$3,044,001	$0	$1,000,000	$1,304,572	$5,348,573	$587,245	$86,971	$0	$58,521
LAHuntNatalbany	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1569.911	-1079.91	68.79%	5	6	5	5	321	2			2	1		$3,849,950	$0	$1,000,000	$1,649,978	$6,499,928	$713,657	$109,999	$0	$86,563
LAHuntPollock	#VALUE!	0.005	N/A	N/A	#VALUE!	490	584.8403	-94.8403	16.22%	5	6	5	5	321	2			2	1		$3,017,582	$0	$1,000,000	$1,293,249	$5,310,832	$583,101	$86,217	$0	$57,677
LAHuntPollock	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3566.918	-3076.92	86.26%	5	6	5	5	321	2			2	1		$3,533,361	$0	$1,000,000	$1,514,298	$6,047,659	$664,000	$100,953	$0	$75,027
LAInternationalPaperRedRiver Mill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		SEE CISWI								
LAIPMansfield	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2		322	2	2		2	2		SEE CISWI								
LAIPMansfield		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		SEE CISWI								
LASmurfit-Stone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	322	2			2	2		$13,532,274	$0	$1,000,000	$5,799,546	$20,331,820	$2,232,325	$386,636	$0	$703,382
LATempleInlandBogalusa	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2		$10,538,556	$0	$1,000,000	$4,516,524	$16,055,080	$1,762,761	$301,102	$0	$463,670
LATempleInlandBogalusa	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2		$13,934,275	$0	$1,000,000	$5,971,832	$20,906,107	$2,295,378	$398,122	$0	$738,551
LAWestFraserJoyce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	2331.176	-1841.18	78.98%	5	6	5	5	321	1			2	1		$2,922,370	$0	$1,000,000	$1,252,444	$5,174,814	$568,167	$83,496	$0	$54,676
LAWestFraserJoyce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1606.367	-1116.37	69.50%	5	6	5	5	321	1			2	1		$2,922,370	$0	$1,000,000	$1,252,444	$5,174,814	$568,167	$83,496	$0	$54,676
LAWestFraserJoyce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1741.834	-1251.83	71.87%	5	6	5	5	321	1			2	1		$5,238,231	$0	$1,000,000	$2,244,956	$8,483,187	$931,408	$149,664	$0	$144,615
LAWeyerhaeuser1043	#VALUE!	0.005	N/A	N/A	#VALUE!	490	375.5549	114.4451		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$91,523
LAWeyerhaeuserDodson	#VALUE!	0.005	N/A	N/A	#VALUE!	490	433.2898	56.71016		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$213,249
MAHollingsworth&vose	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$2,649,093	$3,027,535	$1,000,000	$1,135,325	$7,811,953	$857,710	$75,688	$156,929	$32,993
MAMWCustomPapers	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$2,242,605	$2,562,977	$1,000,000	$961,116	$6,766,699	$742,947	$64,074	$118,886	$24,995
MAMWCustomPapers	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$2,600,631	$2,972,150	$1,000,000	$1,114,556	$7,687,338	$844,028	$74,304	$152,174	$31,993
MANewarkAmerica	#VALUE!	4	N/A	N/A	#VALUE!	10	1.316966	8.683034		5	6	6	6	322		2	2				$0	$7,609,615	$1,000,000	$0	$8,609,615	$945,289	$0	$707,433	$148,731
MDNewPage-Luke	76.69%	0.003	N/A	N/A	#VALUE!	270	290.9382	-20.9382	7.20%	5	3	1	1	322		2	1	2	1		$0	$13,391,746	$1,000,000	$5,021,905	$19,413,650	$2,131,514	$0	$2,347,562	$493,551

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
MDNewPage-Luke	11.71%	0.004	N/A	N/A	#VALUE!	160	131.0361	28.96385		5	3	1	1	322			1	2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$656,674
MEDomtarBaileyville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	1			2	2		$12,130,035	$0	$1,000,000	$5,198,586	$18,328,621	$2,012,384	$346,572	$0	$572,020
MEHuberEngineeredWoodLLC	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		321	2			2	2		$2,079,043	$0	$1,000,000	$1,559,283	$4,638,326	$509,263	$103,952	$0	$97,043
MEKatahdinPaperCo	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$8,856,356	$10,121,550	$1,000,000	$3,795,581	$23,773,487	$2,610,201	$253,039	$1,173,005	$246,612
MEKatahdinPaperCo	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$8,856,356	$10,121,550	$1,000,000	$3,795,581	$23,773,487	$2,610,201	$253,039	$1,173,005	$246,612
MEKatahdinPaperCo	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$6,048,304	$0	$1,000,000	$4,536,228	$11,584,532	$1,271,919	$302,415	$0	$467,046
MELincolnPaper&Tissue		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$5,561,459	$0	$1,000,000	$4,171,094	$10,732,553	$1,178,377	$278,073	$0	$406,086
MELincolnPaper&Tissue	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$1,292,920	$1,477,622	$1,000,000	$554,108	$4,324,651	$474,823	$36,941	$46,063	$9,684
MEMadisonPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$4,438,595	$5,072,680	$1,000,000	$1,902,255	$12,413,531	$1,362,939	$126,817	$370,923	$77,983
MEMadisonPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$4,015,274	$4,588,884	$1,000,000	$1,720,832	$11,324,989	$1,243,423	$114,722	$313,858	$65,986
MEMadisonPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$4,483,965	$5,124,531	$1,000,000	$1,921,699	$12,530,196	$1,375,748	$128,113	$377,264	$79,316
MENewPage-Rumford		0.02	N/A	N/A	#VALUE!	430	14.60129	415.3987		3	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
MENewPage-Rumford	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	4	5	3	3	322	1				2		$7,809,204	$0	$0	$3,346,802	$11,156,006	$1,224,870	$223,120	$0	$0
MENewPage-Rumford		0.02	N/A	N/A	#VALUE!	430	14.60129	415.3987		3	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
MERedShield	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		$3,371,248	$0	$1,000,000	$2,528,436	$6,899,684	$757,548	$168,562	$0	$169,318
MERedShield	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$7,000,000	$8,000,000	$1,000,000	$3,000,000	$19,000,000	$2,086,098	$200,000	$792,571	$166,630
MESappiWestbrook	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6		322	2	2	2		2		$5,899,684	$6,742,496	$1,000,000	$2,528,436	$16,170,616	$1,775,447	$168,562	$578,864	$121,700
MESappiWestbrook	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6		322	2	2	2		2		$6,358,604	$7,266,976	$1,000,000	$2,725,116	$17,350,697	$1,905,013	$181,674	$675,270	$141,969
MESappiWestbrook	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6		322	2	2	2		2		$6,358,604	$7,266,976	$1,000,000	$2,725,116	$17,350,697	$1,905,013	$181,674	$675,270	$141,969
MESappiWestbrook	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2		322	2	2			2		$8,300,446	$16,600,893	$1,000,000	$0	$25,901,339	$2,843,828	$415,022	$4,059,055	$853,376
MESDWarren		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322					2	2	$0	$0	$1,000,000	$7,193,824	$8,193,824	$899,638	$0	$0	$982,959
MESDWarren	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$5,899,684	$6,742,496	$1,000,000	$2,528,436	$16,170,616	$1,775,447	$168,562	$596,013	$125,306
MESDWarrenSomerset	#VALUE!	0.005	N/A	N/A	#VALUE!	490	275.416	214.584		5	6	2	2	322					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$795,291
MESDWarrenSomerset		0.005	N/A	N/A	#VALUE!	490	204.7091	285.2909		2	6	2	2	322					2		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$1,219,196
MEVersoPaper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322					2	2	$0	$0	$1,000,000	$6,091,607	$7,091,607	$778,620	$0	$0	$744,998
MEVersoPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$8,870,710	$10,137,954	$1,000,000	$3,801,733	$23,810,397	$2,614,254	$253,449	$1,176,175	$247,279
MEVersoPaperAndroscoggin	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1396.063	-906.063	64.90%	4	5	3	3	322	1				2	1	$10,353,299	$0	$1,000,000	$4,437,128	$15,790,428	$1,733,704	$295,809	$0	$450,165
MIDecorativePanels	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	321	2	2			2	2	$2,252,468	$4,504,937	$1,000,000	$1,689,351	$9,446,757	$1,037,203	$112,623	$438,071	$92,100
MIDecorativePanels	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	321	2	2			2	2	$2,252,468	$4,504,937	$1,000,000	$1,689,351	$9,446,757	$1,037,203	$112,623	$438,071	$92,100
MIDecorativePanels	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2				2	2	$3,506,794	$0	$1,000,000	$1,502,912	$6,009,706	$659,833	$100,194	$0	$72,303
MIEBEddyPaper	38.09%	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	1	1		2		$3,456,604	$6,913,208	$1,000,000	$0	$11,369,812	$1,248,344	$172,830	$894,394	$188,037
MILPCSagola	#VALUE!	0.005	N/A	N/A	#VALUE!	490	67.95856	422.0414		5	6	5	5	321	1				2		$2,973,205	$0	$1,000,000	$0	$3,973,205	$436,236	$84,949	$0	$56,271
MIManistiquePaper		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1			2	2	$0	$18,901,304	$1,000,000	$7,087,989	$26,989,293	$2,963,279	$0	$4,169,090	$876,510
MIManistiquePaper		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1			2	2	$0	$15,336,673	$1,000,000	$5,751,253	$22,087,926	$2,425,136	$0	$2,942,887	$618,713
MIMenominee	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2	2	2	2		$0	$4,092,399	$1,000,000	$1,534,650	$6,627,049	$727,614	$0	$373,273	$78,477
MIMenominee	30.34%	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		1	1	2	2		$0	$4,644,284	$1,000,000	$1,741,607	$7,385,891	$810,931	$0	$460,887	$96,897
MINeenahPaperMI		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		1		2	2		$0	$7,039,419	$1,000,000	$2,639,782	$10,679,201	$1,172,519	$0	$921,773	$193,794
MINewPageEscanaba	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2			2		$8,843,368	$17,686,736	$1,000,000	$0	$27,530,103	$3,022,657	$442,168	$3,732,225	$784,663
MINewPageEscanaba	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$5,234,154	$5,981,890	$1,000,000	$2,243,209	$14,459,252	$1,587,548	$149,547	$488,224	$102,644
MINewPageEscanaba	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$11,393,026	$13,020,601	$1,000,000	$4,882,725	$30,296,351	$3,326,377	$325,515	$1,784,869	$375,251
MINewPageEscanaba	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2				2	2	$11,393,026	$0	$1,000,000	$4,882,725	$17,275,751	$1,896,785	$325,515	$0	$528,006
MIPackagingCorpofAmerica	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	3	1	1	322		2	2	2			$0	$7,806,435	$1,000,000	$0	$8,806,435	$966,899	$0	$1,095,176	$230,250

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
MISmurfitStoneOntonagon	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	3	6	2	2	322	2			2			$5,101,698	$0	$1,000,000	$0	$6,101,698	$669,934	$255,085	$0	$359,765
MIVersoPaperQuinnesec		0.005	N/A	N/A	#VALUE!	490	109.1374	380.8626		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$585,214
MN3MHutchinson	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$4,277,299	$4,888,342	$1,000,000	$1,833,128	$11,998,770	$1,317,400	$122,209	$348,731	$73,317
MN3MHutchinson	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$4,277,299	$4,888,342	$1,000,000	$1,833,128	$11,998,770	$1,317,400	$122,209	$348,731	$73,317
MNAndersonCorpBayport	#VALUE!	0.005	N/A	N/A	#VALUE!	490	31.40845	458.5915		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$47,592
MNAndersonCorpBayport	#VALUE!	0.005	N/A	N/A	#VALUE!	490	31.40845	458.5915		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$47,592
MNBoisePaper1212		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$3,947,440	$4,947,440	$543,202	$0	$0	$370,448
MNGPDuluth	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	321	2	2	2		2		$2,434,530	$2,782,320	$1,000,000	$1,043,370	$7,260,220	$797,133	$69,558	$136,322	$28,660
MNGPDuluth	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	321	2	2	2		2		$2,434,530	$2,782,320	$1,000,000	$1,043,370	$7,260,220	$797,133	$69,558	$136,322	$28,660
MNGPDuluth	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,698,974	$0	$1,000,000	$1,274,231	$3,973,205	$436,236	$84,949	$0	$54,914
MNGPDuluth	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$797,196	$0	$1,000,000	$597,897	$2,395,094	$262,968	$39,860	$0	$15,943
MNGPDuluth		4	0.010391	3.989609		10	77.82179	-67.8218	87.15%	5	6	2	2	321	1	1			1		$1,391,160	$2,782,320	$0	$1,043,370	$5,216,850	$572,782	$69,558	$136,322	$0
MNNorbordMinnesota	#VALUE!	0.2	N/A	N/A	#VALUE!	470	959.7274	-489.727	51.03%	5	6	2	2	321	1			2	1		$878,848	$0	$1,000,000	$659,136	$2,537,985	$278,657	$43,942	$0	$18,757
MNNorbordMinnesota	#VALUE!	0.2	N/A	N/A	#VALUE!	470	959.7274	-489.727	51.03%	5	6	2	2	321	1			2	1		$878,848	$0	$1,000,000	$659,136	$2,537,985	$278,657	$43,942	$0	$18,757
MNSappiCloquet		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$4,462,402	$0	$1,000,000	$3,346,802	$8,809,204	$967,203	$223,120	$0	$281,353
MNSappiCloquet		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$5,538,307	$0	$1,000,000	$4,153,731	$10,692,038	$1,173,928	$276,915	$0	$403,273
MNVersoPaper	83.61%	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	4	5	3	3	322	1		1	2	2		$4,483,965	$0	$1,000,000	$1,921,699	$7,405,664	$813,102	$128,113	$0	$114,166
MNVersoPaper		0.005	N/A	N/A	#VALUE!	490	59.71165	430.2883		4	5	3	3	322	1			2			$8,827,602	$0	$1,000,000	$0	$9,827,602	$1,079,018	$252,217	$0	$345,126
MNWausauPaper-Brainerd		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$3,189,791	$1,000,000	$1,196,172	$5,385,963	$591,350	$0	$246,415	$51,806
MNWausauPaper-Brainerd		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$4,807,909	$1,000,000	$1,802,966	$7,610,875	$835,633	$0	$488,266	$102,653
MNWausauPaper-Brainerd		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$4,807,909	$1,000,000	$1,802,966	$7,610,875	$835,633	$0	$488,266	$102,653
MNWeyerhaeuserIronton	#VALUE!	0.005	N/A	N/A	#VALUE!	490	132.3223	357.6777		5	6	2	2	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$205,927
MSBowaterSouth		0.005	N/A	N/A	#VALUE!	490	412.9498	77.05025		4	5	3	3	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$219,455
MSGeorgiaPacificMonticello	#VALUE!	0.005	N/A	N/A	#VALUE!	490	326.7245	163.2755		5	6	2	2	322	2			2			$8,724,039	$0	$1,000,000	$0	$9,724,039	$1,067,647	$436,202	$0	$860,002
MSGPBaySprings	#VALUE!	0.005	N/A	N/A	#VALUE!	490	546.3959	-56.3959	10.32%	5	6	2	2	321	2			2	1		$1,911,128	$0	$1,000,000	$1,433,346	$4,344,473	$477,000	$95,556	$0	$66,812
MSGPBaySprings	#VALUE!	0.005	N/A	N/A	#VALUE!	490	585.9405	-95.9405	16.37%	5	6	2	2	321	2			2	1		$1,689,101	$0	$1,000,000	$1,266,826	$3,955,926	$434,339	$84,455	$0	$54,383
MSGPGlosterPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$2,600,631	$0	$1,000,000	$1,114,556	$4,715,188	$517,702	$74,304	$0	$43,931
MSGPGlosterPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$2,600,631	$0	$1,000,000	$1,114,556	$4,715,188	$517,702	$74,304	$0	$43,931
MSGPGlosterPly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$3,990,889	$0	$1,000,000	$1,710,381	$6,701,270	$735,763	$114,025	$0	$89,693
MSGPLouisvillePly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	1			2	2		$2,626,328	$0	$1,000,000	$1,969,746	$5,596,074	$614,419	$131,316	$0	$113,489
MSGPNewAugusta		0.005	N/A	N/A	#VALUE!	490	101.9839	388.0161		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$587,579
MSGPTaylorsvillePly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,002,583	$0	$1,000,000	$2,251,937	$6,254,520	$686,713	$150,129	$0	$141,861
MSGPTaylorsvillePly	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$5,534,343	$0	$1,000,000	$2,371,861	$8,906,204	$977,853	$158,124	$0	$154,674
MSGPTylertownMill	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,961,583	$0	$1,000,000	$840,679	$3,802,262	$417,468	$56,045	$0	$27,457
MSHankinsLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$3,119,479	$0	$1,000,000	$1,336,920	$5,456,398	$599,083	$89,128	$0	$59,490
MSHankinsLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,672,518	$0	$1,000,000	$716,793	$3,389,311	$372,128	$47,786	$0	$21,050
MSHoodBeaumont	#VALUE!	0.005	N/A	N/A	#VALUE!	490	383.3162	106.6838		4	5	3	3	321	2			2			$4,943,230	$0	$1,000,000	$0	$5,943,230	$652,535	$141,235	$0	$131,298
MSHoodWaynesboro	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$4,039,560	$0	$1,000,000	$1,731,240	$6,770,800	$743,397	$115,416	$0	$93,784
MSHoodWiggins	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$3,119,479	$0	$1,000,000	$1,336,920	$5,456,398	$599,083	$89,128	$0	$60,960
MSHoodWiggins	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$3,119,479	$0	$1,000,000	$1,336,920	$5,456,398	$599,083	$89,128	$0	$60,960
MSHoodWiggins		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$3,792,098	$0	$1,000,000	$1,625,185	$6,417,283	$704,583	$108,346	$0	$84,406
MSIPVicksburg	#VALUE!	0.005	N/A	N/A	#VALUE!	490	259.2119	230.7881		1	4	4	4	322	2			2			$14,792,637	$0	$1,000,000	$0	$15,792,637	$1,733,947	$422,647	$0	$815,923

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
MSNorbordMS	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
MSNorbordMS	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
MSNorbordMS	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
MSSandersonPlumbing		0.005	N/A	N/A	#VALUE!	490	476.2361	13.76386		5	6	5	5	321	2			2			$1,091,316	$0	$1,000,000	$0	$2,091,316	$229,615	$31,180	$0	$10,333
MSShuqualakLumber	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,400,400	$0	$1,000,000	$1,028,743	$4,429,143	$486,296	$68,583	$0	$38,440
MSShuqualakLumber	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,294,162	$0	$1,000,000	$554,641	$2,848,803	$312,783	$36,976	$0	$13,728
MSShuqualakLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,922,086	$0	$1,000,000	$823,751	$3,745,837	$411,273	$54,917	$0	$26,542
MSShuqualakLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	122.248	367.752		5	6	5	5	321	2			2			$1,922,086	$0	$1,000,000	$0	$2,922,086	$320,829	$54,917	$0	$26,542
MSWeyerhaeuser1398	#VALUE!	0.005	N/A	N/A	#VALUE!	490	2891.434	-2401.43	83.05%	5	6	5	5	321	1			2	1		$4,943,230	$0	$1,000,000	$2,118,527	$8,061,758	$885,138	$141,235	$0	$128,132
MSWeyerhaeuser1398	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$1,918,107	$0	$1,000,000	$822,046	$3,740,152	$410,649	$54,803	$0	$26,450
MSWeyerhaeuserBruce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	2124.637	-1634.64	76.94%	5	6	6	5	321	1			2	1		$3,261,316	$0	$1,000,000	$1,397,707	$5,659,023	$621,330	$93,180	$0	$64,066
MSWeyerhaeuserBruce		4	0.003171	3.996829		690	354.881	335.119		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
MSWeyerhaeuserColumbus		0.005	N/A	N/A	#VALUE!	490	96.24913	393.7509		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$1,281,324
MTPlumCreek	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,522,923	$0	$1,000,000	$1,142,192	$3,665,116	$402,410	$76,146	$0	$45,762
MTPlumCreek	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,522,923	$0	$1,000,000	$1,142,192	$3,665,116	$402,410	$76,146	$0	$45,762
MTPlumCreek	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	4	5	3	3	321	2			2	2		$3,664,252	$0	$1,000,000	$1,570,394	$6,234,646	$684,531	$104,693	$0	$77,795
MTPlumCreek	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321	2						$1,120,905	$0	$0	$0	$1,120,905	$123,069	$56,045	$0	$0
MTPlumCreek	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$4,390,618	$0	$1,000,000	$3,292,964	$8,683,582	$953,411	$219,531	$0	$273,850
MTRoseburgMissoula		0.005	N/A	N/A	#VALUE!	490	53.53662	436.4634		5	6	5	5	321	2			2			$2,821,965	$0	$1,000,000	$0	$3,821,965	$419,631	$80,628	$0	$50,338
MTSmurfitStone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$9,315,230	$0	$1,000,000	$3,992,241	$14,307,471	$1,570,883	$266,149	$0	$368,381
NCBlueRidgePaper		0.004	N/A	N/A	#VALUE!	160	75.24458	84.75542		5	6	2	2	322	1	1		2			$5,011,374	$10,022,748	$1,000,000	$0	$16,034,122	$1,760,460	$250,569	$1,661,017	$349,212
NCBlueRidgePaper		0.004	N/A	N/A	#VALUE!	160	15.82828	144.1717		5	6	2	2	322	1	1		2			$5,011,374	$10,022,748	$1,000,000	$0	$16,034,122	$1,760,460	$250,569	$1,661,017	$349,212
NCBlueRidgePaper		0.004	N/A	N/A	#VALUE!	160	15.3462	144.6538		5	6	2	2	322	1	1		2			$5,295,168	$10,590,336	$1,000,000	$0	$16,885,503	$1,853,937	$264,758	$1,820,731	$382,790
NCBlueRidgePaper		0.004	N/A	N/A	#VALUE!	160	13.49823	146.5018		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$447,542
NCBlueRidgePaper		0.005	N/A	N/A	#VALUE!	490	666.8057	-176.806	26.52%	4	5	3	3	322	1			2	1		$8,999,206	$0	$1,000,000	$3,856,803	$13,856,009	$1,521,315	$257,120	$0	$356,380
NCDomtar		0.005	N/A	N/A	#VALUE!	490	55.91815	434.0818		5	6	2	2	322		1		2			$0	$17,126,438	$1,000,000	$0	$18,126,438	$1,990,185	$0	$3,870,057	$813,641
NCDomtar	30.35%	4	N/A	N/A	#VALUE!	10	49.05812	-39.0581	79.62%	2	6	6	6	322	1	1	1		1		$8,711,953	$0	$1,000,000	$3,733,694	$13,445,647	$1,476,260	$248,913	$0	$232,796
NCDomtar		0.005	N/A	N/A	#VALUE!	490	1634.34	-1144.34	70.02%	5	6	2	2	322				2	1		$0	$0	$1,000,000	$5,787,939	$6,787,939	$745,279	$0	$0	$684,136
NCGPAhoskieCNS	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$3,837,423	$0	$1,000,000	$1,644,610	$6,482,032	$711,692	$109,641	$0	$84,018
NCGPDudley	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2		$7,066,987	$0	$1,000,000	$3,028,709	$11,095,695	$1,218,248	$201,914	$0	$232,469
NCGPRoxboro		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$3,261,316	$0	$1,000,000	$1,397,707	$5,659,023	$621,330	$93,180	$0	$64,066
NCGPWhiteville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2		$6,856,213	$0	$1,000,000	$2,938,377	$10,794,590	$1,185,188	$195,892	$0	$221,028
NCInternationalPaperRiegelwood	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$9,624,261	$0	$1,000,000	$4,124,683	$14,748,944	$1,619,355	$274,979	$0	$398,583
NCInternationalPaperRiegelwood	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	1	4	4	4	322	2				2		$7,000,000	$0	$0	$3,000,000	$10,000,000	$1,097,946	$200,000	$0	$0
NCInternationalPaperRiegelwood	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$11,836,540	$0	$1,000,000	$5,072,803	$17,909,343	$1,966,350	$338,187	$0	$562,706
NCJacksonPaperSylva	#VALUE!	0.005	N/A	N/A	#VALUE!	490	879.8478	-389.848	44.31%	4	5	3	3	322	1			2	1		$5,050,501	$0	$1,000,000	$2,164,501	$8,215,002	$901,963	$144,300	$0	$132,800
NCJeld-Wen	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$2,454,855	$0	$1,000,000	$1,052,081	$4,506,936	$494,837	$70,139	$0	$39,904
NCKapStone		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	1			2	2		$11,234,446	$0	$1,000,000	$4,814,762	$17,049,208	$1,871,911	$320,984	$0	$515,814
NCKapStone	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2		$5,843,016	$6,677,733	$1,000,000	$2,504,150	$16,024,898	$1,759,448	$166,943	$586,502	$123,306
NCLAPacificRoxboro	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$37,514
NCLAPacificRoxboro	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
NCLPRoaringRiver		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	2			2	2		$3,506,794	$0	$1,000,000	$1,502,912	$6,009,706	$659,833	$100,194	$0	$74,090

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
NCLPRoaringRiver	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	321	2	2	2		2		$2,468,344	$2,820,964	$1,000,000	$1,057,862	$7,347,170	$806,680	$70,524	$139,492	$29,327
NCLPRoaringRiver	42.50%	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	2		1	2	2		$5,805,033	$0	$1,000,000	$2,487,871	$9,292,904	$1,020,311	$165,858	$0	$171,625
NCSeaboardLumber	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	5	6	2	2	321	1						$1,626,934	$0	$0	$0	$1,626,934	$178,629	$81,347	$0	$0
NCSeaboardLumber	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	5	6	5	5	321	2						$2,077,028	$0	$0	$0	$2,077,028	$228,047	$59,344	$0	$0
NCSeaboardLumber	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	5	6	5	5	321	2						$2,077,028	$0	$0	$0	$2,077,028	$228,047	$59,344	$0	$0
NCUniboardUSA	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,698,974	$0	$1,000,000	$1,274,231	$3,973,205	$436,236	$84,949	$0	$54,914
NCWestFraser	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	321	2			2	2		$4,143,760	$0	$1,000,000	$1,775,897	$6,919,656	$759,741	$118,393	$0	$95,492
NCWeyerhaeuserGrifton	#VALUE!	4	N/A	N/A	#VALUE!	690	460.0472	229.9528		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
NCWeyerhaeuserGrifton	#VALUE!	4	N/A	N/A	#VALUE!	690	460.0472	229.9528		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
NCWeyerhaeuserGrifton	#VALUE!	4	N/A	N/A	#VALUE!	690	N/A	N/A	#VALUE!	5	6	2	2	321	2						$1,650,256	$0	$0	$0	$1,650,256	$181,189	$82,513	$0	$0
NCWeyerhaeuser-Vanceboro	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2		$11,586,204	$13,241,376	$1,000,000	$4,965,516	$30,793,096	$3,380,916	$331,034	$1,835,594	$385,915
NCWeyerhaeuser-Vanceboro	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	2	6	6	6	322	1		2		2		$7,604,369	$0	$1,000,000	$3,259,015	$11,863,384	$1,302,536	$217,268	$0	$191,291
NYFinchPaper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$5,602,831	$0	$1,000,000	$2,401,213	$9,004,044	$988,596	$160,081	$0	$161,778
NYIntlPaperTiconderoga		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	2	6	5	5	322	1			2	2		$14,639,077	$0	$1,000,000	$6,273,890	$21,912,968	$2,405,926	$418,259	$0	$801,856
OHAppletonIdeas		0.003	N/A	N/A	#VALUE!	270	45.63686	224.3631		5	6	2	2	322		1		2			$0	$6,028,382	$1,000,000	$0	$7,028,382	$771,679	$0	$711,865	$149,662
OHAppletonIdeas		0.003	N/A	N/A	#VALUE!	270	19.7315	250.2685		5	6	2	2	322	1	1		2			$3,951,806	$7,903,612	$1,000,000	$0	$12,855,419	$1,411,456	$197,590	$1,117,992	$235,047
OHGlatfelterChillicothe	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$5,101,698	$10,203,396	$1,000,000	$0	$16,305,094	$1,790,212	$255,085	$1,711,213	$359,765
OHGlatfelterChillicothe	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$6,062,866	$12,125,733	$1,000,000	$0	$19,188,599	$2,106,805	$303,143	$1,989,459	$418,264
OHGlatfelterChillicothe	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2		$4,354,432	$0	$1,000,000	$3,265,824	$8,620,255	$946,458	$217,722	$0	$270,099
OHRockTennCincinnati	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		1	2	2	2		$0	$4,068,338	$1,000,000	$1,525,627	$6,593,964	$723,982	$0	$369,622	$77,709
OHSmartPapersHoldingsLLC	25.28%	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		2	1	2			$0	$10,921,331	$1,000,000	$0	$11,921,331	$1,308,898	$0	$1,671,145	$351,342
OHSmurfitCoshocton		0.005	N/A	N/A	#VALUE!	490	272.6726	217.3274		4	5	3	3	322	1			2			$12,349,960	$0	$1,000,000	$0	$13,349,960	$1,465,754	$352,856	$0	$603,971
OKGPMuskogeeMill		0.004	N/A	N/A	#VALUE!	160	26.51437	133.4856		5	6	2	2	322	2			2			$4,852,745	$0	$1,000,000	$0	$5,852,745	$642,600	$242,637	$0	$330,984
OKGPMuskogeeMill		0.004	N/A	N/A	#VALUE!	160	13.96812	146.0319		5	3	1	1	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$464,010
OKGPMuskogeeMill		0.004	N/A	N/A	#VALUE!	160	3.200772	156.7992		5	3	1	1	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$464,010
OKIPValliant	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3		322	2			2	2		SEE CISWI								
OKIPValliant	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$15,545,086	$17,765,812	$1,000,000	$6,662,180	$40,973,077	$4,498,624	$444,145	$2,995,917	$629,862
OKPanPacificProducts	#VALUE!	0.005	N/A	N/A	#VALUE!	490	557.0262	-67.0262	12.03%	1	4	4	4	321	1			2	1		$2,501,852	$0	$1,000,000	$1,072,222	$4,574,074	$502,209	$71,481	$0	$41,185
OKWeyerhaeuserWrightCity	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2		$0	$0	$1,000,000	$2,927,413	$3,927,413	$431,209	$0	$0	$219,656
ORBBSMMedford	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3852.927	-3362.93	87.28%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$1,242,104	$2,242,104	$246,171	$0	$0	$53,926
ORBBSMMedford	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3852.927	-3362.93	87.28%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$1,519,969	$2,519,969	$276,679	$0	$0	$75,496
ORBBSMMedford	#VALUE!	0.005	N/A	N/A	#VALUE!	490	3852.927	-3362.93	87.28%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$1,882,678	$2,882,678	$316,503	$0	$0	$107,852
ORBlueHeronPaper	#VALUE!	0.005	N/A	N/A	#VALUE!	490	147.0563	342.9437		5	6	5	5	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$102,506
ORBoiseBuilding	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$2,019,064	$0	$1,000,000	$1,514,298	$4,533,361	$497,739	$100,953	$0	$73,219
ORCascadePacificPulp	#VALUE!	4	N/A	N/A	#VALUE!	10	4.871715	5.128285		5	6	6	6	321	1	2	2				$6,658,413	$7,609,615	$1,000,000	$0	$15,268,028	$1,676,347	$190,240	$729,165	$153,300
ORFlakeboardEugene		0.2	N/A	N/A	#VALUE!	470	448.4687	21.53134		5	3	1	1	321				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$46,677
ORGeorgiaPacificWaunaMill	#VALUE!	4	N/A	N/A	#VALUE!	10	0.209332	9.790668		5	6	6	6	322	1	2	2				$5,972,714	$6,825,959	$1,000,000	$0	$13,798,672	$1,515,020	$170,649	$608,360	$127,902
ORGeorgiaPacificWaunaMill		0.02	0.00228	0.01772		430	23.89197	406.108		3	2	1	1	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
ORGPToledo	#VALUE!	4	N/A	N/A	#VALUE!	10	27.20041	-17.2004	63.24%	5	6	6	6	322	1	2	2			1	$5,890,265	$6,731,731	$1,000,000	$2,524,399	$16,146,394	$1,772,787	$168,293	$594,428	$124,973
ORJeldWenKlamanthFalls	#VALUE!	0.005	N/A	N/A	#VALUE!	490	297.4003	192.5997		5	6	2	2	321	2			2			$1,926,793	$0	$1,000,000	$0	$2,926,793	$321,346	$96,340	$0	$69,400
ORRosboroSpringfield		0.2	0.032539	0.167461		470	409.9549	60.04505		5	6	5	5	321	1						$2,665,116	$0	$0	$0	$2,665,116	$292,615	$76,146	$0	$0
ORRosboroSpringfield	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,665,116	$0	$1,000,000	$1,142,192	$4,807,308	$527,817	$76,146	$0	$45,762

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?
ORRosboroSpringfield	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2
ORRoseburgCoquille		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2
ORRoseburgForestDillard		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2
ORRoseburgForestDillard		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2
ORRoseburgForestDillard		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2
ORRoseburgRiddle2		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2
ORRoseburgRiddle2		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2
ORSierraPine	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	1	4	2	2	321	2			2	2
ORSierraPineSpringfield	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2
ORSierraPineSpringfield	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2
ORSierraPineSpringfield	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2
ORSPNewsprint		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2
ORSPNewsprint	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	2			2	2
ORStimsonLumberForestGrove	#VALUE!	0.005	N/A	N/A	#VALUE!	490	378.7998	111.2002		5	6	2	2	321	2			2	
ORStimsonLumberForestGrove	#VALUE!	0.005	N/A	N/A	#VALUE!	490	378.7998	111.2002		5	6	2	2	321	2			2	
ORStimsonLumberForestGrove	#VALUE!	0.005	N/A	N/A	#VALUE!	490	378.7998	111.2002		5	6	2	2	321	2			2	
PAAppletonPapers	#VALUE!	4	N/A	N/A	#VALUE!	10	33.09038	-23.0904	69.78%	5	6	6	6	322	2	2	2		1
PAAppletonPapers	55.41%	0.005	N/A	N/A	#VALUE!	490	1070.274	-580.274	54.22%	4	5	3	3	322	1		1	2	1
PACraftMaster	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321				2	2
PADomtarJohnsonburg		0.004	N/A	N/A	#VALUE!	160	68.2946	91.7054		1	4	2	2	322				2	
PADomtarJohnsonburg		0.004	N/A	N/A	#VALUE!	160	68.2946	91.7054		1	4	2	2	322				2	
PAPHGlatfelter		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	
PAPHGlatfelter		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	
PAPHGlatfelter		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	
PAPHGlatfelter		0.02	N/A	N/A	#VALUE!	430	23.18695	406.813		3	6	2	2	322					
PAProctorGambleMehoopanyPA	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2
PATeamTen	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2	2	2	2
PATemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2
PATemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2
SCBowaterCoatedPaper		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1			2	2
SCBowaterCoatedPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2
SCBowaterCoatedPaper		0.005	0.004861	0.000139		490	2818.176	-2328.18	82.61%	5	6	2	2	322	1				1
SCChesterWoodProducts	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	2			2	2
SCCogenSouth		0.005	N/A	N/A	#VALUE!	490	16.09804	473.902		1	2	1	1	322				2	
SCCollumsLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2
SCGPProsperityPly		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2
SCGPRussellville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2
SCInternationalPaperEastover		0.005	N/A	N/A	#VALUE!	490	520.3779	-30.3779	5.84%	5	6	2	2	322				2	1
SCInternationalPaperEastover	#VALUE!	0.005	N/A	N/A	#VALUE!	490	25.71091	464.2891		5	6	2	2	322		1		2	
SCIPGeorgetown	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2
SCIPGeorgetown	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2			2	2
SCMarlboroPaper		0.005	0.002758	0.002242		490	313.5231	176.4769		5	6	2	2	322					

FacilityID	PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
ORRosboroSpringfield	$2,665,116	$0	$1,000,000	$1,142,192	$4,807,308	$527,817	$76,146	$0	$45,762
ORRoseburgCoquille	$4,676,776	$0	$1,000,000	$2,004,332	$7,681,108	$843,344	$133,622	$0	$116,829
ORRoseburgForestDillard	$7,948,938	$0	$1,000,000	$3,406,688	$12,355,626	$1,356,581	$227,113	$0	$289,794
ORRoseburgForestDillard	$7,948,938	$0	$1,000,000	$3,406,688	$12,355,626	$1,356,581	$227,113	$0	$289,794
ORRoseburgForestDillard	$10,862,656	$0	$1,000,000	$4,655,424	$16,518,081	$1,813,596	$310,362	$0	$487,678
ORRoseburgRiddle2	$2,657,971	$0	$1,000,000	$1,993,479	$5,651,450	$620,499	$132,899	$0	$115,777
ORRoseburgRiddle2	$3,546,595	$0	$1,000,000	$1,519,969	$6,066,564	$666,076	$101,331	$0	$73,676
ORSierraPine	$2,356,461	$0	$1,000,000	$1,767,346	$5,123,806	$562,566	$117,823	$0	$94,726
ORSierraPineSpringfield	$878,848	$0	$1,000,000	$659,136	$2,537,985	$278,657	$43,942	$0	$18,305
ORSierraPineSpringfield	$1,120,905	$0	$1,000,000	$840,679	$2,961,583	$325,166	$56,045	$0	$27,457
ORSierraPineSpringfield	$1,120,905	$0	$1,000,000	$840,679	$2,961,583	$325,166	$56,045	$0	$27,457
ORSPNewsprint	$0	$13,076,027	$1,000,000	$4,903,510	$18,979,537	$2,083,851	$0	$2,468,304	$518,936
ORSPNewsprint	$7,395,787	$0	$1,000,000	$3,169,623	$11,565,409	$1,269,820	$211,308	$0	$250,773
ORStimsonLumberForestGrove	$1,957,871	$0	$1,000,000	$0	$2,957,871	$324,758	$97,894	$0	$69,558
ORStimsonLumberForestGrove	$1,957,871	$0	$1,000,000	$0	$2,957,871	$324,758	$97,894	$0	$69,558
ORStimsonLumberForestGrove	$1,957,871	$0	$1,000,000	$0	$2,957,871	$324,758	$97,894	$0	$69,558
PAAppletonPapers	$6,214,762	$7,102,585	$1,000,000	$2,663,469	$16,980,816	$1,864,402	$177,565	$650,003	$136,657
PAAppletonPapers	$5,747,746	$0	$1,000,000	$2,463,320	$9,211,065	$1,011,325	$164,221	$0	$168,812
PACraftMaster	$0	$0	$1,000,000	$3,164,067	$4,164,067	$457,192	$0	$0	$250,041
PADomtarJohnsonburg	$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$284,197
PADomtarJohnsonburg	$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$284,967
PAPHGlatfelter	$0	$5,651,827	$1,000,000	$0	$6,651,827	$730,335	$0	$639,309	$134,408
PAPHGlatfelter	$0	$10,017,791	$1,000,000	$0	$11,017,791	$1,209,694	$0	$1,659,648	$348,924
PAPHGlatfelter	$0	$8,233,888	$1,000,000	$0	$9,233,888	$1,013,831	$0	$1,196,936	$251,644
PAPHGlatfelter	$0	$0	$0	$0	$0	$0	$0	$0	$0
PAProctorGambleMehoopanyPA	$6,864,727	$7,845,402	$1,000,000	$2,942,026	$18,652,154	$2,047,906	$196,135	$767,208	$161,298
PATeamTen	$0	$7,728,108	$1,000,000	$2,898,041	$11,626,149	$1,276,489	$0	$1,076,923	$226,412
PATemple-Inland	$2,665,116	$0	$1,000,000	$1,142,192	$4,807,308	$527,817	$76,146	$0	$45,762
PATemple-Inland	$3,148,186	$0	$1,000,000	$1,349,223	$5,497,409	$603,586	$89,948	$0	$60,405
SCBowaterCoatedPaper	$5,342,801	$0	$1,000,000	$4,007,101	$10,349,902	$1,136,364	$267,140	$0	$379,826
SCBowaterCoatedPaper	$8,927,972	$10,203,396	$1,000,000	$3,826,274	$23,957,641	$2,630,420	$255,085	$1,188,856	$249,945
SCBowaterCoatedPaper	$7,545,630	$0	$0	$5,659,222	$13,204,852	$1,449,822	$377,281	$0	$0
SCChesterWoodProducts	$4,985,481	$0	$1,000,000	$2,136,635	$8,122,115	$891,765	$142,442	$0	$133,174
SCCogenSouth	$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$1,253,896
SCCollumsLumber	$2,095,853	$0	$1,000,000	$898,223	$3,994,076	$438,528	$59,882	$0	$31,418
SCGPProsperityPly	$6,122,828	$0	$1,000,000	$2,624,069	$9,746,897	$1,070,157	$174,938	$0	$187,569
SCGPRussellville	$6,977,632	$0	$1,000,000	$2,990,414	$10,968,046	$1,204,232	$199,361	$0	$227,591
SCInternationalPaperEastover	$0	$0	$1,000,000	$4,547,150	$5,547,150	$609,047	$0	$0	$468,922
SCInternationalPaperEastover	$0	$12,769,206	$1,000,000	$0	$13,769,206	$1,511,785	$0	$2,431,148	$511,124
SCIPGeorgetown	$6,709,482	$0	$1,000,000	$5,032,112	$12,741,594	$1,398,959	$335,474	$0	$555,203
SCIPGeorgetown	$6,709,482	$0	$1,000,000	$5,032,112	$12,741,594	$1,398,959	$335,474	$0	$555,203
SCMarlboroPaper	$0	$0	$0	$0	$0	$0	$0	$0	$0

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
SCNewSouthCamden		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	1			2	2		$2,195,678	$0	$1,000,000	$1,646,759	$4,842,437	$531,674	$109,784	$0	$86,282
SCNewSouthCoConway		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	1			2	2		$2,195,678	$0	$1,000,000	$1,646,759	$4,842,437	$531,674	$109,784	$0	$86,282
SCNewSouthLumberCoDarlington	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$1,919,301	$0	$1,000,000	$822,558	$3,741,859	$410,836	$54,837	$0	$27,132
SCNewSouthLumberCoDarlington	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	1			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,916
SCRoseburgForestRussellville		0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	3	1	1	321				2	2		$0	$0	$1,000,000	$854,059	$1,854,059	$203,566	$0	$0	$28,189
SCSimpsonLumberGeorgetown	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,761,082	$0	$1,000,000	$1,320,812	$4,081,894	$448,170	$88,054	$0	$58,300
SCSimpsonLumberGeorgetown	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,267
SCSmurfitStone		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$3,626,884	$4,626,884	$508,007	$0	$0	$313,924
SCSmurfitStone	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$6,704,390	$7,704,390	$845,901	$0	$0	$874,046
SCSonocoHartsville		0.002	0.001388	0.000612		82	168.4007	-86.4007	51.31%	3	2	1	1	322		1			1		$0	$0	$0	$2,463,320	$2,463,320	$270,459	$0	$0	$0
SCSonocoHartsville	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	1	2		2			$3,262,481	$6,524,962	$1,000,000	$0	$10,787,443	$1,184,403	$163,124	$812,256	$170,769
SCSonocoHartsville	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2	2	2	2		$0	$10,284,807	$1,000,000	$3,856,803	$15,141,609	$1,662,467	$0	$1,734,029	$364,562
SCWestFraserNewberry	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,916
SCWestFraserNewberry	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,916
SCWestFraserNewberry	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,910,131	$0	$1,000,000	$818,628	$3,728,759	$409,398	$54,575	$0	$26,916
TNArborCraft	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,401,976	$0	$1,000,000	$600,847	$3,002,823	$329,694	$40,056	$0	$15,687
TNArborCraft	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,401,976	$0	$1,000,000	$600,847	$3,002,823	$329,694	$40,056	$0	$15,687
TNBowaterNewsprint	33.65%	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322			1	2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$205,306
TNBowaterNewsprint	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2			$5,767,010	$11,534,019	$1,000,000	$0	$18,301,029	$2,009,355	$288,350	$1,830,302	$384,803
TNBowaterNewsprint		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$384,803
TNBowaterNewsprint		0.02	0.005345	0.014656		430	115.3842	314.6158		5	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
TNDomtar2384		0.02	0.01886	0.00114		430	81.74706	348.2529		5	6	2	2	322	1						$6,377,571	$0	$0	$0	$6,377,571	$700,223	$318,879	$0	$0
TNPackagingCorpCounce	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2		322	2			2	2		SEE CISWI								
TNPackagingCorpCounce	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	1	2		2		$9,280,471	$10,606,253	$1,000,000	$3,977,345	$24,864,069	$2,729,941	$265,156	$1,268,113	$266,608
TXAnthonyForestProd-ATL	#VALUE!	0.005	N/A	N/A	#VALUE!	490	300.3018	189.6982		5	6	5	5	321	1			2			$1,715,777	$0	$1,000,000	$0	$2,715,777	$298,178	$49,022	$0	$22,508
TXAnthonyForestProd-ATL	#VALUE!	0.005	N/A	N/A	#VALUE!	490	233.151	256.849		5	6	5	5	321	1			2			$1,910,131	$0	$1,000,000	$0	$2,910,131	$319,517	$54,575	$0	$26,916
TXDibollTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$1,882,040	$0	$1,000,000	$806,589	$3,688,629	$404,992	$53,773	$0	$25,626
TXDibollTemple-Inland		0.2	N/A	N/A	#VALUE!	470	69.30937	400.6906		5	6	2	2	321	2			2			$1,332,085	$0	$1,000,000	$0	$2,332,085	$256,050	$66,604	$0	$36,609
TXGPClevelandPlyLumber	#VALUE!	0.005	N/A	N/A	#VALUE!	490	386.6385	103.3615		4	5	3	3	321	2			2			$7,648,796	$0	$1,000,000	$0	$8,648,796	$949,591	$218,537	$0	$271,787
TXInternationalPaperQueenCity	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3		322	2			2	2		SEE CISWI								
TXLPCarthage	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,165,161	$0	$1,000,000	$873,871	$3,039,032	$333,669	$58,258	$0	$29,287
TXLPJasperOSB	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$2,651,211	$0	$1,000,000	$1,988,408	$5,639,619	$619,200	$132,561	$0	$115,286
TXLPJasperOSB	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,208,324	$0	$1,000,000	$906,243	$3,114,567	$341,963	$60,416	$0	$31,118
TXMeadWestvacoEvadale	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	322	2			2	2		$8,087,053	$0	$1,000,000	$3,465,880	$12,552,933	$1,378,245	$231,059	$0	$298,234
TXNorbordTexasJefferson	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,229,378	$0	$1,000,000	$2,422,033	$6,651,411	$730,289	$161,469	$0	$164,123
TXNorbordTexasJefferson	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,229,378	$0	$1,000,000	$2,422,033	$6,651,411	$730,289	$161,469	$0	$164,123
TXNorbordTexasNacogdoches	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
TXNorbordTexasNacogdoches	#VALUE!	4	N/A	N/A	#VALUE!	690	1222.067	-532.067	43.54%	5	6	2	2	321					1		$0	$0	$0	$576,540	$576,540	$63,301	$0	$0	$0
TXNorbordTexasNacogdoches	#VALUE!	4	N/A	N/A	#VALUE!	690	1222.067	-532.067	43.54%	5	6	2	2	321					1		$0	$0	$0	$576,540	$576,540	$63,301	$0	$0	$0
TXNorbordTexasNacogdoches	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,332,085	$0	$1,000,000	$999,064	$3,331,149	$365,742	$66,604	$0	$36,609
TXNorbordTexasNacogdoches	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,698,974	$0	$1,000,000	$1,274,231	$3,973,205	$436,236	$84,949	$0	$56,271
TXPinelandTemple-Inland	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,229,378	$0	$1,000,000	$2,422,033	$6,651,411	$730,289	$161,469	$0	$164,123

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
TXPinelandTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$1,628,500	$0	$1,000,000	$697,928	$3,326,428	$365,224	$46,529	$0	$20,135
TXPinelandTemple-Inland	#VALUE!	0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$1,628,500	$0	$1,000,000	$697,928	$3,326,428	$365,224	$46,529	$0	$20,135
TXTempleInlandFiberboard		0.005	N/A	N/A	#VALUE!	490	1089.894	-599.894	55.04%	1	4	4	4	321	2			2	1		$6,658,413	$0	$1,000,000	$2,853,606	$10,512,019	$1,154,163	$190,240	$0	$210,503
TXTemple-InlandOrange	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	3	3	322	2			2	2		$9,196,695	$0	$1,000,000	$3,941,441	$14,138,135	$1,552,291	$262,763	$0	$369,510
TXwestfraser	#VALUE!	0.005	N/A	N/A	#VALUE!	490	569.9905	-79.9905	14.03%	1	4	4	4	321	1			2	1		$3,809,767	$0	$1,000,000	$1,632,757	$6,442,524	$707,355	$108,850	$0	$85,062
VAATCPanels		0.2	N/A	N/A	#VALUE!	470	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,535,063	$0	$1,000,000	$1,086,456	$4,621,518	$507,418	$72,430	$0	$42,101
VAATCPanels	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,331,149	$0	$1,000,000	$999,064	$4,330,213	$475,434	$66,604	$0	$36,609
VABassettFiberboard	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	5	5	321	2			2	2		$2,151,666	$0	$1,000,000	$922,143	$4,073,809	$447,282	$61,476	$0	$32,033
VABassettFiberboard	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	321	2	2	2		2		$1,762,537	$2,014,328	$1,000,000	$755,373	$5,532,238	$607,410	$50,358	$77,202	$16,231
VABearIslandPaperCoAshland		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	2	1		2	2		$3,932,419	$7,864,837	$1,000,000	$2,949,314	$15,746,570	$1,728,889	$196,621	$1,057,845	$222,401
VAGeorgiaPacificBrooknealGladys	#VALUE!	4	N/A	N/A	#VALUE!	690	172.6735	517.3265		5	6	2	2	321	1						$3,903,217	$0	$0	$0	$3,903,217	$428,552	$195,161	$0	$0
VAGeorgiaPacificEmporia	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	321	1			2	2		$5,736,242	$0	$1,000,000	$2,458,390	$9,194,632	$1,009,521	$163,893	$0	$164,193
VAGPBigIsland2703		0.004	N/A	N/A	#VALUE!	160	33.58487	126.4151		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$272,462
VAGPBigIsland2703		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$3,569,481	$4,569,481	$501,705	$0	$0	$313,240
VAGPJarrattFiberboard	37.87%	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	5	5	321	2			1	2	2	$3,705,483	$0	$1,000,000	$1,588,064	$6,293,546	$690,998	$105,871	$0	$83,082
VAGreif	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$6,571,183	$7,509,923	$1,000,000	$2,816,221	$17,897,327	$1,965,030	$187,748	$713,314	$149,967
VAGreif	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$2,956,590	$3,956,590	$434,412	$0	$0	$228,834
VAGreif	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$6,571,183	$7,509,923	$1,000,000	$2,816,221	$17,897,327	$1,965,030	$187,748	$713,314	$149,967
VAMeadWestVaco-CovingtonVA		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	2	6	2	2	322				2	2		$0	$0	$1,000,000	$4,211,423	$5,211,423	$572,186	$0	$0	$368,072
VAMeadWestVaco-CovingtonVA		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	2	6	2	2	322				2	2		$0	$0	$1,000,000	$4,970,660	$5,970,660	$655,546	$0	$0	$485,186
VAMeadWestVaco-CovingtonVA		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	2	6	2	2	322				2	2		$0	$0	$1,000,000	$6,060,122	$7,060,122	$775,163	$0	$0	$675,078
VAMeadWestVaco-CovingtonVA		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	2	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$460,090
VASmurfitStoneHopewell	#VALUE!	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		2			2		$0	$16,624,485	$1,000,000	$0	$17,624,485	$1,935,074	$0	$3,366,164	$707,702
VASmurfitStoneWestpt		0.004	0.003281	0.000719		160	16.49103	143.509		5	6	2	2	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
VASmurfitStoneWestpt	16.33%	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				1	2	2	$0	$0	$1,000,000	$5,366,467	$6,366,467	$699,004	$0	$0	$618,039
WABoiseKettleFallsPlywood	#VALUE!	0.005	N/A	N/A	#VALUE!	490	5482.714	-4992.71	91.06%	5	6	2	2	321				2	1		$0	$0	$1,000,000	$1,072,222	$2,072,222	$227,519	$0	$0	$41,185
WABoisePaperWallula	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	4	5	2	2	322	2			2	2		$4,191,364	$0	$1,000,000	$3,143,523	$8,334,887	$915,126	$209,568	$0	$247,341
WAGPCamas		0.005	N/A	N/A	#VALUE!	490	295.5398	194.4602		5	6	2	2	322	2			2			$4,244,646	$0	$1,000,000	$0	$5,244,646	$575,834	$212,232	$0	$252,604
WAGPCamas	#VALUE!	4	N/A	N/A	#VALUE!	10	36.53786	-26.5379	72.63%	4	5	3	3	322	2				1		$8,087,053	$0	$0	$3,465,880	$11,552,933	$1,268,450	$231,059	$0	$0
WAGraysHarborPaper		0.2	0.371994	-0.17199	46.24%	470	993.0823	-523.082	52.67%	4	5	3	3	322	1	1		1	1		$6,304,717	$0	$1,000,000	$2,702,022	$10,006,739	$1,098,686	$180,135	$0	$196,947
WAGraysHarborPaper		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	1			2	2		$9,280,471	$0	$1,000,000	$3,977,345	$14,257,816	$1,565,432	$265,156	$0	$375,137
WAJeldWenWhiteSwan	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$1,473,034	$0	$1,000,000	$1,104,775	$3,577,809	$392,824	$73,652	$0	$43,290
WAJeldWenWhiteSwan	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	321	2	2	2		2		$2,253,352	$2,575,260	$1,000,000	$965,722	$6,794,335	$745,981	$64,381	$116,265	$24,444
WAKimberlyClarkEverett		0.005	N/A	N/A	#VALUE!	490	33.92247	456.0775		5	3	1	1	322		1		2			$0	$11,153,715	$1,000,000	$0	$12,153,715	$1,334,413	$0	$1,893,673	$398,126
WANipponPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2		$4,392,914	$5,020,474	$1,000,000	$1,882,678	$12,296,066	$1,350,042	$125,512	$364,583	$76,650
WANipponPaper		0.005	0.00614	-0.00114	18.57%	490	498.4054	-8.40543	1.69%	4	5	3	3	322	1			1	1		$5,375,632	$0	$1,000,000	$2,303,842	$8,679,475	$952,960	$153,589	$0	$147,352
WANipponPaper	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	1	2	2		2		$4,392,914	$5,020,474	$1,000,000	$1,882,678	$12,296,066	$1,350,042	$125,512	$364,583	$76,650
WAPonderayAbibo	#VALUE!	0.02	N/A	N/A	#VALUE!	430	N/A	N/A	#VALUE!	3	2	1	1	322							$0	$0	$0	$0	$0	$0	$0	$0	$0
WAPort Townsend	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6		322	2	2	2		2		$5,899,684	$6,742,496	$1,000,000	$2,528,436	$16,170,616	$1,775,447	$168,562	$578,864	$121,700
WASierraPacific	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$7,612,315	$0	$1,000,000	$3,262,421	$11,874,736	$1,303,782	$217,495	$0	$263,129
WASimpsonLumberCompany		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	321	2			2	2		$3,338,866	$0	$1,000,000	$2,504,150	$6,843,016	$751,326	$166,943	$0	$169,318
WASimpsonTacoma2784	#VALUE!	0.005	N/A	N/A	#VALUE!	490	131.8708	358.1292		5	6	2	2	322				2			$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$315,755

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
WAWeyerhaeuser_Raymond		4	0.001873	3.998127		690	121.2614	568.7386		5	6	2	2	321							$0	$0	$0	$0	$0	$0	$0	$0	$0
WAWeyerhaeuserLongview	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	3	6	2	2	322				2	2		$0	$0	$1,000,000	$5,235,927	$6,235,927	$684,671	$0	$0	$578,884
WIAlgoma	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	6	5	321	2			2	2		$1,583,673	$0	$1,000,000	$678,717	$3,262,391	$358,193	$45,248	$0	$19,220
WIAlgoma	#VALUE!	0.005	N/A	N/A	#VALUE!	490	206.6548	283.3452		5	6	6	5	321	2			2			$2,114,567	$0	$1,000,000	$0	$3,114,567	$341,963	$60,416	$0	$31,118
WIAppleton		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	5	5	322	2	2		2	2		$2,468,344	$2,820,964	$1,000,000	$1,057,862	$7,347,170	$806,680	$70,524	$200,782	$42,212
WIAppletonCoated	#VALUE!	0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322	2	2		2	2		$4,818,908	$9,637,816	$1,000,000	$3,614,181	$19,070,904	$2,093,883	$240,945	$1,556,063	$327,147
WIDomtar2814	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$1,931,372	$2,931,372	$321,849	$0	$0	$112,541
WIDomtar2814	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$6,122,828	$6,997,517	$1,000,000	$2,624,069	$16,744,414	$1,838,447	$174,938	$615,159	$129,331
WIDomtarNekoosa		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$5,850,410	$1,000,000	$2,193,904	$9,044,314	$993,017	$0	$677,184	$142,371
WIDomtarNekoosa		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1		2			$0	$5,967,895	$1,000,000	$0	$6,967,895	$765,037	$0	$700,000	$147,168
WIDomtarNekoosa		0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1		2			$0	$5,967,895	$1,000,000	$0	$6,967,895	$765,037	$0	$700,000	$147,168
WIDomtarNekoosa		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$8,981,802	$1,000,000	$3,368,176	$13,349,978	$1,465,756	$0	$1,383,573	$290,882
WIFlambeauRiverPaper		0.005	N/A	N/A	#VALUE!	490	104.1038	385.8962		4	5	3	3	322	1			2			$6,983,187	$0	$1,000,000	$0	$7,983,187	$876,511	$199,520	$0	$233,523
WIGPGreenBay2818		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322	1	2		2	2		$3,498,759	$6,997,517	$1,000,000	$2,624,069	$14,120,345	$1,550,338	$0	$912,647	$191,875
WIGPGreenBay2818		0.002	N/A	N/A	#VALUE!	82	98.36852	-16.3685	16.64%	3	2	1	1	322	1			2	1		$5,960,432	$0	$1,000,000	$4,470,324	$11,430,756	$1,255,036	$0	$0	$406,552
WIGPGreenBay2818		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322	1	1		2	2		$4,894,821	$9,789,642	$1,000,000	$3,671,116	$19,355,579	$2,125,138	$0	$1,597,132	$335,781
WIGPGreenBay2818		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322	1	1		2	2		$3,854,222	$7,708,444	$1,000,000	$2,890,666	$15,453,332	$1,696,693	$0	$1,072,360	$225,453
WIGPGreenBay2818		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322	1	1		2	2		$6,864,692	$13,729,384	$1,000,000	$5,148,519	$26,742,595	$2,936,193	$0	$2,447,034	$514,465
WIGPGreenBay2818	57.03%	0.02	0.033158	-0.01316	39.68%	430	1.501291	428.4987		5	3	1	1	322		1	1	1			$0	$4,476,722	$1,000,000	$0	$5,476,722	$601,315	$0	$423,778	$89,095
WIGreenBayPackagingMillDivision		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		1		2	2		$0	$7,589,747	$1,000,000	$2,846,155	$11,435,901	$1,255,601	$0	$1,044,981	$219,697
WILPHayward	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1204.099	-714.099	59.31%	5	6	2	2	321	2			2	1		$862,933	$0	$1,000,000	$647,200	$2,510,133	$275,599	$43,147	$0	$18,194
WILPHayward	#VALUE!	0.005	N/A	N/A	#VALUE!	490	743.4	-253.4	34.09%	5	6	2	2	321	2			2	1		$862,933	$0	$1,000,000	$647,200	$2,510,133	$275,599	$43,147	$0	$18,194
WILPHayward	#VALUE!	0.005	N/A	N/A	#VALUE!	490	2350.471	-1860.47	79.15%	5	6	2	2	321	2			2	1		$975,533	$0	$1,000,000	$731,650	$2,707,184	$297,234	$48,777	$0	$22,321
WILPHayward	#VALUE!	0.005	N/A	N/A	#VALUE!	490	1645.33	-1155.33	70.22%	5	6	2	2	321	2			2	1		$975,533	$0	$1,000,000	$731,650	$2,707,184	$297,234	$48,777	$0	$22,321
WINeenahPaperAppleton	#VALUE!	4	N/A	N/A	#VALUE!	10	N/A	N/A	#VALUE!	5	6	6	6	322	2	2	2		2		$2,973,205	$3,397,948	$1,000,000	$1,274,231	$8,645,383	$949,217	$84,949	$190,217	$39,991
WINewPageBiron		0.003	0.001521	0.001479		270	N/A	N/A	#VALUE!	5	6	2	2	322					2		$0	$0	$0	$4,240,987	$4,240,987	$465,638	$0	$0	$0
WINewPageBiron	40.18%	0.004	N/A	N/A	#VALUE!	160	N/A	N/A	#VALUE!	5	6	2	2	322		1	1	2			$0	$9,620,848	$1,000,000	$0	$10,620,848	$1,166,112	$0	$1,551,500	$326,187
WINewPageKimberly		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322	1	1		2	2		$2,794,329	$5,588,659	$1,000,000	$2,095,747	$11,478,735	$1,260,303	$139,716	$627,445	$131,914
WINewPageKimberly		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322	1	1		2	2		$3,117,356	$6,234,711	$1,000,000	$2,338,017	$12,690,084	$1,393,303	$155,868	$752,934	$158,297
WINewPage-Whiting	47.05%	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1		1	2	2		$3,617,087	$0	$1,000,000	$2,712,815	$7,329,903	$804,784	$180,854	$0	$198,260
WINewPage-WisconsinRapids		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$4,050,282	$5,050,282	$554,494	$0	$0	$386,673
WINewPage-WisconsinRapids		0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322				2	2		$0	$0	$1,000,000	$4,050,282	$5,050,282	$554,494	$0	$0	$386,673
WIPCATomahawk	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1	1		2	2		$4,005,757	$8,011,514	$1,000,000	$3,004,318	$16,021,590	$1,759,084	$200,288	$1,090,930	$229,357
WIPCATomahawk	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1	1		2	2		$2,600,830	$5,201,659	$1,000,000	$1,950,622	$10,753,111	$1,180,634	$130,041	$531,099	$111,658
WIPCATomahawk	#VALUE!	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	5	6	2	2	322	1	1		2	2		$3,402,354	$6,804,709	$1,000,000	$2,551,766	$13,758,829	$1,510,645	$170,118	$831,039	$174,718
WIThilmanyLLC	10.88%	0.005	N/A	N/A	#VALUE!	490	N/A	N/A	#VALUE!	1	4	4	4	322	1		1	2	2		$6,196,010	$0	$1,000,000	$2,655,433	$9,851,443	$1,081,636	$177,029	$0	$191,320
WIThilmanyLLC		0.003	0.008731	-0.00573	65.64%	270	64.45627	205.5437		5	6	2	2	322	1	1		1			$5,134,280	$10,268,559	$1,000,000	$0	$16,402,839	$1,800,944	$256,714	$1,729,466	$363,603
WIThilmanyLLC		0.003	0.008731	-0.00573	65.64%	270	64.45627	205.5437		5	6	2	2	322	1	1		1			$3,418,370	$6,836,739	$1,000,000	$0	$11,255,109	$1,235,750	$170,918	$877,966	$184,584
WIThilmanyPapersNicoletMill		0.003	N/A	N/A	#VALUE!	270	212.115	57.88501		5	6	2	2	322		1		2			$0	$4,753,785	$1,000,000	$0	$5,753,785	$631,735	$0	$479,140	$100,734
WIThilmanyPapersNicoletMill		0.003	N/A	N/A	#VALUE!	270	212.115	57.88501		5	6	2	2	322		1		2			$0	$4,753,785	$1,000,000	$0	$5,753,785	$631,735	$0	$479,140	$100,734
WIWausau		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$5,721,733	$1,000,000	$2,145,650	$8,867,383	$973,591	$0	$652,543	$137,191
WIWausau		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322		1		2	2		$0	$7,240,332	$1,000,000	$2,715,125	$10,955,457	$1,202,850	$0	$966,037	$203,100

FacilityID	Hg %red	Dioxin Limit	Dioxin Emissions	Dioxin Difference	Dioxin %red	CO Limit	CO Emissions	CO Difference	CO %red	HCl Control Group	Hg Control Group	PM Control Group	Metals Control Group	NAICS	PM Need Upgrade?	HCl Need Upgrade?	Hg Need Upgrade?	Dioxin Need Upgrade?	CO Need Upgrade?
WIWausauRhine		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2		2	2
WIWausauRhine		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2		2	2
WIWausauRhine		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2		2	2
WIWausauRhine		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	3	1	1	322		2		2	2
WIWausauRhine		0.003	N/A	N/A	#VALUE!	270	N/A	N/A	#VALUE!	5	6	2	2	322				2	2
WVGPMtHopeOSB	#VALUE!	4	N/A	N/A	#VALUE!	690	126.9091	563.0909		5	6	2	2	321	1				
WVJELD-WENCraigsville	#VALUE!	0.005	N/A	N/A	#VALUE!	490	181.5465	308.4535		5	6	2	2	321	2			2	
WVWeyerhaeuserBuckhannon	#VALUE!	0.005	N/A	N/A	#VALUE!	490	22.81118	467.1888		5	6	2	2	321				2	

FacilityID		PM Upgrade Cost	HCl Upgrade Cost	Hg/Dioxin Upgrade Cost	CO Upgrade Cost	Total Capital Cost	Total Annualized Capital Cost	Annual Operating Costs for New FF for PM	Annual Operating Costs for new WS for HCl	Annual Operating Cost for Carbon Injection for Hg/dioxin
WIWausauRhine		$0	$4,362,654	$1,000,000	$1,635,995	$6,998,650	$768,414	$0	$415,254	$87,303
WIWausauRhine		$0	$4,362,654	$1,000,000	$1,635,995	$6,998,650	$768,414	$0	$415,254	$87,303
WIWausauRhine		$0	$4,362,654	$1,000,000	$1,635,995	$6,998,650	$768,414	$0	$415,254	$87,303
WIWausauRhine		$0	$4,362,654	$1,000,000	$1,635,995	$6,998,650	$768,414	$0	$415,254	$87,303
WIWausauRhine		$0	$0	$1,000,000	$3,346,802	$4,346,802	$477,255	$0	$0	$287,812
WVGPMtHopeOSB		$3,903,217	$0	$0	$0	$3,903,217	$428,552	$195,161	$0	$0
WVJELD-WENCraigsville		$1,741,101	$0	$1,000,000	$0	$2,741,101	$300,958	$87,055	$0	$57,202
WVWeyerhaeuserBuckhannon		$0	$0	$1,000,000	$0	$1,000,000	$109,795	$0	$0	$106,167

Represents Biomass, Coal, Liqu

Shaded units indicate changes t

Deleted limited use units

	40	255
	23	115

Filtered Boilers:

TOTAL	$1,873,342,142	$1,036,172,140	$494,000,000	$944,291,976	**$4,347,806,258**	$477,365,756	$61,962,722	$142,633,729	$115,730,669
COUNT	545	545	545	545	**545**	545	545	545	545
AVERAGE	$3,437,325	$1,901,233	$906,422	$1,732,646	**$7,977,626**	$875,900	$113,693	$261,713	$212,350

*Press F9 to recalculate **34.4%**

All Boilers:

TOTAL	$5,119,891,642	$5,149,190,442	$1,424,000,000	$2,491,022,961	**$14,184,105,045**	$1,557,338,490	$165,307,040	$603,803,895	$259,601,894
COUNT	1584	1584	1584	1584	**1584**	1584	1584	1584	1584
AVERAGE	$3,232,255	$3,250,752	$898,990	$1,572,616	**$8,954,612**	$983,168	$104,361	$381,189	$163,890