

ATTACHMENT 10



Department of Ecology
Statement of Basis
(03/30/2018)

Source Information:

Air Operating Permit (AOP) No.:	0003697
Source Name:	Boise White Paper L.L.C. Walla Walla, Washington
County:	Walla Walla
Issued Date:	March 29, 2018
Effective Date:	April 1, 2018
Expiration Date:	March 31, 2023a
AFS Plant ID Number:	53/071/0003

Permitting Authority Information:

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LIST OF ABBREVIATIONS AND ACRONYMS

Btu	British thermal units
CAA	Clean Air Act [42 U.S.C. section 7401 et seq.]
CAM	Compliance assurance monitoring
CEMS	Continuous emission monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COMS	Continuous opacity monitoring system
CO ₂	Carbon dioxide
dscf	Dry standard cubic feet
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
EU	Emission unit
gr/dscf	Grains/dry standard cubic foot (7,000 grains = 1 pound)
HAP	Hazardous air pollutant
hr	Hour
IEU	Insignificant emission unit
lb	Pound
MACT	Maximum Achievable Control Technology
mm	One million
NESHAP	National Emission Standards for Hazardous Air Pollutants (40 CFR Parts 61 and 63)
NOC	Notice of Construction
NO _x	Oxides of nitrogen
NSPS	New source performance standards
O ₂	Oxygen
PM	Particulate matter
PM ₁₀	Particulate matter with an aerodynamic diameter equal to 10 microns or less
ppmdv	Parts per million, on a dry volume basis
PSD	Prevention of significant deterioration
PTE	Potential to emit
SCR	Selective catalytic reduction
SO ₂	Sulfur dioxide
SO _x	Oxides of sulfur
tpy	Tons per year
VOC	Volatile organic compound
WAC	Washington Administrative Code

INTRODUCTION

This document, the statement of basis or support document summarizes the legal and factual basis for the permit conditions in the air quality operating permit issued by the Washington State Department of Ecology (Ecology) to the source. Unlike the air quality operating permit, this document is not legally enforceable. This statement of basis summarizes the emitting processes at the facility, air emissions, permitting and compliance history, the statutory or regulatory provisions that relate to the facility, and the steps taken to provide opportunities for public review of the permit. The Permittee is obligated to follow the terms of the permit. Any errors or omissions in the summaries provided here do not excuse the Permittee from the requirements of the permit.

The format and content of this support document has changed over time to reflect the evolving thought about what constitutes an effective support document. EPA audited Ecology's Title V Permitting in 2006 and 2014. As a result of these audits, Ecology is currently developing a revamped support document format. The support document for this particular permit renewal effort follows the draft format for the statement of basis outline available at the time of this permit renewal effort.

Very little has been added or changed in permit content from the previous permit iteration. The history of permit changes and what changes have been made during this renewal effort are explained beginning on page 77 of this Support Document.

PERMIT AUTHORITY

Title V of the Federal Clean Air Act Amendments required all states to develop a renewable operating permit program for industrial and commercial sources of air pollution. The Washington State Clean Air Act (RCW 70.94 Revised Code of Washington) was amended in 1991 and 1993 to provide Ecology and Local Air Agencies with the necessary authority to implement a state-wide operating permit program. The law requires all sources emitting one hundred tons or more per year of a criteria pollutant, ten tons of a hazardous air pollutant, or twenty-five tons in the cumulative of hazardous air pollutants, to obtain an operating permit. Criteria pollutants include sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, and volatile organic compounds. Table 1 below summarizes the 2013 mill emissions for criteria pollutants.

Chapter 173-401 of the Washington Administrative Code (WAC), which specified the requirements of Washington State's Operating Permit Regulation became effective November 4, 1993. United States Environmental Protection Agency (EPA) granted Washington's program interim approval December 9, 1994. Final approval of Washington's program was granted on August 13, 2001. The current version of the regulation was filed on September 16, 2002.

Table 1: Summary of Actual to Potential Emissions (tpy)

Criteria Pollutant	Permitted Emission Allowance (tpy)	Annual Actual 2013 Emissions (tpy)
PM	663	153
CO	2,889	1,345
NOx	2,011	883
SO2	3,688	554
Lead	0.5	0.259
Ozone		
HAP's as VOC's*	1,395	313

*HAP's – Major

Table 2: Facility Information

Company History and Information:	Boise White Paper L.L.C. (2008-present) formerly Boise Cascade L.L.C. (2004-2008) formerly Boise Cascade Corporation (c. 1958-2004)
Ownership:	Boise White Paper L.L.C. (a subsidiary of) Packaging Corporation of America 1955 West Field Court Lake Forest, IL 60045
Responsible Official:	Bert Brown – Mill Manager PO Box 138 Wallula, WA 99363
Contacts:	Paul Butkus – Environmental Manager PO Box 138 Wallula, WA 99363 (509) 545-3241
Location:	31831 West Highway 12 Wallula, WA 99363
Attainment Classification:	The Wallula Area is “in attainment” for all regulated pollutants. The area was redesignated as “in attainment” for PM10 by way of direct final rule FR Volume 70, No. 65, 8/26/2005, Pages 50212-50214.
Basis for Title V Applicability:	The facility, by definition, is a major source. Source Industrial Classification – 2621 NCAICS – 322121

SOURCE DESCRIPTION

General Facility

The Boise White Paper LLC (Boise Wallula) Mill operates an integrated bleached Kraft pulp and paper mill, neutral sulfite semi-chemical (NSSC) pulping, corrugating medium and box plant. Primary products include but are not limited to market pulp, corrugating medium, fine white paper, label and release paper products and finished containerboard boxes. A schematic of the facility layout which identifies and locates the major emission units addressed in the AOP is included as Appendix C.

Chip Handling

The chip handling area includes unloading, transfer systems, chip storage piles, screening of wood chips, and ancillary support facilities such as maintenance shops, control rooms, and testing facilities. For this area of the facility, incoming chips are unloaded and allocated to the different pulping process chip storage piles. Trucks and rail cars unload wood chips through the appropriate chip dumper. Drag chains then convey the chips from the chip dumpers onto a conveyor belt system where flight conveyors and blow lines transfer the chips to the screening process. The screening process separates the chips by size into five categories: chips, pin chips, sawdust, gross overs, and knots and fines. The Kraft chips are sent to the Kamyr process line. The sawdust is sent to the No. 1 M&D sawdust pile, which feeds the No. 1 M&D process line. The knots and pins are sent to the neutral sulfite semi-chemical process (NSSC) chip pile, which feeds the NSSC process line. The gross-overs are chips that are unusable by the NSSC, M&D, and Kamyr process lines and subsequently are combusted in the hog fuel boiler. Pin chips can be feed independently to all the various digesters. The cottonwood chips are handled and stored separately for use in the No. 2 M&D digester. A portable chip dumper handles the 100% sawdust trucks and unloads the material to the No. 1 M&D sawdust and NSSC Digester storage piles. Incoming chips may also be separated, screened, and stored by wood species. Dependent on species, and the grades being produced in the facility, these segregated chips may go to any of the four digesters.

Neutral Sulfite Semi-chemical Pulping

The NSSC system produces pulp that is used to manufacture corrugated medium for the No. 2 Paper Machine (W2). Three systems make up the NSSC production facility. The NSSC digester, the pulping chemical make-up system, and the No. 2 paper machine.

The pulping chemical called pink liquor, can either be purchased or produced for use in the NSSC digester. The on-site production process for pink liquor involves burning sulfur using ambient air in a special sulfur burner to produce sulfur dioxide. The sulfur dioxide is cooled using water in a direct contact cooling tower and then reacted with a caustic soda solution to produce pink liquor in a counter current absorption tower. Purchased pink liquor comes in bulk powder form and is mixed with water to a set concentration. Purchased pink liquor is currently the preferred method of making pink liquor for the NSSC digester. The pink liquor is stored in a bulk storage tank prior to use in the NSSC digester.

In the NSSC pulping process, chips for the NSSC are washed and steamed before entering the NSSC digester impregnation vessel. In the NSSC impregnation vessel, chips are combined with pink liquor and recycled brown liquor. Brown liquor comes from the pulp washing phase of the pulp manufacturing process. Following the NSSC impregnation vessel, the chips and pulping liquors in the digester are cooked at elevated temperature and pressure to remove lignin from the chips. From the digester process, the cooked chips pass through a defibrator to separate the pulp fibers. The pulp and liquor (dissolved wood lignin) are then separated in the No. 1 and No. 2 DKP presses. The brown liquor is pumped to the recovery process where it is mixed with weak black liquor, evaporated to a higher solids content, and combusted in the recovery furnaces. The pulp is distributed between No. 1 and No. 2 Raffinators, which refine the fibers. The pulp is then stored in high-density storage tanks for use in the production of corrugated medium on the No. 2 Paper Machine.

Pulping, Washing, and Bleaching

The pulping, washing, and bleaching systems produce bleached feedstock for the No. 1 and No. 3 paper machines. The Kamyir Digester, No. 1, and No. 2 M&D digester process lines produce and wash the pulp using similar methods. The type, size and potential species of wood chips may be different for each of the feed stocks going to the digesters.

In the pulping process lines, chips are steamed and fed into impregnation vessels. In the impregnation vessels, white liquor (a solution of caustic, sodium carbonate, and sodium sulfide) from the white liquor multi-purpose tank is absorbed by the chips. This mix is then fed to the three separate digesters. Each digester has its own impregnation vessel. The digesters cook the chips and liquor mixture, then send the resulting pulp to their respective vacuum drum washer lines. These counter current washers extract the liquor and wash the pulp. The extracted liquid (dissolved wood lignin) called black liquor is pumped to the weak liquor storage tank. The washed pulp is screened in the screening system and dewatered on the deckers. After the deckers, the pulp is sent to high-density storage and eventually bleached in the bleach plant.

In the bleach plant, the pulp is bleached in stages using hydrogen peroxide, oxygen, and chlorine dioxide and/or other chemicals in a series of towers and washers.

The white liquor used as the pulping chemical is prepared on site in a closed loop system. Dissolved salts from the burning of the black liquor in the Recovery Boilers create a solution of sodium carbonate and sodium sulfide called green liquor. The green liquor is clarified and reacted with lime (calcium oxide) to produce the white liquor. The by-product of the reaction is calcium carbonate which is heated or burned in a lime kiln producing the lime to go back and react with the green to produce white liquor. This is explained in greater detail in the Power and Recovery description.

Bleaching Chemical Production

The chlorine dioxide generation process produces chlorine dioxide, a bleaching agent used in the pulp bleaching process. Sulfuric acid, methanol, and sodium chlorate solution react in the chlorine dioxide generator to create chlorine dioxide.

The chlorine dioxide is cooled and stored for use at the bleach plant. The salt cake byproduct from the chlorine dioxide generator is filtered and used as chemical makeup at the weak black liquor tank.

Chemical Recovery and Steam Generation

The power and recovery systems recover the chemicals used in the pulping process and produce energy in the form of steam for the Mill. The steam production system is composed of two recovery furnaces, two power boilers, and a hog fuel boiler. The recovery furnaces fire black liquor to produce steam and to recover pulping chemicals. Natural gas and fuel oil are fired in the recovery boilers as supplemental fuels. The power boilers fire natural gas or fuel oil to produce steam. The hog fuel boiler fires either natural gas, wood waste, and other supplemental/alternate fuels, or a combination thereof to produce steam.

The chemical recovery process is responsible for recovering chemicals needed for the kraft pulping process. The recovery process starts by evaporating water from the weak black liquor obtained from the brownstock washers and the NSSC brown liquor filtrate tanks. The weak black liquor is pumped into three sets of evaporators.

The evaporators consist of six stages or effects, which concentrate the liquor to approximately 50% black liquor solids. The liquor is further concentrated to approximately 63% black liquor solids in the concentrators. To replace sulfur and sodium that has been lost throughout the recovery loop, salt cake, a by-product from the production of chlorine dioxide, is added to the weak black liquor tank. The black liquor and salt cake solution is then combusted in the No. 2 and No. 3 Recovery Furnaces. Organics from the solution are oxidized producing various combustion gases and heat. Inorganics from the solution are collected at the bottom of the furnace as a molten mass (smelt) and fall into the No. 2 and No. 3 smelt dissolving tanks. In the smelt dissolving tanks, smelt is mixed with weak wash from the recausticizing process to produce green liquor. Green liquor is clarified and is then reacted with calcium oxide in the slaker to produce white liquor. To ensure a complete reaction of the green liquor and the calcium oxide, the solution is agitated in a series of mixing tanks called causticizers. The suspended solids remaining in the white liquor are separated from the liquor in a clarifier. The resulting clarified white liquor is stored for reuse in the pulp Mill. The separated solids or lime mud (calcium carbonate) is sent to a lime mud washer. Lime mud is mixed with hot condensates in the mud washer, producing weak wash and washed mud. Weak wash is stored and later used in the smelt dissolving tanks to produce green liquor. The washed mud is filtered to remove water and then disassociated into calcium oxide and carbon dioxide in the lime kiln. The calcium oxide (lime) is then stored in silos for use in the slaker, the first reaction vessel for initially starting to make the white liquor.

Wastewater Treatment

The wastewater treatment plant processes the effluent from the Mill before being discharged to an outfall in the Columbia River. The wastewater enters the primary clarifier settling the suspended solids and high-density material from the wastewater. The primary effluent is

pumped to an aerated lagoon that biodegrades the waste materials before entering a quiescent zone.

In the quiescent zone a portion of the biodegradation products and other solids settle to the bottom, and the clarified secondary effluent passing out of the quiescent zone is pumped to the outfall diffuser.

Boise Trucking

Boise Wallula owns a transportation service that is responsible for delivering wood chips to and distributing products from the Mill. A maintenance terminal is located across Highway 12 from the Mill. The terminal is responsible for maintenance, dispatching, and fueling of the trucks.

De-ink Facility (Ponderosa)

The deink facility remains under the control and ownership of the Mill but is shut down indefinitely. An office area of this facility has been modified into a new Technical Development Center for the Mill. This new lab focuses on new product development and testing.

Container Plant

The container plant uses corrugated medium to produce container boxes. This is accomplished by feeding two sheets of linerboard and one sheet of fluted corrugated medium through a corrugator. The corrugator forms the fluted or wavy middle sheet of boxboard and then glues the three sheets together to produce boxboard blanks. The boxboard is later cut to various sizes and shapes to create packaging boxes.

Fiber Farm

The facility previously owned an 850-acre cottonwood fiber farm adjacent to the Mill property but separated from the Mill property by State Highway 12 and the Union Pacific Railroad right-of-way. The farm had previously been included in the Mill's emission inventory, but is no longer included due to the sale on 10/3/2007. The farm provided cottonwood chips for the production of kraft hardwood pulp in the Mill's No. 2 M&D digester pulping system.

Landfill and Composting

The facility owns and operates a 50-acre limited purpose landfill, which is adjacent to the Mill. The landfill is separated from the Mill by State Highway 12 and the Burlington Northern Railroad right-of-way. The Mill's landfill incorporates a composting operation to convert the primary clarifier solids into compost.

The waste materials in the landfill are being considered for various beneficial uses on a continuous and ongoing basis. The landfill operates under a dust control plan, which requires frequent watering of the unpaved roads during the dry months of the year or on an as needed basis.

OVERVIEW OF SIGNIFICANT REGULATORY CHANGES AND SIGNIFICANT COMPLIANCE DEMONSTRATION PROCEDURES

Determination of Compliance

Compliance determinations made in this Permit signify that Boise Wallula considers the facility currently in compliance with the stated applicable requirement and that it anticipates it will, in the future, remain in compliance with the applicable requirement.

Due to unavoidable conditions, including startups, shutdowns, and malfunctions, Boise Wallula has experienced measured deviations from certain applicable requirements cited in this application. Boise Wallula has reported these deviations as required. Boise Wallula does not consider these deviations indicative of noncompliance, and where applicable, considers the sources in compliance with the applicable requirement.

Compliance with numerical limits is evaluated by comparing actual emissions, rounded to the same number of significant digits as the numeric limit specified by rule, to the numeric limit itself.

Emissions data forms the underlying basis for determinations of compliance with the applicable requirements. There is ongoing evaluation of the most recent emissions data available to evaluate compliance.

Specific Areas of Compliance

The following section provides discussion and details concerning specific process areas of the facility, key projects, and compliance discussion for key regulatory requirements. Greenhouse Gas Reporting, Boiler MACT, and RICE MACT are new regulations implemented from June 1, 2009 to the time of the permit application due date of January 1, 2015. Subpart S was modified also in 2012.

PM10

On September 3, 2002, EPA made a "Finding of Attainment" that the Wallula Area had attained compliance with the PM₁₀ National Ambient Air Quality Standards by December 31, 2001, as required by the Clean Air Act. Ecology submitted to EPA an attainment plan on November 30, 2004 and a maintenance plan on March 29, 2005. EPA approved the plans on May 2, 2005 (70 FR 22597) and August 26, 2005 (70 FR 50212), respectively.

Compliance Assurance Monitoring (CAM)

The U.S. Environmental Protection Agency (EPA) promulgated the CAM rule with an effective date of November 21, 1995, to satisfy Title V and Title VII monitoring requirements of the Clean Air Act. The CAM rule applies to major sources required to obtain Title V operating permits. Specifically, the CAM rule applies to pollutant-specific emission units that are subject to an emission limitation or standard where a control device is used to achieve compliance with an applicable emission limitation or standard.

The CAM rule requires facilities to monitor compliance indicators for emission units to provide reasonable assurance for compliance with regulatory emission limitations. When monitoring indicates the occurrence of a parameter excursion or exceedance, the facility is required to take corrective action to restore the monitoring parameter to the parameter value range established as part of a source compliance or performance test. The facility is also required to document and report corrective actions, maintain monitoring records, and provide an annual certification of compliance to the delegated authority that administers the Title V operating permit program.

Plan Content

Pursuant to 40 CFR 64, EPA requires the following elements in a facility's CAM Plan:

- Applicability determination for pollutant-specific emission units
- Monitoring plan, including basis for selection of monitoring parameters and establishment of parameter values and averaging periods, and performance criteria for monitoring systems
- CAM reporting and recordkeeping requirements

Ecology reviewed Boise Wallula Mill's CAM evaluation submitted as part of the 2014 permit renewal application. Emission limitations were reviewed to identify whether the CAM rule applied to individual emission units on a pollutant-by-pollutant basis. In performing this applicability determination, the Mill compiled a list of each regulated pollutant for each emission unit and evaluated each pollutant based on the following CAM criteria:

1. Is the emission unit subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof) other than an emission limitation or standard that is exempt under 40 CFR 64.2(b)(1)?
2. Does the emission unit use a control device to achieve compliance with the emission limitation or standard?
3. Does the emission unit have potential pre-control emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for the emission unit to be classified as a major source?

For an emission unit to be subject to a CAM requirement for a given pollutant, the answer to all three of the above questions must be affirmative. A negative finding for any one of the three criteria alleviates the Wallula Mill from the requirement to propose a compliance assurance monitoring plan for a specific emission unit for a specific regulated pollutant.

As specified in Criteria 1 above, the following CAM Rule exemption promulgated in 40 CFR 64.2(b)(1) was considered:

- The requirements of Part 64 shall not apply to emission limitations or standards proposed by EPA after November 15, 1990 pursuant to section 111 or 112 of the Clean Air Act (40 CFR 64.2(b)(1)(i)); and
- The requirements of Part 64 shall not apply to emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method as defined in 40 CFR 64.1 (40 CFR 64.2(b)(1)(vi)).

The first exemption applies to emission limitations for air pollutants from New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPs) proposed after November 15, 1990. The Wallula Mill operates several emission units subject to 40 CFR 63 Subpart S, 40 CFR 63 Subpart MM, and 40 CFR 63 Subpart DDDDD. As a result, the monitoring requirements prescribed in the applicable standard proposed by EPA after November 15, 1990 apply rather than the requirements of 40 CFR Part 64.

A Title V Permit must include all applicable requirements even if redundant. Over time, several different requirements may become applicable for the same pollutant such as the different PM limits applicable for the No. 2 Recovery Furnace presented in Conditions A.1.a and A.1.b. Generally, the limit that is presented first, such as in Condition A.1.a, is more restrictive than the subsequent limit(s), such as Condition A.1.b. Rather than establish separate monitoring for each of the limits, the draft permit is written such that compliance with Condition A.1.b is assured by compliance with Condition A.1.a. This approach is implemented throughout the permit in similar situations.

Ecology has included Tables 3 and 4 below which present the reasoning through the CAM applicability determination. The first column in Table 3 specifies the emission unit, the control device(s), and which pollutant(s) are controlled by the device. The second column includes the pollutants that have limits in the permit for the emission unit. The next three columns evaluate the three criteria specified above. The sixth column indicates if the limit is a state only requirement. The last column then evaluates whether the CAM requirements could apply to that pollutant specific emission unit. If the answer is yes in the final column, the pollutant is further evaluated in Table 4 to determine if the previously discussed exemptions apply to the applicable limit(s).

Table 3: CAM Applicability

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
No.2 Recovery Furnace (High efficiency ESP for PM Control)	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	Yes	Yes	Yes	Yes	Yes
	SO2	Yes	No	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No. 3 Recovery Furnace (High Efficiency ESP for PM Control)	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	Yes	Yes	Yes	Yes	Yes
	SO2	Yes	No	-	-	No
	NOx	Yes	No	Yes	Yes	No
	CO	Yes	No	Yes	Yes	No
	VOC	Yes	No	Yes	Yes	No
	TRS	Yes	No	-	-	No
Lime Kiln (Wet scrubber for PM control) Addition of caustic for SO2 control	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	Yes	Yes	Yes	Yes	Yes
	SO2	Yes	Yes	No ¹	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No.2 Smelt Dissolving Tank (Medium efficiency wet scrubber for PM control)	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	Yes	Yes	Yes	Yes	Yes
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
No.3 Smelt Dissolving Tank (Medium efficiency wet	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	Yes	Yes	Yes	Yes	Yes
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
scrubber for PM control)	TRS	No	-	-	-	No
Hog Fuel Boiler (Multi-cyclone /demister followed by a wet ESP for PM control)	PM	Yes	Yes	Yes	Yes	Yes
	SO2	Yes	No	-	-	No
	NOx	Yes	No	-	-	No
	CO	Yes	No	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
	HCl	Yes	No	-	-	No
No. 1 Power Boiler (No Emissions Control)	Hg	Yes	No	-	-	No
	PM	Yes	No	-	-	No
	HAPs	No	-	-	-	No
	SO2	Yes	No	-	-	No
	NOx	No	-	-	-	No
	CO	Yes	No	-	-	No
	VOC	No	-	-	-	No
No. 2 Power Boiler (No Emissions Control)	TRS	No	-	-	-	No
	PM	Yes	No	-	-	No
	HAPs	No	-	-	-	No
	SO2	Yes	No	-	-	No
	NOx	No	-	-	-	No
	CO	Yes	No	-	-	No
	VOC	No	-	-	-	No
Chlorine Dioxide Generator (Wet scrubber using water and white liquor for Cl and ClO2 control)	TRS	No	-	-	-	No
	PM	No	-	-	-	No
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	Chlorine	Yes	Yes	Yes	No	No
	ClO2	Yes	Yes	Yes	No	No
No. 1 M&D Digester	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No. 2 M&D Digester	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
Kamyr Digester	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No. 1 Multiple-Effect Evaporator System	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No.2 Multiple-Effect Evaporator System	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
No.3 Multiple-Effect	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
Evaporator System	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
Concentrator System	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	Yes	No	-	-	No
Bleaching System (Wet scrubber using water and white liquor for Cl and ClO2 control)	PM	No	-	-	-	No
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
	Chlorine	No	-	-	-	No
NSSC Digester	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
Foul Condensate Tank)	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
A-Row Pulp Washing System	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
B-Row Pulp Washing System	PM	No	-	-	-	No
	HAPs	Yes	No	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
Cyclone Box Clipping Collection System (Baghouse for PM)	PM	Yes	Yes	Yes	Yes	Yes
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
Lime Kiln (Hot End)	PM	No	-	-	-	No
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
Starch Silo-Container Plant	PM	Yes	No	-	-	No
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
Starch Silo-Paper Mill	PM	Yes	No	-	-	No
	HAPs	No	-	-	-	No
	SO2	No	-	-	-	No
	NOx	No	-	-	-	No

Emission Unit and Pollutant Specific Emission Control Device(s)	Regulated Pollutant	Subject to applicable emission limit or standard?	Control device to achieve compliance with limit?	Pre-control emissions major?	Federally Enforceable?	Does CAM apply? If yes, see Table 2
NSSC Liquor Plant	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No
	PM	No	-	-	-	No
	HAPs	No	-	-	-	No
	SO2	Yes	No	-	-	No
	NOx	No	-	-	-	No
	CO	No	-	-	-	No
	VOC	No	-	-	-	No
	TRS	No	-	-	-	No

1. Justification provided in CAM Applicability/Monitoring Section below

As discussed above, there are multiple exemptions to the CAM requirements specified by 40 CFR Part 64, including two that are applicable to this facility. The two applicable exemptions are: 1) emission limitations or standards proposed by EPA after November 15, 1990 pursuant to section 111 or 112 of the Clean Air Act, and 2) emission limits or standards for which a part 70 or 71 permit specifies a continuous compliance determination method. Table 4 below evaluates each emission limit for the regulated pollutants identified in Table 3 above to determine if the limit is exempt from the CAM requirements. Additional information discussing the applicable monitoring is provided in the paragraphs below the table.

Table 4: Exemption from CAM Evaluation

Emission Unit	Regulated Pollutant	Permit Condition	Permit Limit Basis	Emission Limit or Standard proposed by EPA after Nov 15, 1990?	Permit specifies a continuous compliance determination method?	Limit exempt from CAM?
No. 2 Recovery Furnace	PM	A.1.a	PSD Permit	No	No	No
	HAPs	A.1.a	CFR 63.862(a)(1)(i), 40 CFR 60.282(a)(1)(i)	Yes	No	Yes
	PM	A.1.b	WAC	No	No	No
	PM	A.2.a	PSD Permit	No	No	No
	PM	A.2.b	Order DE 02AQ91S- 5019	No	No	No
	PM	A.2.c	Order DE 02AQ91S- 5019	No	No	No
	PM (opacity standard)	A.3.a	NSPS Subpart BB	No	Yes	Yes
	PM (opacity standard)	A.3.b	NSPS Subpart Db	Yes	No	Yes
No. 3 Recovery Furnace	PM	B.1.a.	WAC	No	No	No
	PM	B.1.b.	CFR 60.282(a)(1)(i)	No	No	No
	HAPs	B.1.b	CFR 63.862(a)(1)(i)	Yes	No	Yes
	PM	B.1.c.	WAC	No	No	No
	PM (opacity standard)	B.2.a	NSPS Subpart BB	No	Yes	Yes
	PM (opacity standard)	B.2.b	NSPS Subpart Db	Yes	No	Yes
Lime Kiln	HAPs	C.1.a	CFR 63.862(a)(1)(i)	Yes	No	Yes
	PM	C.1.b	CFR 60.282(a)(3)	No	No	No

Emission Unit	Regulated Pollutant	Permit Condition	Permit Limit Basis	Emission Limit or Standard proposed by EPA after Nov 15, 1990?	Permit specifies a continuous compliance determination method?	Limit exempt from CAM?
	PM	C.1.c	PSD Permit	No	No	No
	PM	C.1.d	WAC	No	No	No
	PM	C.1.e	PSD Permit	No	No	No
	PM (opacity standard)	C.2.a	WAC	No	No	No
No.2 Smelt Dissolving Tank	PM	D.1.a	40 CFR 60.282(a)(2)	No	No	No
	HAPs	D.1.a	CFR 63.862(a)(1)(i)	Yes	No	Yes
	PM	D.1.b	WAC	No	No	No
	PM	D.2	Order DE 96-AQI078	No	No	No
	PM (opacity standard)	D.3	WAC	No	No	No
No.3 Smelt Dissolving Tank	HAPs	E.1.a	CFR 63.862(a)(1)(i)	Yes	No	Yes
	PM	E.1.b	WAC	No	No	No
	PM (opacity standard)	E.2	WAC	No	No	No
Hog Fuel Boiler	PM	F.1	Order DE 02AQIS-3588	No	No	No
	PM	F.2	WAC	No	No	No
	PM	F.3	PSD Permit	No	No	No
	PM	F.4	Order DE 02AQIS-3588	No	No	No
	PM (opacity standard)	F.5	WAC	No	No	No
	PM	F.14	CFR 63.7500(a)(1)	Yes	No	Yes
Cyclone Box	PM	L.1	Order DE 95AQI-84	No	No	No

Emission Unit	Regulated Pollutant	Permit Condition	Permit Limit Basis	Emission Limit or Standard proposed by EPA after Nov 15, 1990?	Permit specifies a continuous compliance determination method?	Limit exempt from CAM?
Clipping Collection System	PM (opacity standard)	L.2	WAC	No	No	No

CAM Applicability/Monitoring Details

As shown in Table 3 above, there are seven pollutant specific emission units (PSEUs) that are subject to CAM. For each of these PSEUs, 40 CFR 64.6 requires that the permit specify the following monitoring requirements:

- 1) The approved monitoring approach (including indicators to be monitored, the means or device for measuring the indicator, and the performance requirements for the monitoring device),
- 2) How an exceedance or excursion is defined for response and reporting purposes,
- 3) The obligation to conduct the required monitoring, and
- 4) Minimum data availability for valid data collection, if appropriate.

The following sections discuss the specific information included in the permit for each of the PSEU's to meet the aforementioned monitoring requirements. Each of the PSEU's use certain parameters to measure the performance of the control device. The use of such parameters as a measure of control device performance is consistent with both US. EPA's Region 10's interpretation of the applicability of periodic monitoring and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator. With respect to the rolling average annual or other long term limits, the monitoring ensures that the pollution control devices are operated in a manner that ensures that the source tests used to calculate the emissions are representative of the actual emissions.

For each parameter, the permit specifies the operating condition or conditions that will trigger the requirement for corrective action to restore operation of the control device to its normal or usual manner of operation as expeditiously as practicable. If corrective action is not taken, it may be considered a violation of the underlying requirements. In addition, if Ecology determines that acceptable corrective actions were not implemented, development of a quality improvement plan may be required.

The following sections also include additional information for any PSEU that is not subject to CAM due to fact that the pre-control emissions for the PSEU do not exceed the major source thresholds.

No. 2 Recovery Boiler – Particulate/Opacity

Boise Wallula uses an electrostatic precipitator to control particulate emissions from the No. 2 Recovery Boiler.

CAM has been addressed by specifying continuous opacity monitoring.

Per AOP condition A.7, a COMS is operated as a performance indicator to show continuous operation of the pollution control device. The COMS system will at all times be operated in conformance with 40 CFR Part 60 (July 1, 1992), App. B and App. F, Perf. Spec. 1.

The selected indicator range (average of ten consecutive 6 minute averages result in a measurement greater than 20% opacity) is the standard selected by EPA for continuous compliance assurance monitoring of recovery furnaces with an ESP in order to satisfy the Pulp & Paper Combustion Unit MACT standards [40 CFR 63.864(k)(1)(i)] that came into effect in 2004. This standard is the strictest particulate limit for this unit and will indicate compliance for the other limits as well.

No. 3 Recovery Furnace – Particulate/Opacity

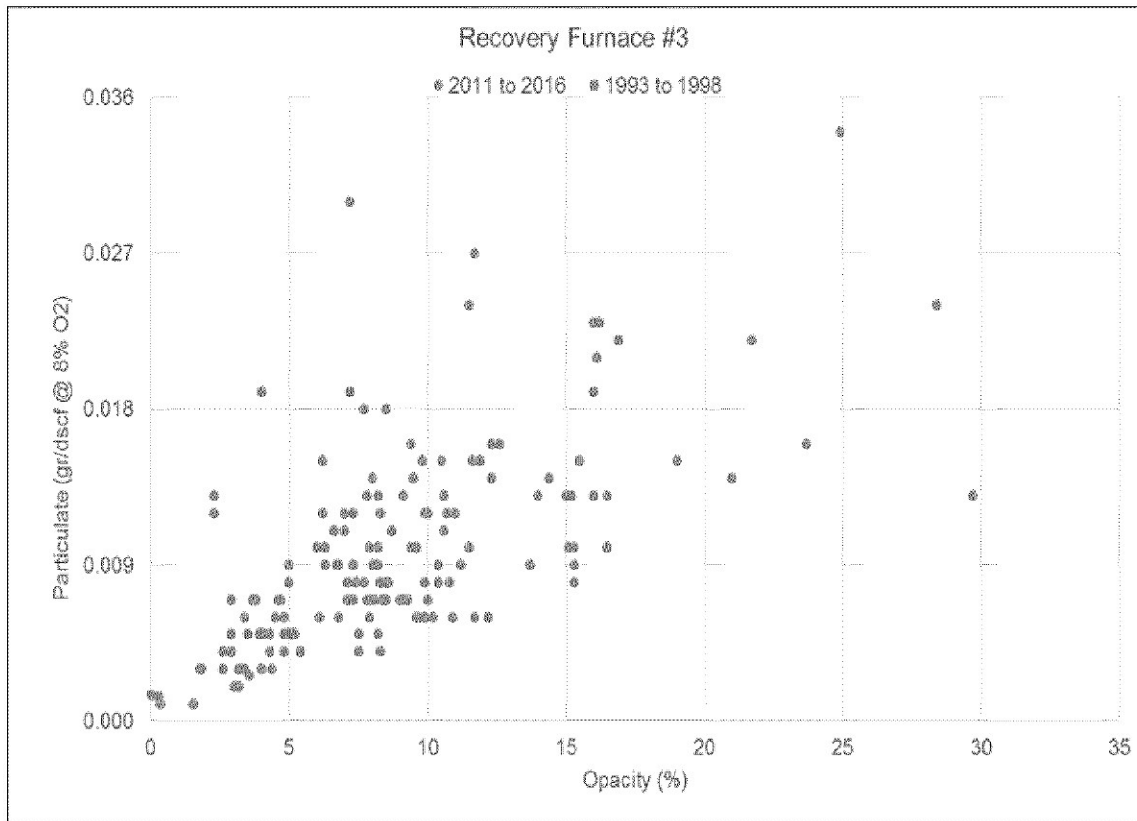
Boise Wallula uses an electrostatic precipitator to control particulate emissions from the No. 3 Recovery Furnace.

CAM has been addressed by specifying a continuous opacity monitoring system.

Per AOP condition B.3, a COMS is operated as a performance indicator to show continuous operation of the pollution control device. The COMS system will at all times be operated in conformance with 40 CFR Part 60 (July 1, 1992), App. B and App. F, Perf. Spec. 1.

The selected indicator range (average of ten consecutive 6 minute averages result in a measurement greater than 20% opacity) is the standard selected by EPA for continuous compliance assurance monitoring of recovery furnaces with an ESP in order to satisfy the Pulp & Paper Combustion Unit MACT standards [40 CFR 63.864(k)(1)(i)] that came into effect in 2004. The graph below reflects the relationship between opacity and particulate emissions from No. 3 Recovery Furnace (RF #3) over the 1993 through 2016 timeframe. As demonstrated by the graph, the indicator range will assure compliance with the most restrictive PM limit applicable to RF #3 is 0.027 gr/dscf, as well as the less restrictive limits.

Figure 1 RF #3 Opacity vs PM Graph



Lime Kiln – Particulate/Opacity

Boise Wallula uses a wet scrubber to control particulate emissions from the Lime Kiln.

CAM has been addressed for applicable limits by referencing CAM exempt monitoring required for the most restrictive PM limit, which is continuous monitoring of wet scrubber pressure drop and recirculation flow rate (AOP Condition C.7.a). As the monitoring addresses the strictest particulate limit for this unit, it is assumed that it will indicate compliance for the other particulate limits as well.

Flow rate and pressure drop across the scrubber are indicators of the performance of the scrubber in minimizing particulate emissions. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit. The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The permit requires that Boise Wallula continuously monitor pressure drop and the scrubber recirculation rate. Corrective action is required whenever the three-hour block average of either parameter is outside the range determined by the

initial performance test or any subsequent performance test. The most recently established range is:

- Maintain three hour average of scrubber pressure drop ≥ 23 H₂O when mud flow > 200 gpm and ≥ 21.3 H₂O when mud flow ≤ 200 gpm (based on performance test results from June 26-28, 2012)

Ecology does not believe opacity limit exceedances are an issue based on years of on-site inspections where opacity as a detached plume has not been noticed to any significant degree. However, 40 CFR Part 64 requires that the facility establish an appropriate range(s) or designated condition(s) such that operation within the ranges provides a reasonable assurance of ongoing compliance with an emission limit. The lime kiln stack is a wet stack so a COM is not appropriate. As such, the Permittee will be required to conduct an EPA Method 9 evaluation within 180 days of permit renewal to verify that compliance with the opacity limit will be reasonably assured at the proposed surrogate set points.

Lime Kiln – Sulfur Dioxide

Boise Wallula adds caustic to the wet scrubber medium to control sulfur dioxide from the Lime Kiln.

CAM does not apply since the lime kiln pre-control emissions of SO₂ (70 TPY) is less than the major threshold (100 TPY).

The pre-control SO₂ emissions can be calculated using AP-42 emission factor (0.3 lb/ADTP)* for uncontrolled SO₂ emissions from lime kilns and the mill's potential production rate (1286 ADTP/day):

pre-control SO₂ (TPY) = 1286 ADTP/day x 0.3 lb/ADTP x 365 days/yr x 1 ton/2000 lbs
pre-control SO₂ (TPY) = 70 TPY

** AP-42, Table 10.2-1 (Sept. 1990) for uncontrolled emissions from lime kiln. Note that this emission factor has a rating of "A".*

No. 2 Smelt Dissolving Tank – Particulate/Opacity

Boise Wallula uses a wet scrubber to control particulate emissions from the No. 2 Smelt Dissolving Tank.

CAM has been addressed for applicable limits by referencing CAM exempt monitoring required for the most restrictive PM limit, which is continuous monitoring of wet scrubber pressure drop and recirculation flow rate (AOP Condition D.5.a). As the monitoring addresses the strictest particulate limit for this unit, it is assumed that it will indicate compliance for the other limits as well.

Flow rate and pressure drop across the scrubber are indicators of the performance of the scrubber in minimizing particulate emissions. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit. The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The permit requires that Boise Wallula continuously monitor pressure drop and the scrubber recirculation rate. Corrective action is required whenever the three-hour block average of either parameter is outside the range determined by the initial performance test or any subsequent performance test. The most recently established ranges are summarized below. The test results are summarized on page 66 of this Support Document:

- Maintain a three hour average scrubber recirculation rate equal to or greater than 60 gpm, based on initial performance test results of 7/2/2004, and
- Maintain a three hour average pressure drop equal to or greater than 0.7 inches H₂O, based on initial performance test results of 7/2/2004.

Ecology does not believe opacity limit exceedances are an issue based on years of on-site inspections where opacity as a detached plume has not been noticed to any significant degree. However, 40 CFR Part 64 requires that the facility establish an appropriate range(s) or designated condition(s) such that operation within the ranges provides a reasonable assurance of ongoing compliance with an emission limit. The #2 smelt tank stack is a wet stack so an opacity COM is not appropriate. As such, the Permittee will be required to conduct an EPA Method 9 evaluation within 180 days of permit renewal and after the #2 smelt vent comes back into use to verify that compliance with the opacity limit will be reasonably assured at the proposed surrogate set points.

No. 3 Smelt Dissolving Tank – Particulate/Opacity

Boise Wallula uses a wet scrubber to control particulate emissions from the No. 3 Smelt Dissolving Tank.

CAM has been addressed for applicable limits by referencing CAM exempt monitoring required for the most restrictive PM limit, which is continuous monitoring of wet scrubber pressure drop and recirculation flow rate (AOP Condition E.3.a). As the monitoring addresses the strictest particulate limit for this unit, it is assumed that it will indicate compliance for the other limits as well.

Flow rate and pressure drop across the scrubber are indicators of the performance of the scrubber in minimizing particulate emissions. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit.

The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The permit requires that Boise Wallula continuously monitor pressure drop and the scrubber recirculation rate. Corrective action is required whenever the three-hour block average of either parameter is outside the range determined by the initial performance test or any subsequent performance test. Stack tests done in 2004 indicate the surrogate setpoints summarized below assure compliance with the smelt tank particulate limit of 0.2 lbs/ton.

Table 5 Smelt Dissolving Tank Particulate Matter Performance Test Data

Date	Scrubber Differential Pressure Inches of H2O	Scrubber Flow gpm	Particulate lb/Ton BLSF
6/15/04	-2	25	0.20
6/15/04	-2	25	0.20
6/17/04	-2	25	0.14

Based on these stack tests, the established ranges are as follows:

- Maintain a three hour average scrubber recirculation rate equal to or greater than 25 gpm, and
- Maintain a three hour average pressure drop equal to or greater than 2 inches H2O

Ecology does not believe opacity limit exceedances are an issue based on years of on-site inspections where opacity as a detached plume has not been noticed to any significant degree. However, 40 CFR Part 64 requires that the facility establish an appropriate range(s) or designated condition(s) such that operation within the ranges provides a reasonable assurance of ongoing compliance with an emission limit. The #3 smelt tank stack is a wet stack so an opacity COM is not appropriate. As such, the Permittee will be required to conduct an EPA Method 9 evaluation within 180 days of permit renewal to verify that compliance with the opacity limit will be reasonably assured at the proposed surrogate set points.

Hogged Fuel Boiler – Particulate/Opacity

Boise Wallula uses a wet electrostatic precipitator (wet ESP) to control particulate emissions from the Hogged Fuel Boiler.

CAM has been addressed for applicable PM limits by referencing CAM exempt monitoring required for the most restrictive PM limit, which is continuous monitoring of wet ESP total secondary electric power input (AOP Condition F.12). As the monitoring addresses the strictest particulate limit for this unit, it is assumed that it will indicate compliance for the other limits as well. A performance test done in January 2016 as summarized below indicate the surrogate setpoint of 16 kVA on a 3-hr average assure compliance with the HFB particulate limit of 0.026 gr/dscf.

Table 6: Hogged Fuel Boiler Particulate Matter Performance Test Data

Run #	Date	Wet ESP Secondary Power (kVA)	Particulate (gr/dscf)
1	1/20/16	16	0.011
2	1/21/16	31	0.012
3	1/21/16	24	0.009

Opacity readings using Method 9 were also performed for 30 minutes on 1/20/16. The minimum total power input during any 6-minute interval was 19 kVA. The maximum 6-minute opacity reading was 0%.

In a WESP, electric fields are established by applying a direct-current voltage across a pair of electrodes: a discharge electrode and a collection electrode.

Particulate matter and water droplets suspended in the gas stream are electrically charged by passing through the electric field around each discharge electrode (the negatively charged electrode). The negatively charged particles and droplets then migrate toward the positively charged collection electrodes and is separated from the gas stream. Particulate is removed from the collection plates by an intermittent spray of water. The WESP power input (voltage and current) were selected as performance indicators because the power drops when a malfunction, such as grounded electrodes, occurs in the WESP. When the secondary power drops, less particulate is charged and collected.

The surrogate setpoints are based on a performance testing. See “Comments on Specific Permit Conditions” for the setpoints.

Cyclone Box Clipping Collection System – Particulate (annual average)/Opacity

Boise Wallula collects box clippings from its packaging plant and sends it back to be re-pulped and combined with virgin pulp. The box clippings go through a cyclone and into a bailer. The exhaust of the cyclone goes through a particulate filter before exhausting to the atmosphere. The box clipping collection system operates continuously when the packaging plant is in operation since a buildup of the clippings will shut down the converting machines.

CAM applies since the pre-control emissions for PM could exceed the major threshold criteria. However, the allowed emissions are less than the major threshold. As such, the data collection frequency must be at least once per 24-hour period. Permit Conditions L.1 and L.2 requires that Boise Wallula install and maintain a pressure drop measurement device on the baghouse to monitor whether the baghouse is properly operating. The facility must also record the instantaneous pressure drop reading at least once per day. Corrective action is required if the pressure drop is less than or equal to four inches.

Greenhouse Gas Reporting

On October 30, 2009, EPA issued the Mandatory Greenhouse Gas Reporting Rule, specifically 40 CFR § 98, which requires annual reporting of greenhouse gas (GHG) data and other relevant information from large sources (those with emissions greater than 25,000 metric tons of CO₂ equivalent) to EPA beginning with reporting year 2010. Greenhouse gas reporting to EPA (40 CFR § 98) is not considered an applicable requirement under Title V and does not need to be included in the Title V permit (see <http://www.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf>).

Chapter 173-441 WAC, “Reporting of Emissions of Greenhouse Gases”, is a mandatory greenhouse gas (GHG) reporting rule for:

- Any listed facility that emits at least 10,000 metric tons of CO₂-equivalents (CO₂e) of greenhouse gases annually in the state.

WAC 173-441 was adopted by Ecology on December 1, 2010 and became effective on January 1, 2011. This regulation applies to the facility because the facility emits at least 10,000 metric tons of CO₂e of greenhouse gases per year. WAC 173-441 requires annual GHG inventories with reports due no later than March 31 of the following year for facilities that are also subject to 40 CFR 98. Under WAC 173-441, annual emissions shall be reported to Ecology beginning in calendar year 2012. This regulation is implemented in its entirety by Ecology and is considered an applicable requirement under the Title V program; as such, it is included as item 32 in the Facility-Wide General Requirements Section of the AOP for the facility.

Industrial Boiler MACT Standard, Subpart DDDDD

On January 31, 2013, the EPA published in the Federal Register the NESHAPs for boilers and process heaters at major sources of air toxics (Boiler MACT) – 40 CFR 63 Subpart DDDDD. The Permittee made a good faith effort to include applicable Boiler MACT limits and work practices in their permit renewal application. However, during the course of this permit renewal process, certain Boiler MACT provisions have been changed with EPA's promulgation of the Boiler MACT Reconsideration Rule (November 2015) and more recently the DC District Court has issued an opinion with vacates and remands certain provisions of the rules yet to be clearly defined (July 29, 2016). EPA subsequently requested that the Court not vacate the standards and was granted that request in December 2016. As such, Ecology has included applicable Boiler MACT limitations and work practices in this permit.

Boise Wallula has three boilers subject to the final Boiler MACT rule: Hog Fuel Boiler (HFB), No. 1 Power Boiler (PB #1), and No. 2 Power Boiler (PB #2). The HFB is a stoker design manufactured by George Kipper & Sons in 1979. The rated heat input capacity is 343 MMBtu/hr and is capable of burning both wood and natural gas. The HFB is classified as "stokers/sloped grate/other units designed to burn wet biomass/bio-based solid" [40 CFR 63.7499(i)].

The power boilers are package boilers manufactured by Babcock and Wilcox. PB #1 was manufactured in 1958. PB #2 was manufactured in 1960. Both power boilers only burn natural gas but have the capability of burning fuel oil during periods of natural gas curtailment. The power boilers are classified as "units designed to burn gas 1 fuels" [40 CFR 63.7499(l)]. During the most recent permit term, the Mill did not burn fuel oil, despite being permitted to do so. However, the Mill remains permitted to burn oil in the power boilers should the Mill make a fuel switch from gas to oil and become subject to the limits for oil burning boilers. The Mill is permitted to burn either light liquid fuel or heavy liquid fuel in the power boilers. All pollutant limits are the same for either fuel with the exception of particulate matter, as noted in the permit.

Initial compliance requirements with the Boiler MACT rule have been completed before issuance of this permit renewal and summarized below. Only the ongoing compliance requirements are incorporated in the permit.

Initial Notification - the required Initial Notification was submitted on January 19, 2012.

Notification of Compliance Status [40 CFR 63.7545(e)]- the required Notification of Compliance Status Report was submitted on March 28, 2016.

Initial Tune-ups [40 CFR 63.7510(e)] - initial tune-ups of the HFB, PB #1, and PB #2 were conducted on October 20, 2015, June 5, 2015, and June 6, 2015, respectively.

One-Time Energy Assessment [40 CFR Part 63.7510(e) for requirement and Table 3 to Subpart DDDDD of Part 63 (Item 4) for specifics] – The one-time energy assessment of the Wallula Mill was completed by a qualified energy assessor on January 21, 2016.

CO and O₂ CEMS Initial Certification (HFB only) – The initial certification of the CO (PS-4) and O₂ (PS-3) CEMS was conducted on March 9, 2016. The results were submitted to EPA and Ecology through the CEDRI/CDX program on April 28, 2016.

Initial Performance Test (HFB only) – The HFB initial performance test was conducted on January 20, 2016 for PM, HCl, and Hg. The results were submitted to EPA and Ecology through the CEDRI/CDX program on March 14, 2016. A summary of the results is shown below:

Table 7: Hogged Fuel Boiler – Boiler MACT Initial Performance Test (January 2016)

Parameter	Criteria	Method 5/29			Limit
		Run #1	Run #2	Run #3	
Steaming Rate (klb/hr)	Max	195	195	196	214.5*
WESP Total Sec. Power (kVA)	Min	16	31	24	16
PM (lb/mmBTU of Steam Output)		0.034	0.034	0.028	0.043
Hg (lb/mmBTU of Steam Output)		9.02E-07	1.23E-06	9.57E-07	6.40E-06

* Limit is 110% of maximum 1-hour load achieved during the test.

Parameter	Criteria	Method 26			Limit
		Run #1	Run #2	Run #3	
Steaming Rate (klb/hr)	Max	194	195	195	214.5*
WESP Total Sec. Power (kVA)	Min	20	31	23	20
HCl (lb/mmBTU of Steam Output)		2.10E-03	9.50E-04	5.10E-04	0.025

* Limit is 110% of maximum 1-hour load achieved during the test.

Wet ESP Total Secondary Power Calculation

To show continuous compliance, the Boise Wallula Mill established the minimum total secondary electric input, as determined from the values of secondary voltage and secondary current to the electrostatic precipitator. The determination of the minimum total secondary power electric power input is as follows:

- 1) Collect 15-minute averages of secondary voltage (V_1 , V_2 , and V_3) and secondary amperage (A_1 , A_2 , and A_3) for each of the 3 Wet ESP cells.
- 2) Calculate secondary electric power input (P15) every 15 minutes:

$$P15 = V_1 A_1 + V_2 A_2 + V_3 A_3$$

- 3) Calculate secondary electric power input (P-1hr) every hour:

$$P-1hr = (P15_1 + P15_2 + P15_3 + P15_4)/4$$

- 4) For Methods 5 (PM) and 29 (Hg), the lowest calculated 1-hr average (P-1hr) secondary power input for each run is shown in the table above.

Reciprocating Internal Combustion Engines (RICE) MACT, 40 CFR 63 Subpart ZZZZ and 40 CFR 60 Subpart JJJJ

Emergency RICE

Boise Wallula uses stationary combustion engines to provide electricity and to power pumps and compressors during periods of emergency only:

- 318 HP Detroit diesel CI engine; Last rebuilt in 1986; Used to drive an emergency backup fire water pump.
- 318 HP Detroit diesel CI engine; Last rebuilt in 1998; Used to drive an emergency backup mill process water pump.
- 200 HP Ford propane SI back-up generator; manufactured in April 2004; back-up generator for providing electricity to the main office.
- 97 HP Generac propane SI back-up generator; manufactured in August 2013; back-up generator for providing electricity to the R8 generator.

The first three in the list above are subject to 40 CFR 63 Subpart ZZZZ (NESHAPs for Stationary Reciprocating Internal Combustion Engines). The 97-HP Generac generator is subject to 40 CFR 60 Subpart JJJJ (NSPS for Stationary Spark Ignition Engines). The applicable work practice standards are included as Section R in the permit.

Existing non-emergency RICE

From the time of the federal rule implementation through 12/31/2014, two engines were considered emergency units:

- 195 HP Detroit diesel engine; Installed in 1992; Used to drive an backup fire water pump
- 200 HP Hercules propane 4-stroke lean-burn auxiliary drive engine; manufactured in 1988; Used to drive the lime kiln when the electric drive is offline (*replaced on June 2016 with a 80-HP Engine Distributors, Inc. Model MSG -425 engine manufactured in 2016*)

On 12/31/2014, the two engines surpassed the allowable annual non-emergency usage amount (50 hours) specified in the rule subpart. According to the Administrations Implementation Question and Answer Document, dated July 17, 2012, these two units are no longer considered emergency units.

The first engine (195-HP Detroit Engine) is subject to compliance under 40 CFR Subpart 63 Subpart ZZZZ as an existing engine constructed prior to 6/12/2006 with a rating less than 500 HP. The applicable CO emission limit for this engine is included as Section R in the permit.

On February 17, 2015, a performance test was conducted in the 195-HP Detroit Engine. The results were submitted to Ecology on April 16, 2015 and are summarized in the table below.

Table 8: Detroit Engine Performance Test

195-HP Detroit CI Engine Exhaust					
Pollutant	Run 1	Run 2	Run 3	Average	Subpart ZZZZ Emission Limit
CO (ppm @ 15% O2)	80.3	78.4	75.8	78.2	230

The performance test for the 200-HP Hercules Engine occurred on May 27, 2015. The test was abandoned because the existing engine failed to achieve compliance with the applicable CO limit for non-emergency engines. The applicable CO standard for the 200-HP Hercules Engine is 47 ppmvd @ 15% oxygen (Item 10 of Table 2c to 40 CFR 63 Subpart ZZZZ). As a result of the failed compliance test, Boise Wallula replaced the 200-HP Hercules Engine with a new 80-HP MSG 425 engine from Engine Distributors, Inc. This engine is now subject to Subpart JJJJ. The new engine is certified to meet 40

CFR Part 1048 and is operated per manufacturer's recommendation. There is no emission limit for this engine.

Pulp and Paper Industry NESHAP (MACT I), 40 CFR 64 Subpart S update

On April 15, 1998, EPA issued National Emission Standards for Hazardous Air Pollutants (NESHAPS) for the pulp and paper industry, specifically 40 CFR § 63, Subpart S. These standards have been commonly referred to as the "Cluster Rules" or "MACT I." The compliance date for the regulations was April 16, 2001. The Mill requested and received a one-year extension for the pulping process condensate portion of the rule. On September 11, 2012, EPA eliminated the startup, shutdown, and malfunction (SSM) exemption in the rule and added affirmative defense option. The affirmative defense option is currently being reconsidered by EPA. These changes affect Section S of the existing AOP.

MACT I rules regulate hazardous air pollutant emissions (as methanol) from five key areas of the Mill. The No. 1 M&D Digester chip/sawdust bin was determined to be an insignificant source of HAPS emissions and to be exempt from regulation under the MACT I regulatory requirements (Letter dated June 15, 2001). All of the systems must meet the "existing source" requirements of the MACT I rules:

- Bleach plant/scrubber;
- Bleaching chemical agent used in the bleach plant;
- Low-Volume, High-Concentrate (LVHC) Non-Condensable Gas (NCG) system;
- Hardpiped condensate collection system; and
- High-Volume, Low-Concentrate (HVLC) system or Clean Condensate Alternative (CCA).

For the bleach plant scrubber, MACT I requires that operating parameter ranges be established as surrogates in order to demonstrate compliance with a chlorinated compound emission limit of 10 ppmvd, as chlorine. Initial performance test plans were submitted in advance of the performance test compliance demonstrations. Required surrogates used for compliance demonstration include ORP, scrubber recirculation flow, and scrubber fan operation (approved by EPA as an alternative to scrubber air flow).

The bleach plant operation was altered so that elemental chlorine is no longer used as a bleaching agent. In December 2000, the Mill completed the conversion to bleaching with 100% chlorine dioxide substitution for chlorine. This bleaching configuration is known as elemental chlorine-free bleaching, or "ECF." This requirement to modify the bleaching configuration also assures compliance with the chloroform reduction requirements of the MACT I regulation.

Low-Volume, High-Concentration (LVHC) Non-Condensable Gas (NCG) System

MACT I require NCGs to be collected from applicable digester systems, evaporator systems, and regulated foul condensate tanks.

At Boise Wallula, this equipment includes the No. 1 and No. 2 M&D Digesters, the NSSC digester, the Kamyr digester, the No. 1 evaporator seal tank, No. 2 evaporator seal tank, No. 3 evaporator seal tank, foul condensate tank, lime kiln condensate collection tank,

Hog fuel boiler condensate collection tank, and the LVHC condensate collection system. Boise Wallula monitors the vacuum of the LVHC system as well as the incineration source for these gases. The regulations provide for an allowance of up to 1% venting in addition to SSM events, as reported semiannually, to account for maintenance and repairs. Boise Wallula reports all venting events in its semiannual MACT report. The NCG system is inspected for leaks under the Leak Detection and Repair (LDAR) program at least every 30 days. Boise Wallula has requested and it has been approved that the 30-day monitoring frequency be changed to *monthly* monitoring in the Title V permit in order to facilitate better scheduling of department staff. In addition to the monthly inspection, the LVHC system is also leak-checked annually for leaks using a VOC detector on the positive pressure portion of the system. A detector reading of 500 ppm or greater indicates leaks that must be repaired.

Pulping Process Condensates

Hardpiping of foul condensates is used for compliance with the pulping process condensate requirements of the MACT I regulations. The Mill has elected to comply with collecting at least 11.1 lbs methanol per ton of kraft pulp production. Hardpiped condensates are discharged under the surface of a well-operated biological treatment system in order to remove the required 10.2 lbs of methanol per ton of kraft pulp production. The Mill completed initial performance tests as required by the MACT I regulations and also completes quarterly verification tests to demonstrate the ability of the wastewater treatment system to achieve the required methanol reductions. The Mill has established a 15-day averaging period for compliance demonstration with the hard-piping standard.

The process pulping condensates that comprise the hardpipe condensate collection system at the Mill include:

- Kamyr digester surface condenser condensate;
- No. 1 and No. 2 M&D digester condensate;
- LVHC system condensate
- No. 1, No. 2, and No. 3 evaporator foul condensate tanks

High-Volume, Low-Concentration (HVLC) System

The MACT Subpart S rule requires that HAPs measured as methanol be collected from the brownstock washers or alternatively that the Mill demonstrates compliance with the provisions of the clean condensate alternative in 40 CFR 63.447. The deckers and screens have been determined to be below the applicability threshold. The Mill has very low concentrations of methanol in these units.

The Mill has tested brownstock washer emissions, and the total methanol emissions are below the thresholds established in the MACT I rule and are not required to be collected.

The remaining brownstock pulp washer gases are very low in methanol concentration, and the Mill has completed an application in order to utilize the Clean Condensate Alternative (CCA) as provided in 40 CFR § 63.447. Ecology approved the Mill's CCA plan in March 2003. CCA compliance demonstration requirements have been added to the monitoring, reporting, and recordkeeping provisions of the Title V Permit.

Pulp and Paper NESHAP, 40 CFR §63, Subpart S RTR

On September 11, 2012, EPA issued the residual risk and technology (RTR) rule for pulp and paper sources subject to the Subpart S NESHAP. One new applicable requirement in 40 CFR 63.457(a)(2) requires that a new performance test be conducted by September 7, 2015 for units regulated under 63.443, 63.444, and 63.445, and every 60 months thereafter. The new requirement has been added to the permit for the bleach plant performance test (63.445). Equipment regulated under 63.443 and 63.444 are satisfied through vent collection and incineration in a boiler or lime kiln meeting the regulatory requirements in 40 CFR 63.443(d)(4). Conduct of new performance testing and retesting is not required by the rule for the condensate collection and treatment system or the equipment included within the Mill's clean condensate alternative (CCA) alternative, 63.446 and 63.447, respectively, as those sections are not referenced in the 2012 RTR rule, 40 CFR 63.457(a)(2).

Pulp and Paper Industry NESHAP (MACT II), 40 CFR § 63, Subpart MM

On January 12, 2001, EPA issued National Emission Standards for Hazardous Air Pollutants (NESHAPS) for the pulp and paper industry, specifically 40 CFR § 63, Subpart MM – National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semi-chemical Pulp Mills. The Subpart MM rules became effective on March 13, 2001, with a compliance date of March 13, 2004.

These standards have been commonly referred to as “MACT II.” MACT II rules regulate metals (particulate matter surrogate) emissions from five significant emission units and their respective control devices at the Mill. All of the units below must meet the “existing source” MACT II requirements:

- Lime kiln/scrubber
- No. 2 recovery furnace/electrostatic precipitator (ESP)
- No. 2 recovery smelt dissolving tank vent/scrubber
- No. 3 recovery furnace/ESP
- No. 3 recovery smelt dissolving tank vent/scrubber

Lime kilns must achieve a particulate matter emission rate of 0.064 grains per dry standard cubic foot (gr/dscf) corrected to 10% oxygen. Recovery furnaces must achieve a particulate matter emission rate of 0.044 gr/dscf corrected to 8% oxygen, and smelt dissolving tank vents must achieve a particulate matter emission rate of 0.2 lbs/ton black liquor solids (BLS).

The Mill completed initial performance test (IPT) plans and conducted the performance testing for each emission unit as required by the rules. Parametric monitoring requirements for each control device mentioned above were established pursuant to those IPTs and the rule.

NSSC Pulping/Pink Liquor System

A powdered sodium sulfite “synthetic liquor” system has been in place at the Boise Wallula Mill for the past several years. The sulfur burner system continues to be maintained and will be kept in place as a backup for generation of sulfite liquor for the NSSC process in situations where the powdered system malfunctions, in cases of raw material supply interruptions, or for other economic reasons.

A letter was issued by Ecology dated December 7, 1998 determining that the NSSC digester is subject to comply with the control options that are set forth in 40 CFR § 63.443, standard for pulping systems, under Subpart S that regulates the HAPs for pulp processes. HAP emissions from the existing LVHC system were required to achieve compliance as scheduled in 40 CFR § 63.440(d). Boise Wallula is in compliance with this requirement.

Printing and Publishing MACT, 40 CFR Part 63 Subpart KK

The Wallula Containerboard/Box Plant, co-located with the pulp and paper mill, is subject to the requirements of the Printing and Publishing MACT, 40 CFR Part 63 Subpart KK. The facility emits fugitive emission of less than the regulatory threshold of 400 kg/month of organic HAPS, and as such is only subject to the monthly recordkeeping requirement of total ink used and the HAP content of the applied ink pursuant to Section 63.829(e) and 63.830(b)(1). All records are maintained and kept on site by Boise Wallula personnel. Because no specific Subpart KK emissions limit applies, a permit condition has not been proposed by Boise Wallula or Ecology for the Title V permit.

Best Available Retrofit Technology (BART) Inapplicability

After conferring with the Ecology Air Program regarding BART applicability for the Wallula mill, Boise Wallula submitted a BART eligibility review letter to the Air Program on August 8, 2005. Boise Wallula’s review, which has been accepted by Ecology, concluded that BART was not applicable to the No. 2 Recovery Furnace, the No. 3 Recovery Furnace, the Hogged Fuel Boiler, the Lime Kiln or the No. 1 and No. 2 Power Boilers.

Documentation confirming that the No. 2 RF startup date occurred before February 1962, and prior to the August 7, 1962 BART applicability date was provided by Babcock and Wilcox. The No. 3 Recovery Furnace, Lime Kiln and Hogged Fuel Boiler were all permitted under PSD permit X-77-04 during 1977-1978, with start-up occurring in approximately 1980. As such, these units are not BART eligible units. The No. 1 and No. 2 Power Boilers are both rated at less than 250 MM BTU/hour and are also not BART eligible units. The Wallula mill has no operating combustion units that are subject to BART regulations.

Projects and Permit Approvals

During the current permit term from 12/1/09 to 1/1/15 the Wallula mill has submitted one notice of construction application and received the approval from the Department of Ecology. An outline permitting activities is provided below:

Wallula Containerboard/Box Plant Projects

The Wallula Box Plant, part of the company's packaging and newsprint division, is co-located on the site with the Wallula Kraft Pulp and Paper mill. The Wallula mill's No. 2 Paper Machine produces unbleached corrugating medium that is directly integrated with the box plant's production of corrugated containers. One key project was completed at the Mill during the 2009-2014 permit term. In May 2010, Boise submitted a NOC to Ecology to upgrade and modify the existing corrugator operations. On August 17, 2010, Ecology issued NOC Approval Order No. 7847 for this project. No new applicable requirements or limits were included in the approval; therefore, no new permit conditions need to be added to the Title V operating permit.

The container plant has a starch silo bag house and is included in the emissions inventory. A letter of approval, dated April 1998, was issued by Ecology for a new flexo-gluer replacement project, which included an installation of a new "Mini-Martin 2" flexo-folder/gluer as a replacement to the No. 1 Langston gluer at the Wallula container plant. The No. 1 Langston was reinstalled as a working spare to handle peak production demands. Ecology determined that the Langston reinstallation was exempt from new source review as stated in WAC 173-400-110(5).

Ancillary and Support Operations

Boise Trucking

Fugitive emissions from Boise Wallula's adjacent trucking terminal are included in the Mill's Title V emissions inventory and permitting process.

Ponderosa DeInk Plant and R&D Lab

The Ponderosa fibers deink plant has been closed. Boise Wallula has retained ownership of the Ponderosa assets and now owns the equipment and buildings.

A portion of the plant is being used to store No. 2 paper machine's bleach market pulp and another portion of the plant has been used since 2008 for a research and technical development center associated with the label and release paper machine project for W3. Emissions from the laboratory are insignificant as defined in WAC 173-401-530, 531 and 533(3)(c).

Landfill/Compost Operations

The fugitive emissions inventory from the onsite landfill and compost operations is incorporated into the permitted inventory.

Fugitive emissions estimates were updated as part of the PM10 attainment designation and provided to Ecology's Doug Schneider for use in development of the Wallula Area maintenance plan on 4/11/03. The Mill and its contractors have implemented an approved Dust Control Plan at the site.

Fiber Farm

The facility previously owned an 850-acre cottonwood fiber farm adjacent to the Mill property. The farm had previously been included in the Mill's emission inventory, but is no longer included due to the sale of the land on 10/3/2007.

Boise Wallula considers the Fiber Farm as an insignificant emission unit per WAC 173-401-532(34).

PSD Permit, Notices of Construction ("NOC"), State Orders, and Letters of Approval

Subsequent to the Mill's first Title V permit in 1996, the Mill has been issued a PSD permit, several notices of construction, state orders, and letters of approval, which are provided in Appendix A. Brief descriptions of the most significant permitting activities are listed below.

Box Plant Corrugator Project, 2010-2011

In May 2010, Boise Wallula submitted a NOC to Ecology to upgrade and modify the existing corrugator operations. On August 17, 2010, Ecology issued NOC approval order 7847 for this project. No new applicable requirements or limits were included in the approval; therefore, no new permit conditions need to be added to the Title V operating permit.

No. 3 Recovery Furnace/Hog Fuel Boiler PSD Permit, May 2002

The Mill has submitted a PSD application for the No. 3 Recovery Furnace upgrade and the hog fuel boiler upgrade and received the accompanying notices of construction and state orders.

The No. 3 Recovery Furnace has been permitted for an increase of throughput by approximately 15%, as well as the replacement of some of the boiler tubes and installation of tertiary air ports and controls. The hog fuel boiler has been permitted for an upgrade to over-fire air and for a production increase.

Chlorine Dioxide ClO₂ Upgrade Order Issued September 25, 2000

The R8 generator was upgraded for throughput to accommodate the increase usage of ClO₂ associated with 100% chlorine substitution, to comply with the Cluster Rule regulations.

No. 2 Recovery Furnace Administrative Order Issued November 19, 2002

An Administrative Order was issued for the No. 2 Recovery Furnace that provided a synthetic minor emissions cap and for the completion of necessary boiler tube repairs.

Chip Flinger Installed October 1995

A new chip transfer system was installed to replace the older system. The new system, known as a chip flinger, was chosen to reduce fracturing and generation of pin chips in the old pneumatic chip blower system. The new system resulted in a net decrease in particulate emissions (PM/PM10) with the reduction of pin chips.

Power Boilers Fuel Use – PSD Permit Condition, May 2002

As part of the PSD permit issued in May 2002, the stipulation on use of fuel oil only during periods of gas curtailment was removed. However, the 2% sulfur content of oil and the annual sulfur limits remain in place.

Used Oil Fuel Letter of Approval Issued December 18, 2002

The Mill has now been permitted to burn used oil provided that the used oil specifications provided in 40 CFR 279 are met.

Lime Kiln Hot End Bag House Letter of Approval Issued December 15, 1998

A bag house was added to the hot end of the lime kiln in order to reduce lime dust emissions. The project was exempt from new source review under WAC 173-400-110(5).

Lime Kiln Stack

Specialty Minerals Incorporated (SMI) uses the carbon dioxide gases from the lime kiln scrubber to produce calcium carbonate, an excellent way to reduce greenhouse gases. The SMI inlet connection to the lime kiln scrubber was found to interfere with the stack tests. Hence, the inlet to SMI was moved up the stack by approximately 20 feet.

No. 3 Recovery Furnace ESP 3rd Cell Order Issued March 3, 1996

A third cell was added to No. 3 recovery furnace ESP to allow maintenance to occur on the other primary cells while the furnace was still in operation.

Fugitive Emissions Inventory

In the previous 2004-2009 Title V, the most conservative emission factors were used for fugitive emission factors. The 2009-2014 permit, and the proposed renewal permit, use emission factors based on emission estimates both on the specific soils used and the mean versus maximum emission factors.

Emission Inventory

The conservative Title V emission inventory was updated for the 2009-2014 permit with an emission basis that more accurately reflected the facility emissions for annual emissions reporting, SARA Title III, emission releases, and permitting activities. Fugitive emissions estimates from the Boise Wallula fiber farm are no longer included in the inventory since the site has been sold.

Federal Air Quality Requirements: Applicability for MACT, NSPS, NESHAP, or CAM

NESHAP Applicable: MACT Subparts S, MM, KK, JJJJ, ZZZZ, DDDDD

NSPS Applicable: Subpart BB, Db (specific units only, as noted in permit)

CAM: Non Applicable – See Section 11 Attachments

State Air Quality Requirements: Applicability for BACT, PSD, LAER, or Acid Rain

PSD Applicable: Lime Kiln, No. 3 Recovery Furnace, Hog Fuel Boiler, No. 3 Evaporator Set

LAER Applicable: Not Applicable

BACT Applicable: Lime Kiln, No. 3 Recovery Furnace, Hog Fuel Boiler

Compliance/Enforcement History and Remedies

All emission units have been properly permitted and are operating in overall compliance with regulatory requirements at the time of the most recent Title V Air Permit Application renewal received on December 24, 2014. There are no outstanding enforcement actions nor have there been significant enforcement actions during the previous permit term.

EMISSION UNIT DESCRIPTION

Emission Unit Control Device and Emission Inventory ID

In keeping with the submission of the Facility Annual Air Inventory, the following table lists the point and segment number as per the Annual Air Inventory Report along with a brief description.

Table 9: Plant Number 53-071-00003 Emission Unit Control Devices

Point Number	Segment Number	Source and Control Description	Modification History
01	01/02	Lime Kiln – High efficiency wet scrubber	PSD-X77-04 Amend 2 6/14/05
02	01	Smelt Tank Vent – No.2 Recovery Furnace – Medium efficiency wet scrubber	NOC/Modification 3/18/05
03	01	Kraft No. 2 Recovery Furnace – High efficiency electrostatic precipitators	Startup 12/1980
04	01	Smelt Tank Vent – No. 3 Recovery Furnace – Medium efficiency wet scrubber	No modifications
10	01	Kraft No. 3 Recovery Furnace – High efficiency electrostatic precipitators	PSD-01-07 Amend 1 2/2/06
21	01, 02	No. 1 Boiler – Natural gas and Oil	No modifications
22	01, 02	No. 2 Boiler – Natural gas and Oil	No modifications
23	01, 02	Hog Fuel Boiler	PSD-01-07 Amend 1 2/2/06
24	01, 02	Fugitive Emissions	NA
25	01	Bleach Plant – Medium efficiency scrubber	No modifications
26	01	Water Purification Plant	No modifications
27	01	Pulping and Washing – CCA & Hard Pipe	No modifications
28	01, 02, 03	All other processes	Coater Project – Order No. 5408 Wet Lap Project – 12/16/08 Container Project – 2/17/05 Boxplant Corrugator Project – 8/17/10, Order No. 7847

STATE-ONLY VS. FEDERALLY ENFORCEABLE REQUIREMENTS

The few permit conditions which are state-only and not federally enforceable requirements are identified as state-only within the permit itself. No further explanation is provided here on the assumption that the permit condition is self-explanatory.

EMISSION LIMIT DISCUSSION

Monitoring and Gap Filling

Ecology has preferentially relied on direct source testing as the most robust and accurate method of determining compliance and, through frequency of testing, assuring compliance. Source testing is resource and time intensive. More frequent monitoring requires the use of some sort of indirect surrogate parameter. The frequency of direct source testing has been stipulated through Orders, which are included in Appendix F of this permit. Ecology has attempted to reconcile frequency of monitoring with accuracy of monitoring by relying on both direct periodic source testing and more frequent indirect monitoring using surrogate parameters. Acknowledging the surrogate monitoring parameters as compliance indicators but not necessarily compliance determinants addresses the qualitative concerns regarding surrogate monitoring parameters. Where surrogate monitoring parameters have been employed, the Permit has been structured such that noncompliance with the surrogate limitation requires corrective action. Failure to take corrective action and bring the surrogate parameter within bounds constitutes noncompliance with the need to follow good operation and maintenance as required by WAC 173-405-040(10). The Permit thus combines periodic direct source testing which definitively determines compliance with surrogate monitoring requirements indicating compliance to achieve an overall monitoring program intended to meet the Title V requirement of monitoring sufficient to assure compliance.

The frequency of both direct source testing and the application of surrogate parameters intended to indirectly infer compliance with the underlying applicable requirement is based on best professional judgment of the historical probability of exceeding the imposed limitation and the potential magnitude of an exceedance. A summary of historical particulate emissions testing results which served as the basis for determining the frequency of monitoring is included in this document as Appendix B. Historical testing results for all parameters monitored is not included because this data is already on file available for public review and including it in this document would literally require hundreds of pages.

Emission units such as the lime kilns and smelt tanks have wet scrubbers as emission control equipment or as part of the emission control equipment train. The requirement to monitor and maintain scrubber flow at certain set points was, prior to the advent of Title V Permits, initially imposed as an indicator of proper operation and maintenance regarding opacity and particulate emission minimization. Particulate source testing and visual observations of opacity indicate that the surrogate scrubbing parameters stipulated can be used as indicators of compliance with the opacity and particulate emission limits.

For some units, such as recovery furnaces, opacity is proposed as a compliance indicator for particulate emissions. At this time, Ecology does not know of a definitive relationship between opacity and particulate emissions for all emission units such that opacity could be used as a predictive emissions parameter. Nonetheless, there is a relationship such that the opacity levels selected, the opacity limits themselves, are believed to adequately function as surrogate indicators which infer compliance with the underlying applicable requirement.

Incorporated into the Permit for the No. 2 and No. 3 Recovery Furnaces, Lime Kiln, and No. 2 and No. 3 Smelt Dissolving Tanks, is an allowance for a reduction in source testing frequency which may be allowed if particulate emission control meets certain criteria. Ecology has introduced this allowance as an incentive to encourage improved emission control. The first criterion, which must be met to allow consideration of source testing frequency reduction, is a proven history of performance. This requires a source to achieve six consecutive months of monthly source testing results that are not greater than 75% of the particulate emission limit. To maintain the reduction in testing frequency no subsequent testing results can be greater than the 75% threshold. If a test result is greater, the testing frequency reverts to a monthly basis until the next six consecutive monthly period of improved performance has occurred.

Simply meeting the 75% threshold is not the only criteria for gaining a reduction in source testing frequency. Subjective criteria are also evaluated and ultimately best professional engineering judgment is exercised. Primary factors also considered include historical emission trends and degree of confidence in maintaining emission limit compliance between source testing events. For example, a unit from which particulate emissions have been historically increasing would probably not gain the source testing frequency allowance. It possibly could be argued that such a unit was already trending toward noncompliance with WAC 173-405-040(10) which requires operation and maintenance of a facility and emission that operated only periodically probably would not be granted a reduction in monitoring frequency because of possible problems developing from its "mothballed" status. A reduction in testing frequency would also be dependent on the strength of surrogate information available indicating limit compliance between testing events, if a surrogate parameter was deemed control equipment in a manner consistent with good air pollution control practices. Also a unit adequate for compliance indication when coupled with monthly testing but not adequate as a stand-alone compliance indicator, a reduction in testing frequency would not be granted despite achieving the 75% emission allowance threshold.

Where the respective Order is the basis of authority for the required source testing and establishes the frequency of source testing, the mechanism for achieving a reduction in source testing frequency is modification of the underlying Order. The current wording in the Title V permit allowing the consideration of such a reduction is designed as a placeholder such that modification of the underlying Order will not require opening the Title V permit for modification. A 30-day public comment period will still occur associated with modification of the Order.

Representative Source Tests

Boise Wallula source tests represent compliance with the standard because the time period over which the sources are tested is representative of the operation of the source throughout the compliance period. The period of source testing is representative of operations for the following reasons.

Source tests are ‘blind’ in nature. The only communication between the testers and operators is to verify that operating or production parameters meet or exceed the previous compliance period’s average operating conditions. Boiler operators are not given long lead times by the source testers, in order that they may “tune-up” their boiler.

Source tests are conducted at or above the previous compliance period’s average operating parameters. Source tests are designed to utilize operating conditions that best emulate past plant operating parameters in order to show continuous compliance. To accomplish this, source tests are conducted at or above the previous compliance period’s average operating ranges in terms of both production rates and unit operating configurations. It is assumed that the greater the operating parameters, the greater the mass emissions. Thus, if the operating parameters meet or exceed the previous compliance period’s averages and still meet standards, the overall assessment is that the source test was representative and the system was in continuous compliance.

Additional surrogate monitoring parameters. In addition to periodic direct source testing designed to definitely determine compliance, Ecology has proposed minimum operating conditions, where deemed appropriate, as a surrogate monitoring requirements intended to indicate compliance. The overall objective is to achieve a monitoring program that meets the Title V requirement of monitoring sufficient to assure compliance.

Monitoring is not always required. The table below illustrates whether or not the following units and pollutants are subject to periodic monitoring as prescribed in 40 CFR 70.6(a)(3). Each requirement is identified by the Permit Condition designation. (e.g. A.1 for particulate for the No. 2 Recovery Furnace.)

Table 10: Periodic Monitoring Evaluation

40 CFR Part 60 Requirements

Permit Condition	Parameter	Applicable Requirement(s)	Subject to Periodic Monitoring	Justification
A.1	Particulate	40 CFR 60.282(a)(1)(i)	YES	40 CFR 60.282(a)(1)(i) does not have any periodic monitoring or testing requirements. Periodic monitoring under section 70.6(a)(3)(i)(B) is required if “the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring,” thus periodic monitoring is required. Monthly source testing is required in Consolidated Order DE 96-AQI078, thus fulfilling the 70.6(a)(3)(i)(B) requirement.
A.3	Opacity	40 CFR 60.282(a)(1)(ii) 40 CFR 60.284(e)(1)(ii) WAC 173-405-040(6)	NO	The sections listed to the left are all regulated by 40 CFR 60.282 and 283. These sections contain emissions limits for opacity and TRS, respectively. 40 CFR 284 mandates continuous monitoring systems to monitor opacity levels and TRS emissions. Since periodic monitoring under section 70.6(a)(3)(i)(B) is only required if “the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring,” no additional monitoring is applicable.
A.6	TRS	40 CFR 60.283(a)(2) 40 CFR 60.284(e)(1)(i)	NO	
C.6.a	TRS	40 CFR 60.283(a)(5)	NO	
D.1	Particulate	40 CFR 60.282(a)(2), WAC 173-405-040(2)	NO	The sections listed to the left are all regulated by 40 CFR 60.282 and 283. These sections contain emissions limits on black liquor solids. 40 CFR 284 mandates continuous

Permit Condition	Parameter	Applicable Requirement(s)	Subject to Periodic Monitoring	Justification
D.4	TRS	40 CFR 60.283(a)(4)	NO	monitoring systems to monitor pressure loss and scrubber pressure. Since periodic monitoring under section 70.6(a)(3)(i)(B) is only required if “the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring,” no additional monitoring is applicable.

WAC 173-405-040 Requirements

Permit Condition	Parameter	Subject to Periodic Monitoring	Justification
A.4	SO ₂	NO	The sections listed to the left are all regulated by sub-sections of WAC 173-405-040. Each of these sub-sections requires some form of emissions limit. In this same section, WAC 173-405-040(12) states that “To demonstrate compliance with this chapter, the provisions of WAC 173-400-105 shall apply to all sources to which this chapter is applicable.” WAC 173-400-105 requires that the source “...upon notification by the director of ecology, maintain records on the type and quantity of emissions from the source and other information deemed necessary to determine whether the source is in compliance with the applicable emissions limitations and control measures.” Ecology, in Consolidated Order No. DE 96-AQI078, mandates periodic source testing. The underlying requirement already contains periodic source testing requirements in WAC 405 and 400, as carried out in the Consolidated Order. Since periodic monitoring under section 70.6(a)(3)(i)(B) is only required if “the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring,” no additional monitoring is applicable.
B.1	Particulate	NO	
B.2	Opacity	NO	
B.5.b	SO ₂	NO	
C.2.a	Opacity	NO	
C.3	SO ₂	NO	
D.3	Opacity	NO	
E.1	Particulate	NO	
E.2	Opacity	NO	
F.5	Opacity	NO	
G.1	Particulate	NO	
H.1	Particulate	NO	

Consolidated Order DE 96-AQI078 Requirements

Permit Condition	Parameter	Subject to Periodic Monitoring	Justification
A.2	Particulate	NO	The sections listed to the left are all regulated by Consolidated Order DE 96-AQI078. Each of these sections requires some form of emissions limit. Ecology, in Consolidated Order No. DE 96-AQI078, mandates periodic source testing. Since periodic monitoring under section 70.6(a)(3)(i)(B) is only required if “the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring,” no additional monitoring is applicable.
A.5	SO ₂	NO	
C.1	Particulate	NO	
C.4	SO ₂	NO	
C.5	SO ₂	NO	
D.2	Particulate	NO	
F.1	Particulate	NO	
F.2	Particulate	NO	
G.2	Particulate	NO	
G.3	SO ₂	NO	

Non-Applicable Requirements

Permit Condition	Parameter	Applicable Requirement(s)	Subject to Periodic Monitoring	Justification
A.7	Operation	WAC 173-405-040(10)	N/A	The sections listed to the left are operational in nature and do not require monitoring.
B.3	Operation	WAC 173-405-040(10)	N/A	
C.7.a	Operation	WAC 173-405-040(10)	N/A	
D.5	Operation	WAC 173-405-040(10)	N/A	
D.7	Damper position	DE 78-112 as consolidated in Order DE 96-AQI078	N/A	
E.3	Operation	WAC 173-405-040(10)	N/A	

Permit Condition	Parameter	Applicable Requirement(s)	Subject to Periodic Monitoring	Justification
E.5	Damper position	DE 78-112 as consolidated in Order DE 96-AQI078	N/A	
F.10,11,12,22,,23,24,25	Operation	WAC 173-405-040(10)	N/A	
G.6	Operation	Order DE 96-AQI078	N/A	
H.4	Operation	Order DE 96-AQI078	N/A	
B.8.a	TRS	WAC 173-405-040(1)(c)	N/A	State Only Requirement
C.9	TRS	WAC 173-405-040(3)(b)	N/A	
G.4	SO ₂	As consolidated in Order DE 96-AQI078.	N/A	
G.5				
H.2	SO ₂	As consolidated in Order DE 96-AQI078.		
H.3	SO ₂			

DISCUSSION ON SPECIFIC PERMIT CONDITIONS

Throughout this support document, an asterisk (*) signifies that baseline frequencies specified in the permit may be changed to less frequent testing if conditions outlined in the footnotes of Appendix G of the permit are met.

Opacity is an indicator of the performance of the electrostatic precipitator, the particulate matter control device. The use of this monitor as a measure of control device performance is consistent with both U.S. EPA Region 10's interpretation of the applicability of periodic monitoring¹ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a continuous monitoring program of the add-on control device.

The relationship between particulate matter and opacity allows opacity to be used as a compliance indicator but not an absolute particulate emission predictor. For this reason and since no particulate matter continuous emissions monitor is required, direct particulate source testing in conjunction with continuous opacity monitoring system (COMS) will serve as the compliance demonstration method for the particulate matter standard.

The Permittee is required to verify compliance with the numerous mass loading standards per unit of time at a required frequency as specified in the permit. As an example, Order DE96-AQ-I078 limits particulate matter emissions to 476 pounds per day on a rolling annual average reported monthly. There is more than one way to estimate the mass loading limit, including, but not limited to, the utilization of actual emissions factors from the numerous stack test results which were conducted over a long period of time. The other methods include the use of EPA's AP-42 Manual, or the data collected from continuous emission monitoring systems (CEMS) in addition to other certified data such as stack flow rate from the EPA Reference methods. The Permittee will choose the most reliable and economically reasonable method to verify compliance with the applicable requirements. However, a method may provide a good estimation until an emission unit is modified, or there is a change in the method of operation. The Permittee as the consequence may choose another method giving a more reliable and accurate estimation. In this following section, Ecology lists a recommended method to calculate the limit realizing that there may be other ways; therefore, during the course of the permit cycle, the Permittee will advise the Department when another method is selected. Ecology's review and approval are required when the new estimation method is proposed by the Permittee prior to utilization of the new calculation method.

Condition A.3, B.2, C.2, D.3, E.2

A continuous opacity monitor system (COMS) may be used as a performance indicator for some emission units. If a COMS is used, the monitor shall take readings and convert the readings into six-minute block averages. For one hour, there shall be

¹ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops were sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

10 six-minute block averages. The first block average of an hour shall be for the time period from 00:00.00 to 00:05.59, the second block average of an hour from 00:06.00 to 00:11.59, and so forth.

COMS measurements shall be evaluated once per hour. Corrective actions will commence if, of the 10 six minute block averages in the hour, two or more consecutive blocks are above the given opacity limit, when rounded to the same number of significant digits as the opacity limit.

An important note is that deviations measured by the COM do not necessarily correspond to a violation of the underlying applicable requirement (e.g. opacity limit). The Permittee is required to take corrective action anytime opacity is outside of the levels established in the permit. What constitutes corrective action is intentionally left undefined because it is situation specific. Corrective action can include a visual evaluation of actual opacity in response to exceedance of a trigger mechanism. A visual opacity assessment, as used in this permit, is the use of an observer trained in general procedures for determining visible emissions, which could include DOE Method 9B or EPA Method 9. A trained observer does not need to have current certification in Method 9B. Under normal conditions, a trained observer is expected to be present at the facility, while a certified Method 9B observer may not always be readily available.

Condition A.4, C.4

In 1980, Ecology initiated a requirement that, where continuous sulfur dioxide monitoring was not being performed, a monthly one-hour test for sulfur dioxide was required for recovery furnaces and lime kilns. Wording has been added to the cited permit conditions to clarify the sampling time duration. The one-hour test of DOE Method 6 is selected for the purpose of periodic monthly source test. For both No. 2 and No. 3 Recovery Furnaces and the Lime Kiln, more frequent monitoring required the use of a minimum operating condition. The frequency of both the application of minimum operating condition and direct source testing is intended to indirectly infer compliance with the permit limitation and is based on best professional judgment of the historical probability of exceeding the limitation and the potential magnitude of an exceedance.

I. No. 2 Recovery Furnace

Condition A.2

Order DE 96-AQ-I078 limits particulate matter (PM) emissions from the No. 2 Recovery Furnace to 476 pounds of PM per day on a rolling annual average. To show compliance with this limit, the Permittee, on a monthly* basis, evaluates the annual average particulate emissions from the No. 2 Recovery Furnace using actual emissions from previous stack test results. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{A \text{ gr}}{\text{dscf}}\right) \times \left(\frac{B \text{ dscf}}{\text{min}}\right) \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}}\right) \times \left(\frac{1,440 \text{ min}}{\text{day}}\right) = C \frac{\text{lb PM}}{\text{day}}$$

Where:

- A = volumetric grain loading results from the monthly* EPA Method 5 or equivalent samplings (one 1-hour test)
- B = dry standard air flow rate in cubic feet per minute during the monthly* sampling period
- C = monthly* average emission rate in pounds per day

This monthly* value will then be averaged with the preceding year of readings in lb/day to determine the rolling annual average.

Note that the current permit specifies source testing at least annually while the underlying basis of authority (PSD-X-77-04) initially specifies monthly source testing. PSD-X-77-04 allows modification to the source testing frequency.

Condition A.4

Sulfur dioxide (SO₂) emissions from the No. 2 Recovery Furnace are limited to 500 ppm, corrected to 8 percent oxygen, by WAC 173-405-040(11)(a). Many factors affect emissions of SO₂ from recovery furnaces, including mill white liquor sulfidity, black liquor solids feed rate to furnace, furnace temperature, air distribution, and other operational parameters. Because of the numerous variables that affect SO₂ emissions, it is difficult to identify parameters that will give some indication of the emissions. According to U.S. EPA-650/2-74-071-a, *Improved Air Pollution Control for a Kraft Recovery Boiler: Modified Recovery Boiler No. 3*-page 77, white liquor sulfidity is the primary variable affecting SO₂ emissions. Over forty percent of SO₂ emissions were directly correlated to sulfidity levels. This U.S. EPA study concluded that the best indicator for SO₂ emissions is white liquor sulfidity level. Data for the Boise Wallula mill indicate that the No. 2 Recovery Furnace will have reasonable assurance of compliance with WAC 173-405-040(11)(a) when mill white liquor sulfidity does not exceed 33 percent. White liquor sulfidity greater than 33 percent requires the Mill to take corrective action, but is not an indicator of noncompliance.

Conditions A.5.a

Order DE 96-AQ-I078 limits sulfur dioxide (SO₂) emissions from the No. 2 Recovery Furnace to 5,424 pounds per day on a rolling annual average. To show compliance with this requirement, the Permittee will, on a monthly* basis evaluate the annual average SO₂ emissions from the No. 2 Recovery Furnace using actual emissions from previous stack test results. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{D \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.166 \frac{\text{lb SO}_2}{\text{ft}^3 \text{ SO}_2} \right) \times \left(\frac{1,440 \text{ min}}{\text{day}} \right) = E \frac{\text{lb SO}_2}{\text{day}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during monthly* sampling period
- D = DOE Method 6, or equivalent, SO₂ concentration based on monthly* sample (one 1-hour test)
- E = monthly* average SO₂ emission rate in pounds per day

This value will then be averaged with the preceding year of monthly* calculated SO₂ emission rates to determine the rolling annual average.

The density of sulfur dioxide, 0.166 lb SO₂ per cubic foot of SO₂, is taken from Method 19.

Condition A.7

Opacity is an indicator of the performance of the electrostatic precipitator, the particulate matter control device. The use of this monitor as a measure of control device performance is consistent with both US EPA's Region 10's interpretation of the applicability of periodic monitoring² and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator. With a R² value of 0.6375 (See table in Appendix E), opacity is a good general indicator of control device performance but is not significant enough to make a direct linear correlation. Nevertheless, the correlation is strong enough to conclude that when the COM reads high opacity readings (above 35%), the control device and/or monitor should be promptly examined to ensure proper operation. Ecology has changed the basis of authority to a new federal regulation. The original condition had been created as part of the gap filling effort. Gap filling is only necessary where no existing regulation adequately addressed compliance. Also removed is the reference to good O&M. The new federal regulation is clear and stipulates compliance requirements.

II. No. 3 Recovery Furnace

Condition B.1.a

Order DE 96-AQ-I078 limits particulate (PM) emissions from the No. 3 Recovery Furnace to 186 tons per year on a rolling annual average basis. To show compliance with this requirement, the Permittee will evaluate the annual average particulate

² Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops were sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

emissions from the No. 3 Recovery Furnace on a monthly* basis using actual emissions from previous stack test results. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\frac{\left(\frac{A \text{ gr}}{\text{dscf}}\right) \times \left(\frac{B \text{ dscf}}{\text{min}}\right) \times \left(\frac{1440 \text{ min}}{1 \text{ day}}\right)}{\left(\frac{C \text{ ton}}{\text{day}}\right)} \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}}\right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}}\right) \times \left(\frac{D \text{ tons}}{\text{month}}\right) = E \frac{\text{ton PM}}{\text{month}}$$

Where:

- A = volumetric grain loading from the monthly* EPA Method 5 or equivalent samplings (one 1-hour test per month)
- B = dry standard air flow rate in cubic feet per minute during PM sampling period
- C = tons of BLS fired in the No. 3 Recovery Furnace on the day sampling is performed
- D = tons of BLS fired in the No. 3 Recovery Furnace for the month*
- E = monthly* average emission rate in tons per month*

This monthly* value will then be summed with the preceding year of readings to determine the rolling annual average.

Condition B.3

Opacity is an indicator of the performance of the electrostatic precipitator, the particulate matter control device. The use of this monitor as a measure of control device performance is consistent with both US. EPA's Region 10's interpretation of the applicability of periodic monitoring³ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator. Opacity is a good general indicator of control device performance but is not significant enough to make a direct linear correlation. Nevertheless, the correlation is strong enough to conclude that when the COM reads high opacity readings (above 35%), the control device and/or monitor should be promptly examined to ensure proper operation.

Condition B.5.a

Order DE 96-AQ-1078 limited sulfur dioxide (SO₂) emissions from the No. 3 Recovery Furnace to 1,592 tons per year on an annual average basis. Subsequent PSD-01-07 limited SO₂ to 1301 tpy as a 12-month rolling average. To show compliance with this requirement, the Permittee will evaluate the annual average SO₂

³ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops were sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

emissions from the No. 3 Recovery Furnace using actual test results and production data. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{F \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.166 \frac{\text{lb SO}_2}{\text{ft}^3 \text{ SO}_2} \right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}} \right) \times \left(\frac{60 \text{ min}}{\text{hr}} \right) \times \left(\frac{G \text{ hrs}}{\text{month}} \right) = H \frac{\text{ton SO}_2}{\text{month}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during most recent PM sampling period (see above Section II.A)
- F = SO₂ concentration determined by stack test data.
- G = operating hours per month
- H = SO₂ emission rate in tons per month

At the end of the calendar year, the monthly values for the year will be summed to determine the annual average.

The density of sulfur dioxide, 0.166 lb SO₂ per cubic foot of SO₂, is taken from Method 19.

Condition B.6

Order DE 96-AQ-I078 (incorporating PSD-95-04) limits nitrogen oxides (NO_x) emissions from the No. 3 Recovery Furnace to 825 tons per year on an annual average basis. To show compliance with this requirement, the Permittee will evaluate the annual average NO_x emissions from the No. 3 Recovery Furnace using actual test results and CEM data. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{I \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.1194 \frac{\text{lb NO}_x}{\text{ft}^3 \text{ NO}_x} \right) \times \left(\frac{60 \text{ min}}{\text{hr}} \right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}} \right) \times \left(\frac{G \text{ hours}}{\text{month}} \right) = J \frac{\text{ton NO}_x}{\text{month}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during most recent PM sampling period (see above Section II.A)
- G = operating hours per month
- I = NO_x concentration measured by a continuous emission monitoring system. The monthly average will be calculated based on the sum of valid individual hourly averages divided by the total number of valid hourly averages available.
- J = NO_x emission rate in tons per month

At the end of the calendar year, the monthly values for the year will be summed to determine the annual average.

The density of nitrogen oxide, 0.1194 lb NO_x per cubic foot of NO_x, is taken from Method 19.

Condition B.7

Order DE 96-AQ-I078 (incorporating PSD-95-04) limits carbon monoxide (CO) emissions from the No. 3 Recovery Furnace to 1,355 tons per year on an annual average basis. To show compliance with this requirement, the Permittee will evaluate the annual average CO emissions from the No. 3 Recovery Furnace using actual test results and production data. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{K \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.0728 \frac{\text{lb CO}}{\text{ft}^3 \text{ CO}} \right) \times \left(\frac{60 \text{ min}}{\text{hr}} \right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}} \right) \times \left(\frac{G \text{ hours}}{\text{month}} \right) = L \frac{\text{ton CO}}{\text{month}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during most recent PM sampling period (see above Section II.A)
- G = operating hours per month
- K = CO concentration measured by a continuous emission monitoring system. The monthly average will be calculated based on the sum of valid individual hourly averages divided by the total number of valid hourly averages available.
- L = CO emission rate in ton per month

At the end of the calendar year, the monthly values for the year will be summed to determine the annual average.

The density of carbon monoxide, 0.0728 lb CO per cubic foot of CO, is based on a molecular weight of 28 lb/lb mol and an ideal gas volume of standard conditions of 385 ft³/lb mol.

Condition B.9

Ecology requires that the compliance determination test be conducted at full load to maximize exhaust temperature and airflow, and thus VOC emissions. Based on best professional judgment, the test will be conducted under conservative conditions. VOC emissions during the normal operation are unlikely to exceed the emissions during the compliance test. During a 2014 Ecology sponsored workshop in Spokane and the last AOP Audit, EPA requested that Ecology specify the basis for the VOC value (e.g. carbon, propane, etc.). Wording has been added to conditions B.10 and B.11 requiring that the basis of the VOC value be specified. The reference method used to determine compliance, EPA Method 25A, allows VOCs to be expressed in terms of propane (or other appropriate organic calibration gas) or in terms of carbon per EPA Method 25A. EPA Method 25A also stipulates the algorithm for conversion from one prescribed form to another based on conversion factors.

Condition B.10

Order DE 96-AQ-I078 limits volatile organic compounds (VOC) emissions from the No. 3 Recovery Furnace to 179 tons per year on an annual average basis. To show compliance with this requirement, the Permittee will evaluate the annual average VOC emissions from the No. 3 Recovery Furnace on an annual basis using actual emissions from previous stack test. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{M \text{ lb}}{\text{MMBtu}} \right) \times \left(\frac{N \text{ MMBtu}}{\text{year}} \right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}} \right) = P \frac{\text{ton VOC}}{\text{year}}$$

Where:

- M = VOC concentration in lb/MMBtu from sample test using Method 25A or equivalent method found to be acceptable by the Department, conducted once every five years.
- N = annual heat input to the No. 3 Recovery Furnace
- P = annual average emission rate in tons per year

Condition B.8.b

Order DE 96-AQ-I078 limits total reduced sulfur (TRS) emissions from the No. 3 Recovery Furnace to 27 tons per year on an annual average basis. To show compliance with this requirement, the Permittee will evaluate the annual average TRS emissions from the No. 3 Recovery Furnace using actual stack test information and CEM data. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{P \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.0883 \frac{\text{lb TRS}}{\text{ft}^3 \text{ TRS}} \right) \times \left(\frac{60 \text{ min}}{\text{hr}} \right) \times \left(\frac{1 \text{ ton}}{2,000 \text{ lb}} \right) \times \left(\frac{G \text{ hrs}}{\text{month}} \right) = Q \frac{\text{ton TRS}}{\text{month}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during PM sampling period
- G = operating hours per month*
- P = TRS concentration measured by a continuous emission monitoring system. The monthly average will be calculated based on the sum of valid individual hourly averages divided by the total number of valid hourly averages available.
- Q = TRS emission rate in ton per month*

At the end of the calendar year, the monthly* values for the year will be summed to determine the annual average.

The density of total reduced sulfur, 0.0883 lb TRS per cubic foot of TRS, is based on a molecular weight of 34 lb/lb mol and an ideal gas volume at standard conditions of 385 ft³/lb mol.

III. Lime Kiln

Condition C.1.a through e

A performance test was conducted in June 26-28, 2012 to establish surrogate setpoints for maintaining compliance with particulate limits. The results are presented below:

Date	Pressure Drop (" H ₂ O)	Scrubber Recirculation (3-hr avg)	Lime Mud Flow (gpm)	Test Result Filterable PM @10% O ₂	Most restrictive PM limit 0.064 gr/dscf @ 10% O ₂
6/26/12 run 1	23.1	551	250	0.024	
6/26/12 run 1	23	551	250	0.023	
6/26/12 run 3	22.9	551	250	0.025	
6/27/12 run 1	22.0	560	200	0.029	
6/27/12 run 2	22.0	559	200	0.032	
6/27/12 run 3	22.0	557	200	0.032	
6/28/12 run 1	21.0	551	200	0.038	
6/28/12 run 2	21.0	551	200	0.038	
6/28/12 run 3	22.0	557	200	0.038	

Condition C.1.e

Order DE 96-AQ-I078 limits particulate matter (PM) emissions from fuel oil combustion in the Lime Kiln to 906 lbs of PM per day on a rolling annual average basis. To show compliance with this limit, the Permittee will, on a monthly* basis, evaluate the annual average PM emissions from fuel oil combustion in the Lime Kiln using actual emissions from previous stack test results. If no fuel oil was fired during the test, results from the most recent test in which fuel oil was fired will be reported. As an example to illustrate how mass loading limit is estimated, the following algorithm can be used.

$$\left(\frac{A \text{ gr}}{\text{dscf}}\right) \times \left(\frac{B \text{ dscf}}{\text{min}}\right) \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}}\right) \times \left(\frac{1,440 \text{ min}}{\text{day}}\right) = C \frac{\text{lb PM}}{\text{day}}$$

Where:

- A = volumetric grain loading results from the monthly* EPA Method 5 or equivalent tests (one 1-hour test per month) with the Lime Kiln firing fuel oil
- B = dry standard air flow rate in cubic feet per minute from the most recent monthly* sampling with the Lime Kiln firing fuel oil
- C = monthly* average emission rate in pounds per day from the Lime Kiln when firing fuel oil

This monthly* value will then be averaged with the preceding year of Lime Kiln fuel oil based readings to determine the rolling annual average.

Order DE 96-AQ-I078 limits PM emissions from natural gas combustion in the Lime Kiln to 466 pounds of PM per day on a rolling annual average. To show compliance with DE 96-AQ-I078, the Permittee will, on a monthly* basis, evaluate the annual average PM emissions from natural gas combustion in the Lime Kiln using the actual emissions from previous stack test. If no natural gas was fired during the test, results from the most recent test in which natural gas was fired will be reported.

$$\left(\frac{D \text{ gr}}{\text{dscf}}\right) \times \left(\frac{B \text{ dscf}}{\text{min}}\right) \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}}\right) \times \left(\frac{1,440 \text{ min}}{\text{day}}\right) = E \frac{\text{lb PM}}{\text{day}}$$

Where:

- D = volumetric grain loading results from the monthly* EPA Method 5 or equivalent tests (one 1-hour test per month) with the Lime Kiln firing natural gas
- B = dry standard air flow rate in cubic feet per minute from the most recent monthly* sampling with the Lime Kiln firing natural gas
- E = monthly* average emission rate in pounds per day from the Lime Kiln when firing natural gas

This monthly* value will then be averaged with the preceding year of Lime Kiln natural gas based readings to determine the rolling annual average.

Condition C.2.a

The same surrogates are used as ongoing compliance indicators for particulate. Opacity and particulate emissions are positively correlated so the MACT imposed surrogate monitoring for particulate emissions will indirectly limit opacity emissions well below the opacity limit.

The Permittee has agreed to verify the relationship between scrubber flow and opacity within 180 days of permit renewal. This will be done by comparing scrubber flow to opacity readings taken by a certified RM 9 observer. The intent of this effort is to verify that scrubber flow much less than the surrogate setpoint for particulate compliance indication is adequate to indicate ongoing opacity limit compliance.

Condition C.3

Industry history and source testing have shown that there are no compliance issues with the 500 ppm hourly average SO₂ limit due to the alkaline nature of the scrubbing liquid. The physical-chemical properties of the scrubbing medium (i.e. lime dust) and intrinsic design of the scrubber inherently allows for the removal of the SO₂. Condition C.4

Lime kiln compliance with the long-term SO₂ limit (5 ppm rolling annual average) is also addressed by the wet scrubber. Scrubber parameters that may affect the efficiency to control SO₂ are differential pressure, recirculation flow rate, and maintaining sufficient alkalinity in the wet scrubber medium. Scrubber alkalinity is the primary factor affecting SO₂ emissions.

In April 2012, the lime kiln scrubber throat and recirculation flowrate were reduced to increase particulate capture efficiency. However, these changes also impacted SO₂ scrubbing efficiency. As shown in the table below, the SO₂ emissions increased to an average of 26.6 ppm @ 10% O₂ after the changes (8/8/12 stack test) from an average of 0.6 ppm @ 10% O₂ before the scrubber changes (11/8/11 stack test).

In order to consistently achieve SO₂ annual rolling average of less than 5 ppm, addition of caustic (15% NaOH solution) have been implemented. Several tests - engineering tests (30-minute runs) and compliance (1-hour runs) have been run since 2012 to determine the appropriate scrubber parameters (caustic addition rate, differential pressure, and recirculation flow rate).

Boise Wallula proposed that caustic addition flowrate be used as the indicator of the performance of the scrubber in minimizing SO₂ emissions. Based on the results presented below, Boise Wallula proposed that caustic addition flowrate be maintained at a minimum of 0.25 gpm.

Table 11: Lime Kiln Sulfur Dioxide Surrogate Parameters Performance Tests

Date	SO ₂ Emission ppm @ 10% O ₂	Mud Flow gpm	Scrubber Parameters		
			Recirc. Flow gpm	Pressure Inches H ₂ O	Caustic Flow gpm
2/16/16 run 1	1.9	208	700	26.0	0.25
2/16/16 run 2	1.9	208	700	26.2	0.25

Date	SO ₂ Emission ppm @ 10% O ₂	Mud Flow gpm	Scrubber Parameters		
			Recirc. Flow gpm	Pressure Inches H ₂ O	Caustic Flow gpm
2/16/16 run 3	2.3	208	700	26.2	0.25
2/16/16 run 1	2.2	207	700	26.1	0.50
2/16/16 run 2	2.2	207	700	25.7	0.25
2/16/16 run 3	2.3	207	550	23.0	0.25
2/25/14 run 1	0.40	200	720	28.0	1.0
2/25/14 run 2	0.65	200	720	28.0	0.5
2/25/14 run 3	0.86	200	550	23.0	0.5
2/14/13 engr. run 1	9.3	215	701	25.0	0.0
2/14/13 engr. run 2	9.0	215	751	25.0	0.0
2/14/13 engr. run 3	6.7	215	801	25.0	0.0
2/14/13 engr. run 4	8.0	215	850	25.0	0.0
2/14/13 engr. run 5	8.2	215	850	30.0	0.0
2/12/13 engr. run 1	2.6	215	710.7	26.0	1.0
8/30/12 run 1	1.5	195	726	29.9	1.0
8/30/12 run 2	1.4	195	725	30.5	1.0
8/30/12 run 3	0.8	195	725	30.5	1.0
8/8/12 run 1	28.2	200	725	28.3	0.0
8/8/12 run 2	23.9	200	725	30.5	0.0
8/8/12 run 3	27.8	200	725	30.2	0.0
11/8/11 3- run avg	0.6	255	1260	29.5	0.0

Condition C.5

Order DE 96-AQ-I078 limits sulfur dioxide (SO₂) emissions from the Lime Kiln to 19 pounds per day on a rolling annual average basis. To show compliance with this requirement, the Permittee will, on a quarterly basis, evaluate the annual average SO₂ emissions from the Lime Kiln using the actual emissions from previous stack test. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not inclusive.

$$\left(\frac{F \text{ ppmvd}}{1 \times 10^6} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(0.166 \frac{\text{lb SO}_2}{\text{ft}^3 \text{ SO}_2} \right) \times \left(\frac{1,440 \text{ min}}{\text{day}} \right) = G \frac{\text{lb SO}_2}{\text{day}}$$

Where:

B = dry standard air flow rate in cubic feet per minute during the most recent quarterly particulate sampling period

F = quarterly DOE Method 6 or equivalent SO₂ concentrations (one 1-hour test per quarter)

G = quarterly average SO₂ emission rate in pounds per day

This value will then be averaged with the preceding year of readings to determine the rolling annual average.

The density of sulfur dioxide, 0.166 lb SO₂ per cubic foot of SO₂, is taken from Method 19.

Condition C.7.a

Flow rate and pressure drop across the scrubber are indicators of the performance of the scrubber in minimizing particulate emissions. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit. The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The use of surrogate parameters as a measure of control device performance is consistent with both US. EPA's Region 10's interpretation of the applicability of periodic monitoring⁴ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator. This monitoring method was approved by the U.S. EPA as alternate indicator for lime kiln scrubber performance.

⁴ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops were sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

The most recent performance test establishing surrogate setpoints is presented below. Based on the results, Boise Wallula proposed that flow be maintained at a minimum of 550 gpm with a scrubber pressure differential depending on the mud flow rate: ≥ 23 "H₂O when mud flow > 200 gpm and ≥ 21.3 "H₂O when mud flow ≤ 200 gpm. Test results with the surrogates maintained at the proposed setpoints met the most restrictive applicable PM standard of 0.064 gr/dscf.

Table 12: Lime Kiln Particulate Surrogate Parameters Performance Tests

Date	Method 5 PM gr/dscf	Mud Flow gpm	Scrubber Parameters	
			Flow gpm	Pressure Inches H ₂ O
6/26/12 run 1	0.024	250	551	23.1
6/26/12 run 2	0.023	250	551	23.0
6/26/12 run 3	0.025	250	551	22.9
6/28/12 run 1	0.038	200	551	21.0
6/28/12 run 2	0.038	200	551	21.0
6/28/12 run 3	0.035	200	557	22.0

In addition to the scrubber flow rate requirement, the Permittee will monitor the pressure drop as required by 40 CFR 284(b)(2)(i).

Ecology has changed the basis of authority to a new federal regulation. The original condition had been created as part of the gap filling effort. Gap filling is only necessary where no existing regulation adequately addressed compliance. Also removed is the reference to good O&M. The new federal regulation is clear and stipulates compliance requirements.

Condition C.9

WAC 173-405-040(3)(b) limits total reduced sulfur (TRS) emission concentrations from the Lime Kiln to 80 parts per million corrected to 10 percent oxygen on a period of two consecutive hours. 40 CFR 60.283(a)(5), reflected in Condition C.7.a, limits TRS emission concentrations from the Lime Kiln to 8 parts per million corrected to 10 percent oxygen. As identified in Order DE 96-AQ-I078, Boise Wallula will operate a continuous emission monitor for TRS on the Lime Kiln with a range of 0 to 30 ppmvd compliance with the 8 ppmvd limit. Boise Wallula will use the results of this monitoring to show compliance with the 80 ppmvd state-only applicable limit as well. Readings at or below 30 ppmvd will be considered in compliance with the 80 ppmvd limit.

IV. No. 2 Smelt Dissolving Tank

Conditions D.1.a, D.1.b

40 CFR 60.282(a)(2) limits particulate matter (PM) emissions from the No. 2 SDT to 0.2 lb/ton BLS. To show compliance with this requirement, the Permittee will, on a monthly* basis, use results obtained from DOE Method 5 or equivalent. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not inclusive.

$$\frac{\left(H \frac{\text{lb PM}}{\text{hr}} \right)}{\left(\frac{I \text{ ton BLS}}{\text{hr}} \right)} = J \frac{\text{lb PM}}{\text{ton BLS}}$$

Where:

- H = PM emission rate per hour from monthly* EPA Method 5 or equivalent (one 1-hour test)
- I = tons of black liquor solids combusted in the No. 2 Recovery Furnace during the hour the grain loading sample was taken (daily ton BLS/hours of operation is acceptable)
- J = emission factor in pounds per ton of black liquor solids, hourly average

Order DE 96-AQ-I078 limits PM emissions from the No. 2 SDT to 71 pounds of PM per day on a rolling annual average. To show compliance with Order DE 96-AQ-I078, the Permittee will, on a monthly* basis, evaluate the annual average PM emissions from the No. 2 SDT using actual emissions from previous results. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not inclusive.

$$\left(\frac{K \text{ gr}}{\text{dscf}} \right) \times \left(\frac{B \text{ dscf}}{\text{min}} \right) \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}} \right) \times \left(\frac{60 \text{ min}}{\text{hr}} \right) = L \frac{\text{lb PM}}{\text{hr}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during sampling period
- K = volumetric grain loading results from monthly* EPA Method 5 or equivalent sampling (one 1-hour test)
- L = monthly* average emission rate in pounds per day

This value will then be averaged with the preceding year of readings to determine the rolling annual average.

Condition D.3

Flow rate and pressure drop are indicators of the performance of the scrubber, the particulate matter control device. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit, as verified in previous source tests. The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The use of these surrogates as a measure of control device performance is consistent with both US. EPA Region 10's interpretation of the applicability of periodic monitoring⁵ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through control device performance indicators.

Condition D.4

WAC 173-405-040(2) and 40 CFR 60.283(a)(4) limit total reduced sulfur (TRS) emissions from the No. 2 SDT to 0.033 lbs/ton BLS annual average. To show compliance with this requirement, Boise Wallula will, on an annual basis, evaluate the annual TRS emissions from the No. 2 SDT using actual emissions from previous stack test results. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not exclusive.

$$\frac{\left(M \frac{\text{lb TRS}}{\text{hr}} \right)}{\left(\frac{N \text{ ton BLS}}{\text{hr}} \right)} = P \frac{\text{lb TRS}}{\text{ton BLS}}$$

Where:

- M = TRS emission rate per hour from annual testing using Method 16A/6C bag sample or equivalent method.
- N = tons of black liquor solids combusted in the No. 2 Recovery Furnace during the time the annual TRS sample was taken
- P = annual emission factor in pounds per ton of black liquor solids

⁵ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops was sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

Condition D.5

Flow rate and pressure drop are indicators of the performance of the scrubber, the particulate matter control device. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop is maintained across the scrubber unit, as verified in previous source tests. The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The use of surrogates as a measure of control device performance is consistent with both US. EPA Region 10's interpretation of the applicability of periodic monitoring⁶ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator.

Stack tests done in 2004 indicate the surrogates summarized below assure compliance with the smelt tank particulate limit of 0.2 lbs/ton.

Table 13: No 2 Smelt Dissolving Tank Particulate Surrogate Parameters Performance Tests

Date	Scrubber Differential Pressure (Inches H₂O)	Scrubber Flow (gpm)	Particulate (lb/Ton BLSF)
6/30/04	0.5	60	0.03
7/02/04	0.8	61	0.04
7/02/04	0.8	60	0.04

Ecology has changed the basis of authority to a new federal regulation. The original condition had been created as part of the gap filling effort. Gap filling is only necessary where no existing regulation adequately addressed compliance. Also removed is the reference to good O&M. The new federal regulation is clear and stipulates compliance requirements.

⁶ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops was sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

V. No. 3 Smelt Dissolving Tank

Conditions E.1.b

WAC 173-405-040(2) limits particulate (PM) emissions from the No. 3 SDT to 0.3 lbs/ton BLS on an hourly average. To show compliance with this requirement, Boise Wallula will, on a monthly* basis, use results obtained from DOE Method 5 or equivalent. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not inclusive.

$$\frac{\left(A \frac{\text{lb PM}}{\text{hr}} \right)}{\left(\frac{B \text{ ton BLS}}{\text{hr}} \right)} = C \frac{\text{lb PM}}{\text{ton BLS}}$$

Where:

- A = PM emission rate per hour
- B = tons of black liquor solids combusted in the No. 2 Recovery Furnace during the hour the grain loading sample was taken (daily ton BLS/hours of operation is acceptable)
- C = emission factor in pounds per ton of black liquor solids, hourly average

Condition E.2

The same surrogates are used as ongoing compliance indicators for particulate. Opacity and particulate emissions are positively correlated so the MACT imposed surrogate monitoring for particulate emissions will indirectly limit opacity emissions well below the opacity limit. The Permittee has agreed to verify the relationship between scrubber flow and opacity within 180 days of permit renewal. This will be done by comparing scrubber flow to opacity readings taken by a certified RM 9 observer. The intent of this effort is to verify that scrubber flow much less than the surrogate setpoint for particulate compliance indication is adequate to indicate ongoing opacity limit compliance.

Condition E.3

Flow rate and pressure drop are indicators of the performance of the scrubber, the particulate matter control device. By design, the unit is in compliance with the particulate and opacity standards when adequate flow and pressure drop are maintained across the scrubber unit.

The surrogate setpoints, as indicators of control device performance, are based on historical evidence, source testing, and good engineering judgment. The use of surrogates as a measure of control device performance is consistent with both US. EPA Region `10's interpretation of the applicability of periodic monitoring⁷ and with the intent of the Compliance Assurance Monitoring Rule (40 CFR Part 64), that a reasonable assurance of compliance can be demonstrated through a control device performance indicator. This monitoring method was approved by the U.S. EPA as an alternate indicator for lime kiln scrubber performance and is appropriate to be used on the SDTV.

Stack tests done in 2004 indicate the surrogate setpoints summarized below assure compliance with the smelt tank particulate limit of 0.2 lbs/ton.

⁷ Per presentation by US EPA Region 10's Elizabeth Waddell, at October 8, 1997 Title V workshop, and March 19, 1998 Compliance Assurance Monitoring workshop. Each of these workshops were sponsored by the Puget Sound Chapter of the Pacific Northwest International Section of the Air and Waste Management Association.

Table 14: No.3 Smelt Dissolving Tank Particulate Surrogate Parameters Performance Tests

Date	Scrubber Differential Pressure (H₂O)	Scrubber Flow (gpm)	Particulate (lb/Ton BLSF)
6/15/04	-2	25	0.20
6/15/04	-2	25	0.20
6/17/04	-2	25	0.14

VI. Hogged Fuel Boiler

The Boise Wallula mill received approval of the Hogged Fuel Boiler (HFB) and Wet ESP project as part of the No. 3 Recovery Furnace Tri-level Air and related projects PSD construction permit (PSD-01-07) issued June 20, 2002. Along with approval of the No. 3 Recovery Furnace upgrade, the permit included upgrade of the HFB combustion air system and installation of a WET ESP control device for compliance with the Boiler MACT requirements and PM/PM10 emissions limits. Boiler MACT has been incorporated into this AOP renewal effort.

Construction of the overfire air and wet ESP project under PSD-01-07 was completed in August 2007 and Ecology was notified of startup of the project on 8/9/07. During this modification, the former wet scrubber was re-purposed as the pre-conditioner for the wet ESP. The scrubber throat was opened all the way and flowrate was decreased to limit the differential pressure across the scrubber but still allow full saturation of the exhaust gas. The low differential pressure and saturated gas allows the Wet ESP to function efficiently. New CEMs for NO_x and CO were also installed and operational at the time of startup. Applicable limits for the modified HFB project were already incorporated into the 12/1/04 Title V Air Operating permit as an alternate operating scenario and were applicable following completion of the startup periods and compliance demonstration testing.

On 11/29/06 the Boise Wallula Mill received approval from Ecology to burn up to but not more than 12 tons per day of mill derived waste, generated on the mill site. If the Mill determines that it wishes to continue burning mill-derived waste beyond the January 31, 2016 Boiler MACT compliance date, it will need to comply with any applicable Boiler MACT requirements. Other trial material burns have been approved by Ecology, however, the Mill has not submitted complete application materials for formal approval and utilization of these fuels.

Condition F.3

Order DE 96-AQ-I078 limits particulate (PM) emissions from the Hog Fuel Boiler to 459 pounds of PM per day on a rolling annual average basis. To show compliance with Order DE 96-AQ-I078, Boise Wallula will, on a quarterly basis, evaluate the annual average PM emissions from the Hog Fuel Boiler using actual emissions from previous stack test results. As an example of how the emission may be estimated using the actual stack test results, the following calculations may be used. Note that methods of estimation are not inclusive.

$$\left(\frac{D \text{ gr}}{\text{dscf}}\right) \times \left(\frac{B \text{ dscf}}{\text{min}}\right) \times \left(\frac{1 \text{ lb}}{7,000 \text{ gr}}\right) \times \left(\frac{1,440 \text{ min}}{\text{day}}\right) = E \frac{\text{lb PM}}{\text{day}}$$

Where:

- B = dry standard air flow rate in cubic feet per minute during sampling period
- D = volumetric grain loading results from quarterly EPA Method 5 or equivalent (three 1-hour tests quarterly)
- E = quarterly average emission rate in pounds per day

This value will then be averaged with the preceding year of readings to determine the rolling annual average.

Condition F.12

Wet ESP secondary power (derived from measured current and kilovoltage) are indicators of the performance of the precipitator, the particulate matter control device. By design, the unit is in compliance with the particulate and opacity standards when adequate current and voltage are maintained, as verified in previous source tests. The surrogate setpoints, as indicators of control device performance, are based on source testing and good engineering judgment.

A performance test done in January 2016 as summarized below indicate the surrogate setpoint of 16 kVA on a 30-day average assure compliance with the HFB particulate limit of 0.026 gr/dscf.

Table 15: Hogged Fuel Boiler Particulate Surrogate Parameters Performance Tests

Run #	Date	Wet ESP Secondary Power (kVA)	Particulate (gr/dscf)
1	1/20/16	16	0.011
2	1/21/16	31	0.012
3	1/21/16	24	0.009

Opacity readings using Method 9 were also performed for 30 minutes on 1/20/16. The minimum total power input during any 6-minute interval was 19 kVA. The maximum 6-minute opacity reading was 0%.

VII. No. 1 and No. 2 Power Boilers

On January 31, 2013, the EPA published in the Federal Register the NESHAPs for boilers and process heaters at major sources of air toxics (Boiler MACT) – 40 CFR 63 Subpart DDDDD. The power boilers are package boilers manufactured by Babcock and Wilcox. No.1 Power Boiler was manufactured in 1958. No. 2 Power Boiler was manufactured in 1960. Both power boilers only burn natural gas but have the capability of burning fuel oil during periods of natural gas curtailment. The power boilers are classified as “units designed to burn gas 1 fuels” [40 CFR 63.7499(l)]. During the most recent permit term, the Mill did not burn fuel oil, despite being permitted to do so. However, the Mill remains permitted to burn oil in the power boilers should the Mill make a fuel switch from gas to oil and become subject to the limits for oil burning boilers. The Mill is permitted to burn either light liquid fuel or heavy liquid fuel in the power boilers. All pollutant limits are the same for either fuel with the exception of particulate matter, as noted in the permit.

Boiler MACT has been incorporated into this AOP renewal effort.

The No. 1 and No. 2 Power Boilers assure compliance when firing natural gas and fuel oil based on the following calculations:

Conditions G.1, H.1

The No.1 and No.2 Power Boilers are limited to 0.1 gr/dscf corrected to 7%, hourly average.

For particulate matter (PM) emissions from natural gas:

5 lb PM/MMcf natural gas. (Taken from Table 1.4-2 of AP-42 (10/96) for natural gas combustion in a large industrial boiler.)

- $F_d = 8,710 \text{ dscf/MMBtu}$ for natural gas. ("F" factor from 40 CFR, Part 60, App. A, Method 19)
- Conversion factor of 1,035 MMBtu/MMcf natural gas

$$5 \frac{\text{lb}}{\text{MMcf}} \times \frac{1 \text{ MMcf}}{1,035 \text{ MMBtu}} \times \frac{1 \text{ MMBtu}}{8,710 \text{ dscf}} \times 7,000 \frac{\text{gr}}{\text{lb}} \times \frac{20.9 - 7.0}{20.9} = 0.003 \frac{\text{gr}}{\text{dscf}}$$

Therefore, the maximum actual particulate emissions of 0.003 gr/dscf corrected to 7% O₂ generated from natural gas combustion are less than the permit limit value of 0.1 gr/dscf. No ongoing compliance demonstration measures are required when firing natural gas.

For PM emissions from fuel oil:

- $[9.19(S)+3.22]$ lb/1000 gallons fuel oil. (Taken from Table 1.3-1 of AP-42 (10/96) for fuel oil combustion in a utility boiler.) For 2 percent sulfur content, fuel oil this equates to a particulate matter emission factor of 21.6 lb/1000 gal
- $F_d = 9,190$ dscf/MMBtu for oil. ("F" factor from 40 CFR, Part 60, App. A, Method 19)
- Conversion factor of 141 MMBtu/1000 gallon fuel oil

$$21.6 \frac{\text{lb}}{1000 \text{ gal}} \times \frac{1000 \text{ gal}}{141 \text{ MMBtu}} \times \frac{1 \text{ MMBtu}}{9,190 \text{ dscf}} \times 7,000 \frac{\text{gr}}{\text{lb}} \times \frac{20.9 - 7.0}{20.9} = 0.08 \frac{\text{gr}}{\text{dscf}}$$

Therefore, the maximum actual particulate emissions of 0.08 gr/dscf corrected to 7% O₂ generated from fuel oil combustion are less than the permit limit value of 0.1 gr/dscf. No ongoing compliance demonstration measures are required for these permit conditions.

Condition G.2

For PM lb/day emissions from natural gas combustion alone:

Boiler No. 1 is limited to 229 lb/day of particulate emissions.

$$5 \frac{\text{lb}}{\text{MMcf}} \times \frac{1 \text{ MMcf}}{1,035 \text{ MMBtu}} \times 4,718 \frac{\text{MMBtu}}{\text{day}} = 22.8 \frac{\text{lb}}{\text{day}}$$

The maximum actual PM emissions of 22.8 lb/day are less than the permit limit of 229 lb/day. No ongoing compliance demonstration measures are required when firing natural gas.

For PM lb/day emissions from fuel oil and natural gas combustion:

DE 96-AQ-I078 limits PM emissions from the No. 1 Power Boiler to 229 pounds of PM per day. To show compliance with DE 96-AQ-I078, the Permittee will evaluate the PM emissions from the boiler at least annually using actual fuel uses and emission factors from AP-42 manual. As an example of how the emission may be estimated, the following calculations may be used. Note that methods of estimation are not inclusive.

$$A \frac{\text{lb PM}}{\text{day}} = \left[B \frac{\text{MMcf}}{\text{day}} \times 5 \frac{\text{lb PM}}{\text{MMcf}} \right] + \left[C \frac{\text{Mgal}}{\text{day}} \times [9.19(S) + 3.22] \frac{\text{lb PM}}{\text{Mgal}} \right]$$

Where:

A = annual average daily PM emission rate in pounds per day (compliance parameter)

B = annual average daily usage of natural gas in million cubic feet per day

C = annual average daily usage of fuel oil in thousand gallons per day

Emission factor of 5 pounds per million cubic of natural gas was taken from EPA's AP-42 (10/96), Table 1.4-2. Emission factor of 9.19(S) + 3.22 PM/1000 gallon taken from AP-42 (10/96), Table 1.3-1.

Condition G.3

For sulfur dioxide (SO₂) emissions from natural gas combustion:

- 0.6 lb SO₂/MMcf of natural gas. (Taken from Table 1.4-1 of AP-42 (10/96) for natural gas combustion in a large industrial boiler.)

$$0.6 \frac{\text{lb SO}_2}{\text{MMcf}} \times \frac{1 \text{ MMcf}}{1,035 \text{ MMBtu}} \times 4,718 \frac{\text{MMBtu}}{\text{day}} = 2.7 \frac{\text{lb SO}_2}{\text{day}}$$

According to the calculations, the SO₂ emissions based on maximum fuel input of 4,718 MMBtu/day of natural gas are less than the permit limit of 3,025 lbs SO₂/day. Thus, no ongoing compliance demonstration measures are required when firing natural gas.

For SO₂ emissions in pounds per day from fuel oil and natural gas combustion:

DE 96-AQ-I078, limits SO₂ emissions from the No. 1 Power Boiler to 3,025 pounds per day of SO₂. To show compliance with DE 96-AQ-I078, the Permittee will evaluate the SO₂ emissions from the boiler at least annually using actual fuel uses and emission factor from AP-42 manual. As an example of how the emission may be estimated, the following calculations may be used. Note that methods of estimation are not inclusive

$$A \frac{\text{lb SO}_2}{\text{day}} = \left[B \frac{\text{MMcf}}{\text{day}} \times 0.6 \frac{\text{lb SO}_2}{\text{MMcf}} \right] + \left[C \frac{\text{Mgal}}{\text{day}} \times 157(S) \frac{\text{lb SO}_2}{\text{Mgal}} \right]$$

Where:

B = annual average daily usage of natural gas in million cubic feet per day

C = annual average daily usage of fuel oil in thousand gallons per day

D = annual average daily SO₂ emission rate in pounds per day (compliance parameter)

S = annual average sulfur content of fuel oil

Emission factor of 0.6 pounds per million cubic of natural gas was taken from EPA's AP-42 (10-96), Table 1.4-1. Emission factor of 157(S) pounds per thousand gallons of fuel oil is from EPA' AP-42 (10/96, Table 1.3-1.)

Condition G.3 and Condition H.4

DE 96-AQ-I078 limits combined SO₂ emissions from the No. 1 and No. 2 Power Boiler to 8,750 pounds per day of SO₂ on a daily basis. For natural gas only combustion Condition G.3 limits the maximum potential SO₂ emissions from the No. 1 Power Boiler firing natural gas to 3025 lbs SO₂/day. A similar calculation is performed here for the No. 2 Power Boiler:

$$0.6 \frac{\text{lb SO}_2}{\text{MMcf}} \times \frac{1 \text{ MMcf}}{1,035 \text{ MMBtu}} \times 4,404 \frac{\text{MMBtu}}{\text{day}} = 2.6 \frac{\text{lb SO}_2}{\text{day}}$$

According to the calculations, the combined SO₂ emissions from the No. 1 and No. 2 Power Boilers are less than the permit limit of 8,750 lbs SO₂/day. Thus, no ongoing compliance demonstration measures are required when firing only natural gas in the No. 1 and No. 2 Power Boilers.

To show compliance with DE 96-AQ-I078, the Permittee will, on a monthly* basis, evaluate the combined SO₂ emissions for each day of the previous month which fuel oil is fired in the No. 1 and/or No. 2 Power Boiler(s) from actual fuel uses. As an example of how the emission may be estimated using the actual fuel uses, the following calculations may be used. Note that methods of estimation are not inclusive.

$$E_{D1} \frac{\text{lb SO}_2}{\text{day}} = \frac{FO_{M1} \frac{1000 \text{ gal}}{\text{month}} \times 157(S) \frac{\text{lb SO}_2}{1000 \text{ gal}}}{T_{M1} \frac{\text{hrs}}{\text{month}}} \times T_{D1} \frac{\text{hrs}}{\text{day}}$$

$$E_{D2} \frac{\text{lb SO}_2}{\text{day}} = \frac{FO_{M2} \frac{1000 \text{ gal}}{\text{month}} \times 157(S) \frac{\text{lb SO}_2}{1000 \text{ gal}}}{T_{M2} \frac{\text{hrs}}{\text{month}}} \times T_{D2} \frac{\text{hrs}}{\text{day}}$$

$$E_{DC} = E_{D1} + E_{D2}$$

Where:

E_{D1}, E_{D2} = daily average SO₂ emission rate in pounds per day from the No. 1 Power Boiler or No. 2 Power Boiler, respectively
 E_{DC} = the combined daily average SO₂ emission rate in pounds per day from the No. 1 Power Boiler and No. 2 Power Boiler
 FO_{M1}, FO_{M2} = total fuel oil fired from the previous month in the No. 1 Power Boiler or No. 2 Power Boiler, respectively

$S =$ average sulfur content of fuel oil in the previous month
 $T_{M1}, T_{M2} =$ total hours in the previous month that fuel oil was fired in the No. 1 Power Boiler or No. 2 Power Boiler, respectively
 $T_{D1}, T_{D2} =$ total hours in a particular day of the previous month that fuel oil was fired in the No. 1 Power Boiler or No. 2 Power Boiler, respectively

For example, if:

- the No. 1 Power Boiler fired 40,000 gallons of fuel oil for a total of 200 hours in the previous month,
- the No. 2 Power Boiler fired 25,000 gallons of fuel oil for a total of 175 hours in the previous month,
- and the sulfur content of the fuel oil is 2% Sulfur,

The combined daily emission rate for a day in the previous month where the No. 1 Power Boiler fired fuel oil for 12 hours and the No. 2 Power Boiler fired fuel oil for 6 hours is calculated as follows:

$$\begin{aligned}
 E_{D1} &= \frac{40 \frac{1000 \text{ gal}}{\text{month}} \times 157(2) \frac{\text{lb SO}_2}{1000 \text{ gal}}}{200 \frac{\text{hrs}}{\text{month}}} \times 12 \frac{\text{hrs}}{\text{day}} = 754 \frac{\text{lb SO}_2}{\text{day}} \\
 E_{D2} &= \frac{25 \frac{1000 \text{ gal}}{\text{month}} \times 157(2) \frac{\text{lb SO}_2}{1000 \text{ gal}}}{175 \frac{\text{hrs}}{\text{month}}} \times 6 \frac{\text{hrs}}{\text{day}} = 269 \frac{\text{lb SO}_2}{\text{day}} \\
 E_{DC} &= 754 \frac{\text{lb SO}_2}{\text{day}} + 269 \frac{\text{lb SO}_2}{\text{day}} = 1,023 \frac{\text{lb SO}_2}{\text{day}}
 \end{aligned}$$

Condition G.6 and Condition H.5

DE 96-AQ-I078 limits combined SO₂ emissions from the No. 1 and No. 2 Power Boiler to 1,104 tons per year of SO₂ on an annual average basis. For natural gas only combustion, under Condition G.3, the maximum potential SO₂ emissions from the No. 1 Power Boiler firing natural gas are 2.7 lbs SO₂/day. Similarly, under Condition H. 5 the maximum potential SO₂ emissions from the No. 2 Power Boiler firing natural gas are 2.6 lbs SO₂/day for natural gas only combustion. Thus, the combined annual average maximum potential SO₂ emissions from the No. 1 and No. 2 Power Boilers are 0.97 tons/year (2.6 lbs/day + 2.7 lbs/day at 365 days/year and 2000 lbs/ton). Thus, no ongoing compliance demonstration measures are required when firing only natural gas in the No. 1 and No. 2 Power Boilers.

To show compliance with DE 96-AQ-I078, the Permittee will, on a monthly* basis, evaluate the combined annual average SO₂ emissions from the No. 1 and No. 2 Power Boilers by calculating the sum of the previous 12 months' SO₂ emissions. SO₂ emissions will only be calculated for those months during which fuel oil was combusted in either the No. 1 and/or No. 2 Power Boilers. As an example of how the emission may be estimated, the following calculations may be used. Note that methods of estimation are not inclusive.

$$E_{MC} \frac{\text{ton SO}_2}{\text{month}} = \left(FO_{M1} \frac{1000 \text{ gal}}{\text{month}} + FO_{M2} \frac{1000 \text{ gal}}{\text{month}} \right) \times 157(S) \frac{\text{lb SO}_2}{1000 \text{ gal}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

$$E_A \frac{\text{ton SO}_2}{\text{year}} = \sum_{12 \text{ Months Previous}} E_{MC} \frac{\text{ton SO}_2}{\text{month}}$$

Where:

E_{MC} = combined monthly* average SO₂ emission rate in tons per month from the No. 1 Power Boiler and No. 2 Power Boiler
 E_A = annual average SO₂ emission rate in tons per month from the No. 1 Power Boiler and No. 2 Power Boiler
 FO_{M1}, FO_{M2} = total fuel oil fired from the previous month in the No. 1 Power Boiler or No. 2 Power Boiler, respectively
 S = average sulfur content of fuel oil in the previous month

Conditions G.4, G.5, and G.6

Conditions G.4, G.5, and G.6 are state-only requirements and are not federally enforceable under the federal Clean Air Act, per DE 95AQ1055 as consolidated in DE 96-AQ1078.

Conditions G.11 to G.15 and H.10 to H.14

No fuel oil has been burned on the No. 1 Power Boiler and No. 2 Power Boiler since 2008 due to economic reasons.

Permit Conditions G.11 to G.15 and H.10 to H.14 have been added to maintain Boise Wallula's flexibility to burn fuel oil. These conditions address additional compliance demonstration measures required by Subpart DDDDD Boiler MACT when firing fuel oil.

VIII. KAMYR Digester and No. 3 Evaporator Set

Conditions J.1 and J.2

The KAMYR Digester and No. 3 Evaporator set are subject to the TRS requirements of 40 CFR 60.283(a)(1).

The rule specifies that gases from these units containing TRS in excess of 5 ppmvd, corrected to 10 percent oxygen, shall meet the conditions of 40 CFR 60.283(a)(1)(i-vi).

Gases from the KAMYR Chip Steaming Vessel do not contain TRS, and therefore do not require control. Gases from the KAMYR Digester, the KAMYR Blow Tank, and the No. 3 Evaporator Set are routed to the KAMYR Condenser. Gases that are not condensed in the KAMYR Condenser are routed to the NCG collection system, which delivers the gases to the Lime Kiln and/or Hog Fuel Boiler for combustion. The temperature and residence time requirements (1200 °F for 0.5 seconds) of 40 CFR 60.283(a)(1)(iii) were considered in the design of the NCG collection system, and are met in the design of the Lime Kiln and Hog Fuel Boiler.

IX. Chlorine Dioxide Generation Unit

Condition K

During the 2010 permit renewal effort, Ecology realized the relationship between the R8 scrubber surrogate parameter values and chlorine emissions were not well understood. The validity of the existing surrogate setpoints was in question. Boise Wallula conducted a performance test to clearly establish the relationship between R8 scrubber flow, scrubber medium pH, and scrubber exhaust chlorine emissions. The results are summarized as follows:

Table 16: Chlorine Dioxide Generation Unit Surrogate Parameters Performance Tests

Parameter	Run 1 11/24/09	Run 4 12/2/09	Run 6 12/4/09	Run 7 12/4/09
C12 ppm	0	0	1.7	30.7
Flow gal/min	52.6	51.2	51.3	50.6
pH	13.2	12.6	12.3	11.9

X. Cyclone Box Clipping Collection System

Condition L.1

The clippings cyclone unit at the boxplant is operated under a regulatory order with an applicable requirement under the State Implementation Plan (SIP). [WAC 173-401-530(2)(c)]. The cyclone is a part of the corrugated paper clipping process and as such is not considered a control device. The particulate emissions from the filter baghouse exhaust are limited to 11.64 tons per year on an annual average. Ecology requires that the Permittee provide an inspection program to ensure compliance with the limitation for the cyclone. An Inspection log will be maintained and made available for review by Ecology. Ecology determines that the emission unit is insignificant compared to other larger units that are required much more effort for

monitoring evaluation and compliance. Thus, Ecology believes that adherence to the inspection program assures ongoing compliance. In addition, when the particulate filter system malfunctions, the Permittee will take a corrective action within 72 hours. The Permittee will also report excursions and corrective action in the monthly report. The operation at the boxplant does not involve combustion so opacity is virtually nonexistent. The permit writer has never noticed emissions from this operation in many years of doing on-site compliance inspections. The vendor suggests that pressure drop be monitored as a performance indicator and Ecology has deferred to the expertise of the vendor.

XI. Bleach Plant

Condition M.2.b

On 1/13/2003, Boise Wallula submitted a notice requesting the use of either pink liquor or white liquor as scrubbing mediums for control of HAPS from the bleaching system. The HAPS in this case is chlorine and the emission limit is 10 ppm. Based on the test results, Ecology approved a minimum scrubber flow of 400 gpm and maintenance of pink liquor ORP at a maximum of -54mv or maintenance of white liquor ORP at a maximum of -302 mv. In both cases the scrubber exhaust fan is to be on. The maximum chlorine exhaust residual for both pink and white liquor during the test runs was undetectable at a detection limit of less than 1.13 dry ppm, as chlorine.

On 8/20/2015, a performance test was conducted per 40 CFR 63 Subpart S. The results show compliance with the 10 ppm limit for chlorine with a minimum scrubber flow of 400 gpm and white liquor ORP at a maximum of -312 mv. Pink liquor was not available during the performance test.

DISCUSSION ON GENERAL CONDITIONS

General Condition 8

Permit condition 8 is the generic opacity limitation from WAC 173-405-040(6), which addresses kraft mills. Permit conditions 9 and 12 work together to assure compliance with Condition 8 by requiring, first, that facility equipment be maintained and operated “in a manner consistent with good air pollution control practice” and, second, that the Permittee record and promptly respond to complaints received or possible noncompliance noticed by facility staff. Ecology believes that this is a practical and effective way to assure compliance because the emission units covered by this condition do not have control devices that can be monitored and they have a very low risk of producing visible emissions except during process upsets. The Mill is staffed around the clock and all staff are trained to notice and report unusual conditions, such as those associated with upsets.

It is a violation of the permit to fail to take corrective action when an instance of possible noncompliance has been reported and found to be valid. Ecology believes that imposing additional monitoring such as a weekly visual inspection would have little value in identifying noncompliance and would, by presence, possibly convey a false sense of compliance.

General Condition 10

All fuel combustion units assure compliance when firing natural gas and fuel oil based on the following calculations:

a. Sulfur Content Limit When Firing Fuel Oil

$F_d = 9,190$ dscf/MMBtu for residual oil. ("F" factor from 40 CFR, Part 60, App. A, Method 19)

$$C_d = \frac{(0.02 \text{ lb S} / \text{lb oil})(2 \text{ lb SO}_2 / \text{lb S})(385 \text{ dscf SO}_2 / 64 \text{ lb SO}_2)}{(18,750 \text{ Btu} / \text{lb oil})(9,190 \text{ dscf} / \text{MMBtu})}$$

or,

$$C_d = 0.00140 \frac{\text{dscf SO}_2}{\text{dscf flue gas}} = 1,400 \text{ ppmvd SO}_2$$

Corrected to 7% O₂:

$$(1,400 \text{ ppmvd SO}_2) \times \frac{20.9 - 7.0}{20.9} = 930 \text{ ppmvd SO}_2 \text{ at } 7\% \text{ O}_2$$

Therefore, the sulfur content limit of 2% in the fuel oil assures compliance with 1000 ppmvd corrected to 7% O₂ as required by WAC 173-405-040(11)(b). No ongoing compliance demonstration measures are required.

b. Sulfur Content Limit When Firing Natural Gas

- 0.6 lb/MMcf of natural gas. (Taken from Table 1.4-1, 1.4-2, & 1.4-3 of AP-42, for natural gas combustion in a large industrial boiler.)
- $pV = mRT$

where,

$$p = 14.7 \text{ psia } (2166.8 \text{ lbf/ft}^2)$$

$$R = 24.1 \text{ ft-lbf/lbm-}^\circ\text{R}$$

$$m = 64 \text{ lbm}$$

$$T = 538^\circ\text{R}$$

then, $V = 385$

Sulfur dioxide emissions in parts per million:

$$0.6 \frac{\text{lb SO}_2}{\text{MMcf}} \times \frac{1 \text{ MMcf}}{1,035 \text{ MMBtu}} \times \frac{1 \text{ MMBtu}}{8710 \text{ dscf}} \times \frac{385 \text{ dscf SO}_2}{64 \text{ lb SO}_2} = 4 \times 10^{-7} \frac{\text{dscf SO}_2}{\text{dscf flue gas}}$$

$$= 0.4 \text{ ppmv SO}_2$$

According to the calculations, the sulfur dioxide emissions are less than the limit of 1000 ppmvd. No ongoing compliance demonstration measures are required.

For sources other than fuel combustion, Ecology has not imposed monitoring for units unlikely to have a reasonable potential of exceeding SO₂ emission limits. Surrogate monitoring for intervals between direct SO₂ testing was not imposed because in practice mills do not adjust operating parameters to minimize SO₂ emissions. There are no control devices or control strategies to allow this. Instead, SO₂ emissions are largely a function of equipment and process design. The nature of the kraft process is optimized by system stability and continuity. Ecology has no basis to believe that process parameters fluctuate to a degree that results in SO₂ emissions approaching the 1000 ppm limit and thus warranting surrogate monitoring.

REGULATORY ORDERS AND PERMITS

The Permittee is subject to several PSD permits and regulatory orders. Order DE 96-AQ-I078 consolidated all previous requirements from past state approvals, orders and letters, which were issued by the state up through October 17, 1996. The first PSD permit, Permit No. PSD-X-77-04, was issued by the EPA Region 10 in February 1978. This permit imposes limits for particulate matter, opacity, and sulfur dioxide to limited emission units, including the No. 2 recovery furnace and No. 2 dissolver vent, the lime kiln, the decker hood, the hog fuel boiler, and the No.1 power boiler. The second PSD permit, Permit No. PSD-95-04, was issued by the Washington State Department of Ecology Air Program in September 1995 in accordance with WAC 173-400-141.

Additional Orders of Approval and a PSD approval order were issued subsequent to the order consolidation effort completed on October 17, 1996. PSD-01-07 and Order DE 02AQIS-3588 were issued on June 20, 2002 and May 8, 2002 respectively and addressed proposed modifications to No. 3 Recovery Furnace and the Hog Fuel Boiler.

STREAMLINING

Streamlining is not applicable to the Boise Wallula mill because no streamlining has been done or proposed.

INSIGNIFICANT EMISSION UNITS

The Table below summarizes the emission units identified by the Permittee in their Title V renewal application as meeting the criteria for insignificant emission units as defined by WAC 173-401-530. Ecology concurs that the units identified below meet the insignificant emission unit criteria. The facility-wide general requirements apply to the whole facility, including insignificant emission units and activities (IEUs), as required by the operating permit rule. The rule states, however, that IEUs are not subject to monitoring requirements unless the generally applicable requirements in the State Implementation Plan (SIP) impose them [WAC 173-401-530(2)(c)]. The Washington SIP does not impose any specific monitoring-related requirements for the facility-wide requirements for IEUs at this source. The permit, therefore, does not require any testing, monitoring, reporting, or recordkeeping for insignificant emission units or activities.

Table 17: Insignificant Emission Units

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 3	BCT-0002	Boise Trucking	Lubricating Oil Storage (275 gal)	Exempt by definition.
CI 3	BCT-0003	Boise Trucking	Lubricating Oil Storage (275 gal)	Exempt by definition.
CI 3	BCT-0004	Boise Trucking	Lubricating Oil Storage (550 gal)	Exempt by definition.
CI 3	BCT-0005	Boise Trucking	Waste Oil Storage (4000 gal)	Tank contains used motor oil taken from serviced trucks. Exempt by definition.
CI 4	510-3631	Evaporation & Concentration	Soap Skim Tank Hole	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	510-3632	Evaporation & Concentration	Soap Skim Tank Hole	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	510-3640	Evaporation & Concentration	#3 Soap Skim Level Stand Pipe	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	510-3641	Evaporation & Concentration	#1 Soap Skim Level Stand Pipe	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	510-3642	Evaporation & Concentration	Soap Skim Tank Hole	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	510-3643	Evaporation & Concentration	Soap Skim Tank Hole	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI4	510-3644	Evaporation & Concentration	#2 Soap Skim Level Stand Pipe	Soap is a surfactant extracted from black liquor. (Also exempt as a weak liquor, CI 93.)
CI 4	940-3631	Water Supply Vent	Potable H2O CLW. Tank	
CI 5	510-3657	Evaporation & Concentration	Compressed or Instrument Air Vent	
CI 9	411-3637	KAMYR Digester	KAMYR Building Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for the KAMYR Digester and Blow Tank separately.
CI 9	411-3639	KAMYR Digester	KAMYR Building Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for the KAMYR Digester and Blow Tank separately.
CI 9	412-3630	NSSC Digester	NSSC Digester Wall Fan	Building Ventilation. No emission sources are vented here, Emissions will be calculated for the NSSC Digester and Blow Tank separately.
CI 9	461-3638	Bleach Plant	Exhaust Fan #8 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3639	Bleach Plant	Exhaust Fan #9 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3640	Bleach Plant	Exhaust Fan #10 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3641	Bleach Plant	Exhaust Fan #6 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 9	461-3642	Bleach Plant	Exhaust Fan #5 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3643	Bleach Plant	Exhaust Fan #7 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3644	Bleach Plant	Exhaust Fan #2 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3645	Bleach Plant	Exhaust Fan #4 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3646	Bleach Plant	Exhaust Fan #3 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	461-3647	Bleach Plant	Exhaust Fan #1 Wall Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for each washer, tower, and the scrubber separately.
CI 9	471-3632	Chemical Preparation	ClO ₂ Building Air Exhaust Fan	Building Ventilation. No emission sources are vented here. Emissions will be calculated for the C102 generator. Cooler, Tower and Scrubbers separately.
CI 9	471-3633	Chemical Preparation	#3 York Chiller Wall Fan	Building Ventilation. Chiller is electric. No emissions sources vented here.
CI 9	471-3634	Chemical Preparation	ClO ₂ Building Vent	Building Ventilation. No emission sources are vented here. Emissions will be calculated for the C102 generator. Cooler, Tower, and Scrubbers separately.
CI 9	471-3652	Chemical Preparation	Methanol Building Exhaust Fan	Building Ventilation. No emission sources are vented here. Emissions are calculated for Methanol Storage Tank.
CI 9	471-3661	Chemical Preparation	Chiller Room Wall Fan	Building Ventilation. No emission sources are vented here.
CI 9	522-3633	#2 Recovery Boiler	Recovery #2 Roof Hole	Building Ventilation. No emission sources are vented here. Emissions are calculated for Recovery Boiler #2 separately.
CI 9	540-3631	Lime Burning Plant	Lime Kiln Discharge Building Exhaust Pan	Building Ventilation. No emission sources are vented here. Emissions are calculated for the Lime Kiln and Lime Silos separately.
CI 9	620-3653	Demineralizing Plant	Ceiling Fan Vent	Building Ventilation. No emission sources are vented here.
CI 9	712-3640	#2 Paper Machine Stock Preparation	Save All Area Exhaust Pan	Building Ventilation. No emission sources are vented here. Save All system contains small pulp fibers.
CI 9	721-3633	#1 Pulp Dryer Additive System	ASA Wall Fan	Building Ventilation. No emission sources are vented here.
CI 9	721-3634	#1 Pulp Dryer Additive System	ASA Wall Fan	Building Ventilation. No emission sources are vented here.
CI 9	741-3643	#1 Pulp Dryer	Paper Machine #1, #2 Wall Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	741-3644	#1 Pulp Dryer	Paper Machine #1, #3 Wall Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	741-3654	#1 Pulp Dryer	Old Starch Make Down Room	Building Ventilation. No emission sources are vented here.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 9	741-3655	#1 Pulp Dryer	Pipe Through Roof	Building Ventilation. No emission sources are vented here.
CI 9	741-3657	#1 Pulp Dryer	Paper Machine # 1, #4 Wall Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	741-3659	#1 Pulp Dryer	Paper Machine #1, #3 Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	742-3637	#2 Paper Machine	Vent in Paper Machine #2 Wall	Building Ventilation. No emission sources are vented here.
CI 9	742-3638	#2 Paper Machine	Paper Machine #2 Pipefitters Exhaust Fan	Building Ventilation. No emission sources are vented here. Pipefitters room is a storage area for carts and other tools used.
CI 9	742-3639	#2 Paper Machine	Paper Machine #1 & #2 Aux. Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	742-3645	#2 Paper Machine	Paper Machine #2 North Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	742-3646	#2 Paper Machine	Paper Machine #2 South Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	742-3648	#2 Paper Machine	Paper Machine #2 Silo Exhaust Fan	Building Ventilation. No emission sources are vented here. Contains only steam and heat.
CI 9	742-3649	#2 Paper Machine	Paper Machine #2 Wall Exhaust Fan North	Building Ventilation. No emission sources are vented here.
CI 9	742-3650	#2 Paper Machine	Paper Machine #2 Wall Exhaust Pan Center	Building Ventilation. No emission sources are vented here.
CI 9	742-3651	#2 Paper Machine	Paper Machine #2 Wall Exhaust Pan South	Building Ventilation. No emission sources are vented here.
CI 9	743-3632	#3 Paper Machine	Dry End Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	743-3635	#3 Paper Machine	Size Press Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	743-3639	#3 Paper Machine	#1 Main Roof Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	743-3640	#3 Paper Machine	False Ceiling Exhaust Fan #3	Building Ventilation. No emission sources are vented here.
CI 9	743-3641	#3 Paper Machine	False Ceiling Exhaust Pan #2	Building Ventilation. No emission sources are vented here.
CI 9	743-3643	#3 Paper Machine	False Ceiling Exhaust Fan H 1	Building Ventilation. No emission sources are vented here.
CI 9	743-3644	#3 Paper Machine	Peculator Area Exhaust Fan	Building Ventilation. No emission sources are vented here. Removes air (heat and steam) from head box.
CI 9	743-3645	#3 Paper Machine	Dry End Pulper Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	743-3650	#3 Paper Machine	3 blade Metering Size Press Exhaust Fan	Applies starch to surface of paper. Contains only starch, heat, and steam.
CI 9	743-3656	#3 Paper Machine	Wet End Supply Fan	Building Ventilation. No emission sources are vented here.
CI 9	910-3631	Finish Product Storage	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	910-3632	Finish Product Storage	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 9	910-3633	Finish Product Storage	Ceiling Exhaust Pan	Building Ventilation. No emission sources are vented here.
CI 9	910-3634	Finish Product Storage	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	910-3635	Finish Product Storage	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	910-3636	Finish Product Storage	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	910-3637	Finish Product Storage	Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	940-3632	Water Supply	Room Vent	Building Ventilation. No emission sources are vented here.
CI 9	940-3635	Water Supply	Chlorinator MCC Room Vent	Building Ventilation. No emission sources are vented here.
CI 9	940-3639	Water Supply	Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 9	950-3632	Shops & Stores	Bleach Plant Maintenance Shop Wall Fan	Building Ventilation. No emission sources are vented here. Emissions for welding and painting will be addressed under the Bleach Plant Maintenance Shop Exhaust Fan.
CI 9	950-3633	Shops &. Stores	Bleach Plant Maintenance Shop Wall Fan	Building Ventilation- No emission sources are vented here. Emissions for welding and painting will be addressed under the Bleach Plant Maintenance Shop Exhaust Fan.
CI 9	950-3635	Shops & Stores	Stores Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. This building is a warehouse for parts.
CI 9	950-3636	Shops & Stores	Machine Shop Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. Welding and painting activities will be addressed under the Machine Shop Hood Exhaust Vent.
CI 9	950-3637	Shops & Stores	Machine Shop Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. Welding and painting activities will be addressed under the Machine Shop Hood Exhaust Vent.
CI 9	950-3642	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3643	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3646	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3647	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3648	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3649	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3650	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3651	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3652	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3653	Shops & Stores	Engineering Office Vent	Building Ventilation. No emission sources are vented here.
CI 9	950-3655	Shops & Stores	Stores Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. This building is a warehouse for parts.
CI 9	950-3656	Shops & Stores	Stores Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. This building is a warehouse for parts.
CI 9	950-3658	Shops & Stores	Paint Factory Air System Exchange Fan #2	All painting emissions will be accounted for under the Paint Shop Hood Exhaust Fan.
CI 9	950-3659	Shops & Stores	Paint Factory Air System Exchange Fan #1	All painting emissions will be accounted for under the Paint Shop Hood Exhaust Fan.
CI 9	950-3661	Shops & Stores	Paint Factory Wall Fan	All painting emissions will be accounted for under the Paint Shop Hood Exhaust Fan.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 9	950-3662	Shops & Stores	Paint Factory Wall Fan	All painting emissions will be accounted for under the Paint Shop Hood Exhaust Fan.
CI 9	950-3665	Shops & Stores	Electrical Shop Wall Fan	Building Ventilation. No emission sources are vented here. Emissions for welding and painting will be addressed under the Electrical Shop Ceiling Exhaust Fan.
CI 9	950-3666	Shops & Stores	Stores Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. This building is a warehouse for parts.
CI 9	950-3667	Shops & Stores	Machine Shop Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. Welding and painting activities will be addressed under the machine Shop Hood Exhaust Vent.
CI 9	950-3668	Shops & Stores	Machine Shop Ceiling Exhaust Fan	Building Ventilation. No emission sources are vented here. Welding and painting activities will be addressed under the machine Shop Hood Exhaust Vent.
CI9	CP-3637	Corrugated Paper	Oil Room Air Exchange	Building Ventilation. No emission sources are vented here. (Could be exempt under Storage of Lubricants, CI 69.)
CI 9	CP-3654	Corrugated Paper	Condensate Room Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 32	CP-3650	Corrugated Paper	Wax Room Exhaust Fan	
CI 48	412-3641	NSSC Digester	Bathroom Vent With Hood	
CI 48	412-3642	NSSC Digester	Bathroom Vent	
CI 48	743-3630	#3 Paper Machine	Bathroom Vent	
CI 48	743-3631	#3 Paper Machine	Bathroom Vent	
CI 48	743-3654	#3 Paper Machine	Bathroom Vent	
CI 48	743-3655	#3 Paper Machine	Bathroom Vent	
CI 48	743-3664	#3 Paper Machine	#3 Paper Machine Bathroom Vent	
CI 48	950-3634	Shops & Stores	Purchasing Bathroom Vent	
CI 48	950-3641	Shops & Stores	Lab Bathroom Vent	
CI 48	950-3644	Shops & Stores	Engineering Bathroom Vent	
CI 48	CP-3646	Corrugated Paper	Old Bathroom Vent	
CI 48	CP-3647	Corrugated Paper	Bathroom Vent With Hood	
CI 48	CP-3648	Corrugated Paper	Bathroom Vent	
CI 61	620-3534	Demineralizing Plant	#2 Deaerator Tank Dome Vent	
CI 61	620-3630	Demineralizing Plant	#1 Deaerator Tank Dome Vent	
CI 61	620-3632	Demineralizing Plant	#1 Deaerator Tank Overflow	
CI 61	620-3636	Demineralizing Plant	#2 Deaerator Tank Overflow	
CI 61	620-3654	Demineralizing Plant	Demineralized Water Storage Tank Vent	
CI 61	620-3665	Demineralizing Plant	Degasifier Tank Vent	Similar to deaeration.
CI 69	471-3656	Chemical Preparation	Brim Slurry Tank Vent	Storage of Aqueous Salt Solution.
CI 69	471-3657	Chemical Preparation	Brim Slurry Tank Hole	Storage of Aqueous Salt Solution.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 87	400-3631	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3632	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3633	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3634	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3635	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3636	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	400-3637	Pulp Mill	Low Pressure Steam Safety Valve Vent	
CI 87	411-3630	KAMYR Digester	Flash Steam Vent	
CI 87	411-3631	KAMYR Digester	Flash Steam Vent	
CI 87	411-3635	KAMYR Digester	160# Steam Vent	
CI 87	430-3651	"B" Row Washers	160# Steam Safety Valve Vent	
CI 87	471-3637	Chemical Preparation	North C102 Storage Tank Explosion Vent	
CI 87	471-3639	Chemical Preparation	North C102 Storage Tank Explosion Vent	
CI 87	471-3641	Chemical Preparation	North C102 Storage Tank Explosion Vent	
CI 87	471-3643	Chemical Preparation	North C102 Storage Tank Explosion Vent	
CI 87	471-3645	Chemical Preparation	South C102 Storage Tank Explosion Vent	
CI 87	471-3646	Chemical Preparation	South C102 Storage Tank Explosion Vent	
CI 87	471-3651	Chemical Preparation	Methanol Storage Safety Valve Vent	
CI 87	471-3664	Chemical Preparation	R8 Generator Explosion Vent	No emissions. This is a safety valve vent in case of over pressuring.
CI 87	510-3648	Evaporation & Concentration	Steam Vent	
CI 87	510-3660	Evaporation & Concentration	Steam Vent	
CI 87	511-3631	#1 Evaporator	Evaporator # 1 Effect #3 Safety Valve Vent	
CI 87	511-3632	#1 Evaporator	Evaporator #1 Effect #2 Safety Valve Vent	
CI 87	511-3633	#1 Evaporator	Evaporator #1 Effect #1 Safety Valve Vent	
CI 87	511-3634	#1 Evaporator	50# Steam Safety Valve Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 87	511-3635	#1 Evaporator	50# Steam Safety Valve Vent	
CI 87	511-3637	#1 Evaporator	Steam Vent	
a 87	512-3631	#2 Evaporator	Evaporator #2 Effect #3 Safety Valve Vent	
CI 87	512-3632	#2 Evaporator	Evaporator #2 Effect #2 Safety Valve Vent	
CI 87	512-3633	HI Evaporator	Evaporator #2 Effect #1 Safety Valve Vent	
CI 87	512-3635	#2 Evaporator	50# Steam Safety Valve Vent	
CI 87	513-3631	#3 Evaporator	Evaporator #3 Effect #1 Safety Valve Vent	
CI 87	513-3632	#3 Evaporator	Steam Vent	
CI 87	513-3633	#3 Evaporator	Steam Vent	
CI 87	513-3634	#3 Evaporator	Evaporator #3 Effect #2 Safety Valve Vent	
CI 87	513-3635	#3 Evaporator	Evaporator #3 Effect #3 Safety Valve Vent	
CI 87	513-3636	#3 Evaporator	Steam Vent	
CI 87	513-3637	#3 Evaporator	Steam Vent	
CI 87	513-3638	#3 Evaporator	Relief Vent W\M. Vent	
CI 87	522-3631	#2 Recovery Boiler	#2 Recovery Boiler Safety Valve Vent	
CI 87	522-3632	#2 Recovery Boiler	#2 Recovery Boiler Safety Valve Vent	
CI 87	522-3634	#2 Recovery Boiler	#2 Recovery Boiler Safety Valve Vent	
CI 87	522-3635	#2 Recovery Boiler	Steam Vent	
CI 87	522-3637	#2 Recovery Boiler	#2 Recovery Induced Draft Fan Safety Valve Vent	
CI 87	522-3638	#2 Recovery Boiler	#2 Recovery Induced Draft Fan Safety Valve Vent	
CI 87	522-3639	#2 Recovery Boiler	#2 Recovery Induced Draft Fan Safety Valve Vent	
CI 87	522-3640	#2 Recovery Boiler	#2 Recovery Induced Draft Fan Safety Valve Vent	
CI 87	522-3641	#2 Recovery Boiler	Steam Drain Vent	
CI 87	522-3642	#2 Recovery Boiler	50# Steam Safety Valve Vent	
CI 87	522-3643	#2 Recovery Boiler	#2 Recovery Steam Safety Valve Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 87	522-3644	#2 Recovery Boiler	250# Steam Safety Valve Vent	
CI 87	522-3646	#2 Recovery Boiler	Natural Gas Vent	
CI 87	523-3631	#3 Recovery Boiler	Boiler Safety Valve Vent	
CI 87	523-3632	#3 Recovery Boiler	Superheated Safety Valve Vent	
CI 87	523-3633	#3 Recovery Boiler	#3 Recovery Boiler Safety Valve Vent	
CI 87	523-3634	#3 Recovery Boiler	#3 Recovery Boiler Safely Valve Vent	
CI 87	523-3635	#3 Recovery Boiler	#3 Recovery Boiler Safely Valve Vent	
CI 87	523-3637	#3 Recovery Boiler	#3 Recovery Boiler Safely Valve Vent	
CI 87	523-3639	#3 Recovery Boiler	160# Steam Safely Valve Vent	
CI 87	523-3640	#3 Recovery Boiler	Steam Safety Valve Vent	
CI 87	523-3641	#3 Recovery Boiler	Steam Safety Valve Vent	
CI 87	531-3634	White Liquor Making	Boiler Flash Tank Vent	Steam Release only.
CI 87	532-3638	Pink Liquor Making	Steam Trap Vent	
CI 87	532-3639	Pink Liquor Making	Steam Trap Vent	
CI 87	532-3640	Pink Liquor Making	Steam Safety Valve Vent	
CI 87	532-3647	Pink Liquor Making	Molten Sulfur Safety Valve Vent	
CI 87	620-3631	Demineralizing Plant	#1 Deaerator Tank Dome Safety Valve Vent	
CI 87	620-3635	Demineralizing Plant	#2 Deaerator Tank Dome Safety Valve Vent	
CI 87	620-3637	Demineralizing Plant	50# Steam Safety Valve Vent	
CI 87	620-3638	Demineralizing Plant	50# Steam Safety Valve Vent	
CI 87	620-3639	Demineralizing Plant	Steam Vent	
CI 87	620-3640	Demineralizing Plant	70# 5 team Safety Valve Vent	
CI 87	620-3641	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	620-3642	Demineralizing Plant	250# Header Safety Valve Vent	
CI 87	620-3643	Demineralizing Plant	250# Steam Safety Valve Vent	
CI 87	620-3644	Demineralizing Plant	400# Steam Safety Valve Vent	
CI 87	620-3645	Demineralizing Plant	400# Steam Safety Valve Vent	
CI 87	620-3646	Demineralizing Plant	250# Steam Safety Valve Vent	
CI 87	620-3647	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	620-3648	Demineralizing Plant	Hog Fuel Boiler Safety Valve Vent	
CI 87	620-3649	Demineralizing Plant	Hog Fuel Boiler Safety Valve Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 87	620-3650	Demineralizing Plant	Hog Fuel Header Safety Valve Vent	
CI 87	620-3651	Demineralizing Plant	1 Hog Fuel Header Safety Valve Vent	
CI 87	620-3652	Demineralizing Plant	Steam Trap Vent	
CI 87	620-3655	Demineralizing Plant	Steam Safety Valve Vent	
CI 87	620-3656	Demineralizing Plant	Steam Trap Vent	
CI 87	620-3659	Demineralizing Plant	N.C.G. Pressure Safety Valve Vent	
CI 87	620-3660	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	620-3661	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	620-3662	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	620-3663	Demineralizing Plant	50# Steam Safety Valve Vent	
CI 87	620-3664	Demineralizing Plant	70# Steam Safety Valve Vent	
CI 87	621-3631	#1 Power Boiler	Power Boiler #1 Steam Safety Valve Vent	
CI 87	621-3632	#1 Power Boiler	Power Boiler #1 Steam Safety Valve Vent	
CI 87	621-3633	#1 Power Boiler	Power Boiler #1 Steam Safety Valve Vent	
CI 87	621-3634	#1 Power Boiler	50# Steam Safety Valve Vent	
CI 87	621-3635	#1 Power Boiler	50# Steam Safety Valve Vent	
CI 87	622-3631	#2 Power Boiler	Power Boiler #2 50# Steam Safety Valve Vent	
CI 87	622-3632	H2 Power Boiler	Power Boiler #2 50# Steam Safety Valve Vent	
CI 87	622-3633	#2 Power Boiler	Power Boiler #2 Steam Safety Valve Vent	
CI 87	622-3634	#2 Power Boiler	Power Boiler #2 Steam Safety Valve Vent	
CI 87	741-3632	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3633	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3634	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3635	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3636	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3637	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3638	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3639	#1 Pulp Dryer	Flash Steam Safety Valve Vent	
CI 87	741-3642	#1 Pulp Dryer	50# Steam Safety Valve Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 87	741-3648	#1 Pulp Dryer	125# Steam Vent	
CI 87	741-3651	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3652	#1 Pulp Dryer	125# Steam Safety Valve Vent	
CI 87	741-3656	#1 Pulp Dryer	250# Steam Safety Valve Vent	
CI 87	741-3658	#1 Pulp Dryer	Steam Vent	
CI 87	742-3631	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3632	#2 Paper Machine	Steam Vent	
CI 87	742-3633	#2 Paper Machine	250# Steam Safety Valve Vent	
CI 37	742-3634	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3635	#2 Paper Machine	Flash Steam Safety Valve Vent	
CI 87	742-3636	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3640	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3641	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3642	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	742-3643	#2 Paper Machine	125# Steam Safety Valve Vent	
CI 87	743-3646	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3647	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3648	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3651	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3652	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3653	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3657	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3658	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3659	#3 Paper Machine	50# Steam Safety Valve Vent	
CI 87	743-3662	#3 Paper Machine	150# Steam Safety Valve Vent	
CI 87	743-3665	#3 Paper Machine	150# & 250# Safety Valve Vent	
CI 87	CP-3651	Corrugated Paper	200# Steam Safety Valve Vent	
CI 87	CP-3652	Corrugated Paper	Condensate Tank Safety Valve Vent	
CI 87	CP-3653	Corrugated Paper	Condensate Safety Valve Vent	
CI 90	523-3638	#3 Recovery Boiler	Boiler Blowdown Collection Tank Vent	Steam is blown into this unit.
CI 92	410-3633	Digester Plant	#1 M&D Pre Steamer Feed Vent	#1 M&D digester is continuous, 6/15/01 letter from Ecology.
CI 92	410-3634	Digester Plant	#2 M&D Pre Steamer Feed Vent	#2 M&D digester is continuous.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 92	411-3632	KAMYR Digester	Chip Bin Vent	Bin serves as a surge tank before the Digester so that production is not halted. Tank contains only chips and some steam from impregnator. The KAMYR digester is continuous.
CI 92	411-3633	KAMYR Digester	Chip Bin Blower Vent	Bin serves as a surge tank before the Digester so that production is not halted. Tank contains only chips and some steam from impregnator. The KAMYR digester is continuous.
CI 92	411-3634	KAMYR Digester	Chip Dump Bin Vent	Bin serves as a surge tank before the Digester so that production is not halted. Tank contains only chips and some steam from impregnator. The KAMYR digester is continuous.
CI 93	410-3636	Digester Plant	Filtrate Tanks Foam Vent	The foam produced is a very weak black liquor solution.
CI 93	420-3635	"A" Row Washers	B-Row Vacuum Pump Vent	Discharges air and foam from the washer into the foam tanks. Foam consists of weak black liquor. (Could also be exempt as a Vacuum System Exhaust, CI 108.)
CI 93	420-3636	"A" Row Washers	M&D Row Foam Vent	Foam is off filtrate tanks and contains weak black liquor.
CI 93	420-3637	"A" Row Washers	M&D Filtrate Tank Vent	Contains weak black liquor.
CI 93	430-3632	"B" Row Washers	Foam Tank Vent	Foam is off filtrate tanks and contains weak black liquor.
CI 93	430-3633	"B" Row Washers	Foam Tank Vent	Foam is off filtrate tanks and contains weak black liquor.
CI 93	510-3633	Evaporation & Concentration	Combined Condensate Tank Hole	No emissions. Combined condensate consists of steam condensate with small amounts of black liquor. The solution is a very weak black liquor.
CI 93	510-3634	Evaporation & Concentration	Combined Condensate Tank Vent	No emissions. Combined condensate consists of steam condensate with small amounts of black liquor. The solution is a very weak black liquor.
CI 93	510-3635	Evaporation & Concentration	Combined Condensate Tank Vent	No emissions. Combined condensate consists of steam condensate with small amounts of black liquor. The solution is a very weak black liquor.
CI 93	510-3637	Evaporation & Concentration	Combined Condensate Tank Vent With Valve	No emissions. Combined condensate consists of steam condensate with small amounts of black liquor. The solution is a very weak black liquor.
CI 93	510-3638	Evaporation & Concentration	Boil Out Tank Vent	Catch reservoir for contaminated condensate during boil out. Contains only weak black liquor & contaminated condensate.
CI 93	510-3639	Evaporation & Concentration	Boil Out Tank Vent With Valve	Catch reservoir for contaminated condensate during boil out. Contains only weak black liquor & contaminated condensate.
CI 93	510-3647	Evaporation & Concentration	Contaminated Condensate Tank Vent	No emissions. Contaminated condensate consists of steam condensate with small amounts of black liquor. The solution is a very weak black liquor.
CI 93	510-3654	Evaporation & Concentration	Black Liquor Reclaim Tank Vent	No emissions. This tank contains a very weak black liquor solution. This tank collects the wash water from evaporators when they are cleaned.
CI 93	510-3655	Evaporation & Concentration	Black Liquor Reclaim Tank Vent	No emissions. This tank contains a very weak black liquor solution. This tank collects the wash water from evaporators when they are cleaned.
CI 93	530-3674	Liquor Making Plant	Stand Pipe Tank Vent	
CI 93	530-3677	Liquor Making Plant	Black Liquor Storage Tank Vent	Weak black liquor storage tank vent.
CI 93	530-3678	Liquor Making Plant	Black Liquor Line Vent	This vent is a vacuum break vent on a weak black liquor line. There are no emissions associated with this vent, it sucks air in to prevent siphoning of the tank.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 93	530-3679	Liquor Making Plant	Contaminated Condensate. Line Vent	This vent is a vacuum break vent on a weak black liquor line. There are no emissions associated with this vent, it sucks air in to prevent siphoning of the tank.
CI 93	530-3680	Liquor Making Plant	Black Liquor Line Vent	This vent is a vacuum break vent on a weak black liquor line. There are no emissions associated with this vent, it sucks air in to prevent siphoning of the tank.
CI 93	530-3681	Liquor Making Plant	Black Liquor Line Vent	This vent is a vacuum break vent on a weak black liquor line. There are no emissions associated with this vent, it sucks air in to prevent siphoning of the tank.
CI 93	530-3682	Liquor Making Plant	Black Liquor Line Vent	This vent is a vacuum break vent on a weak black liquor line. There are no emissions associated with this vent, it sucks air in to prevent siphoning of the tank.
CI 94	430-3647	"B" Row Washers	Process H2O Tank Vent	
CI 94	430-3649	"B" Row Washers	White Water Tank Vent	
CI 94	430-3650	"B" Row Washers	White Water Tank Vent	
CI 94	430-3654	"B" Row Washers	110 deg H2O Tank Vent	
CI 94	430-3655	"B" Row Washers	110 deg H2O Tank Vent	
CI 94	510-3653	Evaporation & Concentration	Cooling H2O Collection Tank Vent	
CI 94	940-3640	Water Supply	Clearwell Tank Vent	
CI 94	940-3641	Water Supply	Clearwell Tank Vent	
CI 94	940-3642	Water Supply	Clearwell Tank Vent	
CI 94	940-3643	Water Supply	Clearwell Tank Vent	
CI 94	741-7180	Chemical Preparation	White Water Tank	
CI 94	741-7181	Chemical Preparation	Couch Pit	
CI 94	742-7181	#2 Paper Machine	White Water Tank	
CI 94	742-7182	#2 Paper Machine	Couch Pit	
CI 94	742-7183	#2 Paper Machine	Waste Water Collection Tank	
CI 94	742-7184	#2 Paper Machine	Waste Water Collection Tank	
CI 94	742-7185	#2 Paper Machine	White Water Tank	
CI 94	742-7189	#2 Paper Machine	White Water Chest	
CI 94	742-7180	#2 Paper Machine	Foam Chest	White Water Storage Tank
CI 94	743-7180	#3 Paper Machine	White Water Chest	
CI 94	743-7181	#3 Paper Machine	White Water Tank	
CI 94	743-7183	#3 Paper Machine	Broke And White Water	
CI 96	743-3660	#3 Paper Machine	Central Condensate Collection Tank Vent	Clean Condensate Collection
CI 97	721-3639	#1 Pulp Dryer Additive System	Alum Tank Vent	
CI 98	412-3639	NSSC Digester	NSSC Stock Vent	Pulp Storage tanks

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 98	412-3640	NSSC Digester	NSSC Stock Vent	Pulp Storage tanks
CI 98	420-3639	"A" Row Washers	Broke Storage Tank Vent	Pulp Storage, repulping tank
CI 98	420-3640	"A" Row Washers	Broke Storage Tank Vent	Pulp Storage, repulping tank
CI 98	420-3641	"A" Row Washers	Broke Storage Tank Vent	Pulp Storage, repulping tank
CI 98	420-3642	"A" Row Washers	Broke Storage Tank Vent	Pulp Storage, repulping tank
CI 98	420-3643	"A" Row Washers	Broke Storage Tank Vent	Pulp Storage, repulping tank
CI 98	420-3644	"A" Row Washers	Broke Stock Storage Tank Vent	Pulp Storage
CI 98	430-3631	"B" Row Washers	Rotary Feeder Vent	Pulp handling equipment
CI 98	430-3634	"B" Row Washers	Brown Stock Storage Tank Vent	Pulp Storage
CI 98	430-3635	"B" Row Washers	Brown Stock Storage Tank Vent	Pulp Storage
CI 98	430-3638	"B" Row Washers	#10 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3640	"B" Row Washers	#6 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3641	"B" Row Washers	#6 Hi Density Brown Stock Tank Vent	Pulp Storage.
CI 98	430-3642	"B" Row Washers	#7 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3643	"B" Row Washers	#7 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3644	"B" Row Washers	#5 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3645	"B" Row Washers	#5 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3646	"B" Row Washers	#5 Hi Density Brown Stock Tank Vent	Pulp Storage
CI 98	430-3648	"B" Row Washers	B-PRESRC. Chest Tank Vent	Stock Chest
CI 98	430-3653	"B" Row Washers	Blend Pulp Storage Tank Vent	Pulp Storage
CI 98	731-3631	Waste Paper Pulp	Pulper Hood Exhaust Fan	
CI 98	743-3649	#3 Paper Machine	Size Press Pulper Exhaust Fan	Building Ventilation. No emission sources are vented here.
CI 98	743-3661	#3 Paper Machine	#3 Paper Machine Press Pit Pulper	Repulping operation
CI 98	743-3666	#3 Paper Machine	Saveall Hood Exhaust Fan	
CI 98	741-7184	Chemical Preparation	Bleached Stock	Pulp handling equipment
CI 98	742-7186	#2 Paper Machine	Kraft Brown Stock and NSSC STOCK	Pulp handling equipment
CI 98	742-7187	#2 Paper Machine	Kraft and NSSC Brown Stock and Broke	Pulp handling equipment
CI 98	743-7185	#3 Paper Machine	Broke and Bleached Stock	Pulp handling equipment
CI 98	743-7186	#3 Paper Machine	Dorr-Oliver, Brown Stock Saveall Vat	Pulp Storage
CI 99	540-7180	Lime Burning Plant	Lime Mud Drum Washer	Lime Mud Water slurry
CI 101	530-3633	Liquor Making Plant	Weak Wash Storage Tank Vent	Lime Mud Water slurry

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 101	530-3653	Liquor Making Plant	Lime Mud Storage Tank Hole	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Grits Washer, CI 104.)
CI 101	530-3655	Liquor Making Plant	#2 Lime Mud Storage Tank Hole	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Grits Washer, CI 104.)
CI 101	540-3634	Lime Plant	Lime Kiln Mud Storage Tank Vent	Lime Mud Water slurry
CI 102	530-3644	Liquor Making Plant	#1 Mud Washer Tank Vent	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3645	Liquor Making Plant	#1 Mud Washer Headbox Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3646	Liquor Making Plant	#1 Mud Washer Tank Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer. CI 104.)
CI 102	530-3647	Liquor Making Plant	#1 Mid Washer Tank Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3648	Liquor Making Plant	#1 Mud Washer Tank Hole	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3649	Liquor Making Plant	#1 Mud Washer Tank Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3650	Liquor Making Plant	#1 Mud Washer Tank Hole	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer. CI 104.)
CI 102	530-3651	Liquor Making Plant	#1 Mud Washer Tank Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer CI 104.)
CI 102	530-3652	Liquor Making Plant	#1 Mud Washer Tank Hole	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3656	Liquor Making Plant	#1 Mud Washer Tank Vent	Lime Mud Washer: contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer. CI 104.)
CI 102	530-3657	Liquor Making Plant	Lime Mud Washer Tank Hole	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3658	Liquor Making Plant	#2 Lime Mud Washer Tank Hole	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3659	Liquor Making Plant	#2 Lime Mud Washer Tank Vent	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3660	Liquor Making Plant	#2 Mud Washer Headbox Vent	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	530-3661	Liquor Making Plant	Mud Mix Tank Vent	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 102	530-3667	Liquor Making Plant	Lime Mud Washer Tank Vent	Lime Mud Washer; contains Lime Mud Water and Lime Grits. (Could also be exempt under Lime Mud Water, CI 101 and Lime Grits Washer, CI 104.)
CI 102	540-3632	Lime Burning Plant	Lime Kiln Feed Building Exhaust Fan	Building contains the lime mud filter (precoat filter).
CI 103	530-3662	Liquor Making Plant	Green Liquor Clarifier Tank Hole	Liquor Clarifier
CI 103	530.3663	Liquor Making Plant	Green Liquor Clarifier Tank Hole	Liquor Clarifier
CI 103	530-3664	Liquor Making Plant	Green Liquor Clarifier Tank Hole	Liquor Clarifier
CI 103	530-3665	Liquor Making Plant	Green Liquor Clarifier Tank Hole	Liquor Clarifier
CI 103	530-3666	Liquor Making Plant	Green Liquor Clarifier Headbox Vent	Liquor Clarifier
CI 103	530-3671	Liquor Making Plant	Causticizer #1 Tank Hole	Reaction vessel for green liquor & lime to white liquor.
CI 103	530-3672	Liquor Making Plant	Causticizer #2 Tank Hole	Reaction vessel for green liquor & lime to white liquor.
CI 103	530-3673	Liquor Making Plant	Causticizer #3 Tank Hole	Reaction vessel for green liquor & lime to white liquor.
CI 103	530-3685	Liquor Making Plant	Causticizer #4 Tank Vent	Reaction vessel for green liquor & lime to white liquor.
CI 103	530-3686	Liquor Making Plant	Causticizer #4 Tank Hole	Reaction vessel for green liquor & lime to white liquor.
CI 103	530-3683	Liquor Making Plant	Multipurpose Liquor Clarifier Tank Vent	Liquor Clarifier
CI 103	530-3684	Liquor Making Plant	Multipurpose Liquor Clarifier Stand Pipe	Liquor Clarifier
CI 103	531-3631	White Liquor Making	White Liquor Clarifier #2 Tank Vent	
CI 103	531-3632	White Liquor Making	White Liquor Clarifier #2 Tank Vent	
CI 103	531-3633	White Liquor Making	White Liquor Clarifier #2 Tank Vent	
CI 103	531-3635	White Liquor Making	White Liquor Clarifier #2 Tank Vent	
CI 103	531-3636	White Liquor Making	White Liquor Clarifier #2 Tank Vent	
CI 103	531-3637	White Liquor Making	White Liquor Clarifier #2 Headbox Vent	
CI 103	531-3638	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3639	White Liquor Making	#1 White Liquor Clarifier Tank Vent	
CI 103	531-3640	White Liquor Making	#1 White Liquor Clarifier Tank Vent	
CI 103	531-3641	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3642	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3643	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3644	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3645	White Liquor Making	#1 White Liquor Clarifier Tank Hole	
CI 103	531-3646	White Liquor Making	White Liquor Storage Tank Vent	
CI 103	531-3647	White Liquor Making	#4 White Liquor Clarifier Tank Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 103	531-3648	White Liquor Making	#4 White Liquor Clarifier South Tank Vent	
CI 103	531-3649	White Liquor Making	White Liquor Tank Vent	
CI 103	531-3650	White Liquor Making	White Liquor Tank Vent	
CI 103	531-3651	White Liquor Making	White Liquor Flow Box Vent	
CI 103	532-3631	Pink Liquor Making	Pink Liquor Tank Vent	Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution, CI 93.)
CI 103	532-3632	Pink Liquor Making	Pink Liquor Storage Tank Vent	Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution. CI 93.)
CI 103	532-3633	Pink Liquor Making	Pink Liquor Tank Vent	Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NCI 2s or weak liquor solution, CI 93.)
CI 103	532-3641	Pink Liquor Making	South Sulfiting Tank Vent	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution, CI 93.)
CI 103	532-3642	Pink Liquor Making	South Sulfiting Tank Vent	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution, CI 93.)
CI 103	532-3643	Pink Liquor Making	North Sulfiting Tank Hole	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NCI 2s or weak liquor solution. CI 93.)
CI 103	532-3644	Pink Liquor Making	North Sulfiting Tank Hole	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NCI 2s or weak liquor solution. CI 93.)
CI 103	532-3645	Pink Liquor Making	North Sulfiting Tank Hole	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution, CI 93.)
CI 103	532-3646	Pink Liquor Making	North Sulfiting Tank Hole	Tank contains Pink Liquor. Acidic, inorganic salt solution. Equivalent to White Liquor Storage. (Could be exempt under inorganic salt solution, NC1 2s or weak liquor solution. CI 93.)
CI 104	530-3631	Liquor Making Plant	Dregs Washer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 104	530-3632	Liquor Making Plant	Dregs Washer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 104	530-3634	Liquor Making Plant	Dregs Washer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 104	530-3635	Liquor Making Plant	Dregs Washer Tank Hole	Functionally equivalent to Lime Grits Washer.
CI 104	530-3636	Liquor Making Plant	Dregs Washer Tank Hole	Functionally equivalent to Lime Grits Washer.
CI 104	530-3638	Liquor Making Plant	Dregs Washer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 104	530-3639	Liquor Making Plant	Dregs Washer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 104	530-3640	Liquor Making Plant	Dregs Washer Tank Hole	Functionally equivalent to Lime Grits Washer.
CI 104	530-3641	Liquor Making Plant	Dregs Washer Tank Hole	Functionally equivalent to Lime Grits Washer.
CI 104	530-3642	Liquor Making Plant	Dregs Washer Tank Hole	Functionally equivalent to Lime Grits Washer.
CI 104	530-3643	Liquor Making Plant	Dreg's Mixer Tank Vent	Functionally equivalent to Lime Grits Washer.
CI 105	530-3668	Liquor Making Plant	Hot End Scrubber Vent	Common vent with Lime Silos and feed bins.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 105	530-3670	Liquor Making Plant	Lime Storage Tank Vent	Vent from lime silos.
CI 106	743-3642	#3 Paper Machine	Bel Baie Former Exhaust Fan	Paper Forming operation. (Paper Machine)
CI 107	740-3631	Paper Machine	Paper Machine #1, #1 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	740-3633	Paper Machine	Paper Machine #1, #2 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	740-3635	Paper Machine	Paper Machine #2, #3 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	740-3637	Paper Machine	Paper Machine #1, #4 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	740-3639	Paper Machine	Paper Machine #1, #5 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	740-3641	Paper Machine	Paper Machine #1, #6 Hood Exhaust Fan	Dryer Exhaust, only contains heat and steam.
CI 107	741-3631	#1 Pulp Dryer	Pulp Dryer Beater Exhaust Fan	
CI 107	742-3607	#2 Paper Machine	Paper Machine #2, #1 Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	742-3609	#2 Paper Machine	Paper Machine #2, #2 Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	742-3611	#2 Paper Machine	Paper Machine #2, #3 Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	743-3633	#3 Paper Machine	Main Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	743-3634	#3 Paper Machine	After Dryer Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	743-3636	#3 Paper Machine	#3 Main Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	743-3637	#3 Paper Machine	#2A Main Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 107	743-3638	#3 Paper Machine	#2 Main Hood Exhaust Fan	Dryer Exhaust, contains only heat and steam.
CI 108	060-3633	Waste Water	Sludge Filter Vacuum Pump Vent	
CI 108	410-3635	Digester Plant	Pneumatic Air Vent	System is exactly like a bank drive through system. In this canister samples from the digester are sent to the lab.
CI 108	540-3633	Lime Burning Plant	Mud Filter Vacuum Pump Vent	
CI 108	741-3645	#1 Pulp Dryer	Paper Machine #1, #2 Couch Vacuum Pump Vent	
CI 108	741-3646	#1 Pulp Dryer	Paper Machine #1, FLAT Box Vacuum Pump Vent	
CI 108	741-3647	#1 Pulp Dryer	Paper Machine 31, UHL Box Vacuum Pump Vent	
CI 108	741-3649	#1 Pulp Dryer	Paper Machine #1, 2ND Press Vacuum Pump Vent	

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
CI 108	741-3650	#1 Pulp Dryer	Paper Machine #1, 3RD Press Vacuum Pump Vent	
CI 108	742-3644	#2 Paper Machine	Paper Machine #2 Vacuum Trench Vent	
CI 108	743-3663	#3 Paper Machine	Paper Machine #3 Vacuum Pump Vent	
CI 108	743-3667	#3 Paper Machine	2nd Stage Vacuum Pump Vent	
CI 108		#1 Pulp Dryer	Paper Machine #1, Couch Vacuum Pump Vent	
CI 108		#1 Pulp Dryer	Paper Machine #1 1ST Press Vacuum Pump Vent	
CI 109	721-3632	#1 Pulp Dryer Additive System	Cooked Starch Vent	
CI 109	743-7182	#3 Paper Machine	Cooked Starch	
CI 114	060-3631	Waste Water	Sludge Filter Building Exhaust Fan	
CI 114	060-3632	Waste Water	Sludge Filter Building Exhaust Fan	
CI 115	412-3637	NSSC Digester	Feed Screw Vent	Transfers chips from steaming vessel to impregnation vessel. Contains only steam and chips.
NCI 2g	940-3637	Water Supply	Diesel Engine Exhaust	Supplies emergency power for #3 well pump and distribution area. Rated at 235 Hp @ 2100 RPM or 598263 BTU/hr which is < 1E6 BTU/hr exemption. (Also exempt under NCI 2n.)
NCI 2h	BCT-0001	Boise Trucking	Waste Oil Burner	Waste oil burner has a maximum heat input of 350,000 Btu/hr which is less than the 0.5 MMBtu/hr exemption.
NCI 2p	940-3633	Water Supply	Chlorinator Room Exhaust Fan	Chlorinating capacity is 17.7 MMgal/day which is less than the 20 MMgal/day exemption limit.
NCI 2s	400-3638	Pulp Mill	Sulfuric Acid Storage Tank Vent	Sulfuric Acid Concentration is <99%
NCI 2s	471-3653	Chemical Preparation	Sodium Chlorate Storage Tank Vent	Inorganic Salt solution
NCI 2s	471-3654	Chemical Preparation	Sodium Chlorate Unloading Tank Vent	Inorganic Salt solution
NCI 2s	471-3655	Chemical Preparation	50% Caustic Tank Vent	Storage of Base Solution
NCI 2s	471-3658	Chemical Preparation	15% Caustic Soda Tank Hole	Storage of Base Solution
NCI 2s	471-3659	Chemical Preparation	Caustic Soda Tank Vent	Storage of Base Solution
NCI 2s	471-3660	Chemical Preparation	Sulfuric Acid Tank Vent	Sulfuric Acid Concentration is <99%
NCI 2s	471-3662	Chemical Preparation	50 % Caustic Soda Tank Vent	Storage of Base Solution
NCI 2s	471-3663	Chemical Preparation	15% Caustic Soda Tank Vent	Storage of Base Solution
NCI 2s	532-3634	Pink Liquor Making	Caustic Storage Tank Vent	Storage of Base Solution
NCI 2s	722-3631	#2 Pulp Dryer Additive System	Precipitated Calcium Carbonate Stack Vent	Inorganic salt solution.
NCI 2s	722-3632	#2 Pulp Dryer Additive System	Precipitated Calcium Carbonate Stack Vent	Inorganic salt solution.
NCI 2s	722-3633	#2 Pulp Dryer Additive System	Precipitated Calcium Carbonate Blending Tank Vent	Inorganic salt solution.

SIGNIFICANCE*	EQUIPMENT NO.	AREA NAME	SOURCE NAME	COMMENT
NCI 2z	410-3630	Digester Plant	M&D Washer Exhaust Fan	Chips are washed with water, contains no VOC.
NCI 2z	412-3638	NSSC Digester	Chip Washer Drum	Chips are washed with water, contains no VOC.
NCI 2z	422-3630	Brown Stock Screen Plant	Chip Washer Exhaust Fan	Chips are washed with water, contains no VOC.
NCI 2z	400-7180	Pulp Mill	Chip Washer Drum	Chips are washed with water, contains no VOC.
NCI 3c	940-3634	Water Supply	Chlorinator Lab Hood Exhaust Fan	Part of the water Chlorinating Facility.
NCI 3c	950-3645	Shops & Stores	A.A. Spero Photo	Lab photo spectrometer.
NCI 3c	950-3638	Shops & Stores	Lab Hood Exhaust Fan	
NCI 3c	950-3639	Shops & Stores	Lab Hood Exhaust Fan	
NCI 3c	950-3640	Shops & Stores	Lab Hood Exhaust Fan	
	721-3637	#1 Pulp Dryer Additive System	Rosin Size Tank Vent	Tank has been empty and out of use for 10 years.
	721-3638	# 1 Pulp Dryer Additive System	Rosin Size Tank Vent	Tank has been empty and out of use for ten years
	NA	#3 PM Coater, Coating Kitchen and Tanks		New installation - Ecology letter of insignificances

OPERATIONAL FLEXIBILITY

The Mill has requested maximum operational flexibility from the Department of Ecology. Operational flexibility includes production rate flexibility, fuel and raw materials substitution, and other common process changes. The Mill also requested that monitoring, record keeping, and reporting costs be kept to a level that is most cost effective, while still meeting all compliance demonstration and regulatory requirements.

PERMIT SHIELD

The Boise Wallula mill requested that a permit shield be granted for the renewal permit issued to the Mill.

The 2015 proposed Title V Air Operating Permit contains permit shield language pursuant to WAC 173-401-640(1) and 40 CFR Part 70.6(f).

PERMIT HISTORY AND CURRENT CHANGES

Permit History to Date:

The initial AOP was issued to Boise Wallula on December 30, 1998 and expired on December 30, 2003. A deliberate decision was made to let the initial permit carry forward after expiration to simplify the incorporation of new applicable federal standards which were not yet in effect at the permit expiration date. The first permit renewal was issued and became effective on 12/1/2004. The Support Document version 1/7/2005 corresponded to the first renewal of the Title V permit issued to Boise Cascade-Wallula. Boise Cascade subsequently transferred ownership of the Wallula mill to Boise White Paper, L.L.C.

Corrections for accuracy, which were considered administrative, were incorporated into the permit on 1/7/2005.

A permit modification effort began in 2007 to incorporate anticipated federal regulations referred to as Boiler MACT (40 CFR 63 Subpart DDDDD). The Mill's solid fuel boiler is subject to Boiler MACT because its design heat input is estimated at 362 MMBTU/hr which is greater than the proposed Boiler MACT heat input threshold of 10 MMBtu/hr. The Boiler MACT regulations were vacated by federal court in July 2008 and the permit modification effort was discontinued at that time. National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD) standards were promulgated again on March 21, 2011 per Federal Register 28662. On December 20, 2012, the U.S. EPA finalized a specific set of adjustment to the rules. These standards were effective upon publication in the Federal Register, Volume 78, dated January 31, 2013 (78 FR 1738). The Permittee will comply with the standards starting January 31, 2016 or the applicable standards at a later date if the rule (40 CFR 63 Subpart DDDDD) is again adjusted, or an extension is granted.

Permit Changes for the 2010 Renewal Permit:

Conditions D.5.a, E.3.a, K.3, M.2.b, M.2.c were modified to better define the regulatory context of the surrogate setpoints, indicating the flexible nature of the surrogates. The surrogate setpoint value is determined through source testing but can be changed as a result of subsequent source testing or performance testing. The source testing used to establish the initial surrogate setpoint is referred to as the initial performance testing (IPT). The permit wording identifies by date the specific performance test establishing a given surrogate setpoint and implies that this setpoint can be changed through subsequent performance testing. The flexibility of changing a surrogate setpoint is set forth in 40 CFR 63.453(n).

The NESHAPS reporting and recordkeeping requirements were spelled out further in Condition R. These requirements, as are other applicable requirements, do not have to be set forth in the permit to still be effective and applicable. The Mill suggested inclusion of key requirements in the 2010 Renewal.

Condition F was modified to reflect the completion of the Hogged Fuel Boiler over-fire combustion air project. Permit Condition F addressing the Hogged Fuel Boiler had previously been split between pre and post over-fire air requirements.

Condition 11 in the Facility-Wide General Requirements Section, previously reserved for future use, was used to include a credible evidence requirement. This was done at the request of local air authorities.

Administrative Change as of August 17, 2010:

An administrative change was made to permit condition L.1 to reflect changes to the applicable requirement. Order No. DE 95AQI-84 Modification 3 modified the PM emissions limit from the cyclone box clipping collection system baghouse. The corrected PM emissions estimate was brought to Ecology's attention by Boise Wallula as part of the overall corrugator modification project. Condition L.1 was changed to reflect the corrected PM limit of 11.64 tpy and to reflect the changed basis of authority for the limit.

Modification and Administrative Changes as of May 3, 2012:

Ecology modified the AOP to correct opacity regulations applicable to No. 2 and No. 3 Recovery Furnaces and to make administrative changes to correct regulation citation inaccuracies.

No. 2 and No. 3 Recovery Furnaces are identical. A review of applicable opacity requirements indicated the requirements should be the same for both units. The current opacity requirements in the AOP differ and this is believed to be due to different permitting history for each recovery furnace. Both can utilize the same types of fuel but oil was addressed only for No. 3 Recovery Furnace in the current AOP. The proposed permit modifications make the applicable requirements for opacity the same for both recovery furnaces.

The proposed permit modifications also reorganize the opacity requirements in a manner intended to clarify and streamline the AOP opacity requirements for No. 2 and No. 3 Recovery Furnaces.

Administrative changes were made to correct regulation citations. The permit included incorrectly cited federal standards due to permit condition renumbering since initial permit issuance. The standards themselves had not changed nor had the wording of the standards changed within the permit.

Permit Changes for the Current Renewal:

The bulk of the changes to the existing permit consisted of incorporation of new applicable requirements. Very minor administrative changes were made to correct citations, spelling, and fix cross referencing within the body of the permit.

The new federal applicable requirements incorporated into this permit include Reciprocating Internal Combustion Engine (RICE) standards (40 CFR 63 Subpart ZZZZ and 40 CFR 60 Subpart JJJJ). Also incorporated into this permit are the applicable requirements of Boiler MACT Subpart DDDDD. The compliance date for the new Boiler MACT requirements was January 31, 2016.

Condition S, which provides additional discussion of NESHAPS reporting and recordkeeping requirements, has been expanded to reference the requirements of additional NESHAP source categories, and it has been simplified to avoid confusion when describing the numerous requirements currently in effect and scheduled to go into effect.

Greenhouse gas reporting to EPA (40 CFR § 98) is not considered a federally applicable requirements under Title V and does not need to be included in the Title V permit (see <http://www.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf>). WAC 173-441 was adopted by Ecology on December 1, 2010 and became effective on January 1, 2011. This regulation applies to the facility because the facility emits at least 10,000 metric tons of CO₂e of greenhouse gases per year. WAC 173-441 requires annual GHG inventories with reports due no later than March 31 of the following year for facilities that are also subject to 40 CFR 98. Under WAC 173-441, annual emissions shall be reported to Ecology beginning in calendar year 2012. This regulation is implemented in its entirety by Ecology and is considered an applicable state-only requirement under the Title V program; as such, it is included as item 32 in the Facility-Wide General Requirements Section of the AOP for the facility.

During the 2014 EPA audit of Ecology's implementation of the Title V Program, EPA noted that Ecology's permits had VOC limits but did not specify the basis for the VOC value (VOC as carbon, propane, ethylene, etc.). EPA expressed the interest in permits specifying both the limit and the compliance method. The state-only Permit Condition 33, under Facility-Wide General Requirements provides the linkage through the regulations which stipulate how emissions are calculated. Permit Condition 33 subheading titled "Emissions Calculations" refers to the GHG regulation WAC 173-441.

Statement of Basis for AOP No 0003697

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Boise White Paper L.L.C.

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WAC 173-441-050(4) requires the use of calculation methodologies specified in the relevant sections of WAC 173-441 which is WAC 173-441 120 Table 120-1. For the pulp and paper sources this table incorporates methodology set forth in 40 CFR Part 98 Subpart AA. 40 CFR Part 98 Subpart AA sets forth the emission calculation methodology incorporated by a sequence of references in this permit.

PUBLIC PARTICIPATION AND RESPONSE TO COMMENTS

The first 30-day public comment period for the renewal of this Boise, Wallula AOP took place October 30, 2015 through November 30, 2015. Comments were received only from EPA. The comments are presented below along with Ecology's response. The first 45-day EPA review of the proposed permit began March 29, 2016 and ended May 12, 2016.

As a result of trying to resolve regulatory changes and EPA concerns expressed during and since the public comment period, Ecology decided to conduct a second 30-day public comment period. The second public comment period took place December 9, 2016 through January 9, 2017.

EPA commented again and focused on how CAM was reflected in the permit. Ecology modified its approach to reflecting CAM in the AOP and a third comment took place October 27 through November 30, 2017.

Comments received during the October 30, 2015 through November 30, 2015 public comment period are presented below:

Ecology Comment:

Ecology has included an additional CO monitoring option set forth in Condition F9 per the request of the Permittee. The monitoring option included is required by Boiler MACT which is incorporated into this permit. The option allows for the use of a continuous emission monitoring device (CEMs) for monitoring CO emissions. The permit had required periodic stack testing for CO using EPA Method 10/10B. The use of the CEM is considered no less restrictive and gives virtually real time compliance indication.

Ecology also amended Conditions N.3 and P.1 to remove the phrase, "not including periods of startup, shutdown, and malfunction" to accurately reflect the federal wording of the underlying applicable requirement. The referenced wording had been removed from the federal regulation per court appeal resolution but this permit renewal inadvertently retained the previous wording through the 30-day public comment period.

Ecology has amended Conditions F12 and F20. Initially the surrogate setpoints were set forth as separate monitoring of voltage and current. The new single setpoint is secondary power (kVA) which collectively reflects current and voltage. This was done per Boise's request as allowed as a compliance limit choice under the applicable requirement.

Comments

EPA (Doug Hardesty) submitted the comment below concerning the draft AOP. The comment was submitted by email on 11/24/2015.

EPA Comment 1:

I see that the Boise White Paper, Wallula, Title V permit is out for public comment. It is my understanding that the Washington Attorney General's office opined that Ecology cannot add MACT requirements to Title V permits until they have been adopted, and that Ecology has not yet adopted the Boiler MACT (40 CFR Part 63, Subpart DDDDD). That explains why the Boiler MACT was not included in the Boise White Paper draft permit.

It is EPA's position that you cannot issue a Title V permit that does not include all of the applicable requirements. Unfortunately, you will have to add any missing applicable requirements once adopted and repeat the public review process before sending a proposed permit to EPA.

It is also my understanding that Ecology is considering how to get the MACT adoptions up to date. Hopefully that will get done without delaying this permit very long. Letting the adoption staff know that your permit is being delayed until the Boiler MACT is adopted, might help them prioritize the adoption effort.

Ecology Response 1:

Ecology adopted Boiler MACT on July 1, 2016 and has included the applicable Boiler MACT requirements with this permit renewal effort.

Comments

EPA (Doug Hardesty) submitted the comments below concerning the draft AOP Support Document. The comments were submitted by email on 11/24/2015.

EPA Comment 2:

On page 11, in the second paragraph of the CAM section, both sentences are incorrect. Emission units are not exempt for the reasons stated, emission limits that apply to emission units that meet the CAM applicability criteria are. You state this correctly in the middle of page 12 where you list the two exemptions considered.

Ecology Response 2:

The referenced paragraph on page 11 has been removed. Ecology will rely on the correctly stated wording on page 12 to address CAM exemptions.

EPA Comment 3:

The paragraph before the two bullets of CAM exemptions in the middle of page 12 is also misleading. A negative finding of any of the three applicability criteria means CAM does not apply to that emission limit, not that specific regulated pollutant.

For example, a source may be not subject to CAM for one PM emission limit, but subject to CAM for another PM emission limit.

Ecology Response 3:

Ecology has attempted to rewrite the referenced wording to clearly conform to EPA's comment intent.

EPA Comment 4:

The first paragraph after the two bullets of CAM exemptions in the middle of page 12 is also incorrect. Where an emission unit is subject to an NSPS proposed after November 15, 1990 (for example), the emission limits in that NSPS are exempt from CAM, not the emission unit that is subject to NSPS if that emission unit is still subject to other non-NSPS limits.

Ecology Response 4:

Ecology has attempted to rewrite the referenced wording to clearly conform to EPA's comment intent.

EPA Comment 5:

The emission limit streamlining discussion near the bottom of page 12 makes sense, except the permit must be written to clarify what the statement of basis implies. Either you need to repeat the monitoring for each limit or you can streamline the limits. To streamline, the citations for both limits can be listed for the more stringent limit while the less stringent limit is left out of the permit entirely and the statement of basis explains it all. In streamlining this way, the permit and statement of basis are consistent in that an exceedance of the most stringent requirement is an exceedance of all the less stringent requirements. Be sure the permittee understands how streamlined monitoring data will be used for compliance purposes because streamlining should be voluntary. We rarely see streamlining like this because it is easy enough to apply the same type monitoring to each of the limits, so compliance with each of the limits can be individually determined. Omitting monitoring requirements to shorten the permit length is not a good reason to streamline.

Ecology Response 5:

Ecology considers the existing proposed wording to closely conform with the intent of the comment. Where possible, the monitoring requirement has been repeated. This is not always possible because the basis of authority for the monitoring may not be applicable for some limits. The AOP cannot create new applicable requirements or attempt to impose inapplicable monitoring requirements.

EPA Comment 6:

The last paragraph on page 12 is misleading to say any “continuous monitoring requirement” prescribed by the permit is exempt. Only monitoring systems that are continuous compliance determination systems are exempt from CAM. That means that compliance is not just indicated, but determined, by the continuous monitoring system providing data either in units of the standard or correlated directly with the compliance limit consistent with the averaging period.

Ecology Response 6:

Ecology has attempted to rewrite the referenced wording to clearly conform to EPA’s comment intent.

Ecology has also changed the CAM evaluation section to show that continuous compliance is determined by the CMS.

EPA Comment 7:

Opacity, discussed on page 13, is considered a surrogate for particulate matter limits. If an emission unit is subject to CAM for PM emissions, then any applicable opacity limits are subject to CAM if they are not exempt. CAM applicability must be documented for every emission unit meeting CAM applicability for PM, PM10 or PM2.5 that is subject to an opacity limit. The discussion near the bottom of page 13 discusses testing planned for June 2015; this discussion should be updated to reflect the testing that was done or reflect new future test dates.

Ecology Response 7:

The discussion EPA is referring to within the Fact Sheet is generic. MACT itself often references opacity as a surrogate monitoring parameter for particulate. Ecology has reviewed the monitoring within the permit. Surrogate monitoring for particulate and opacity was revisited for No. 3 Recovery Furnace and the Lime Kiln as discussed in revised wording included in Permit Conditions B.3 and C.7.a. Other than these two units, the use of opacity as an ongoing surrogate for PM or HAPs is allowed by the referenced MACT requirement which exempts CAM applicability. Tables 3 and 4 within this Support Document summarize the CAM applicability determination for the mill’s emission units. Table 2 has been modified to better summarize the CAM review determinations made in this permit renewal effort. The testing referred to on page 13 has been completed and the results incorporated into the AOP and fact sheet. The fact sheet has been adjusted accordingly.

EPA Comment 8:

Table 2 presents CAM applicability for each emission unit, but presents it by pollutant rather than by emission limit. The table should discuss each emission limit for each pollutant for which each emission unit is subject to CAM. Presenting the answer to each of the three applicability questions would enhance the table nicely.

For example, if the No 2 recovery furnace meets the three criteria for CAM applicability for PM, the table should discuss whether each PM (and surrogate) emission limit is subject to CAM. There could easily be several lines in the table addressing PM applicability for each emission unit. In most cases, one line should be for opacity. Where the table notes that the control device is not necessary for compliance or that there are no applicable emission limits for a particular pollutant, the table is adequate unless particular assumptions (e.g. whether an emission unit meets a limit without an existing control device) have not been documented. Where an emission unit does not meet the pre-control emission threshold, the statement of basis should document that analysis.

Ecology Response 8:

Table 3 and Table 4 have been modified to better summarize CAM review determinations made in this permit renewal effort. Ecology notes that the fact sheets themselves are not legally binding documents. Table 2 is a voluntary inclusion intended as an aid. Each permit writer and permit reviewer may have differing perspectives on how best to present information.

EPA Comment 9:

I can provide more detailed comments when additional explanations about CAM applicability are available.

Ecology Response 9:

Comment noted.

Comments received during EPA's second 45-day review period are presented below:

EPA (Doug Hardesty) sent the following e-mail, received on 6/7/16, concerning the Boise AOP Permit and Support Document.

EPA Comment 10:

I finally had a chance to look at your CAM analysis for the Boise White Paper permit that was retracted on May 5 to allow time for Ecology to update the MACT adoptions. I am including my previous comments on CAM in the email below as many of those comments still apply. After reading this, if you would like to discuss CAM in more detail, please let me know. I'd also be willing to review your next CAM analysis prior to seeing the next proposed permit if that helps.

While you corrected some of the general statements in the statement of basis text about CAM, Table 2, documenting your CAM applicability decisions, has not addressed all of the applicable requirements and may be relying upon incorrect assumptions.

As noted in my second and third comments below, CAM applicability must be evaluated for each applicable requirement that applies to a pollutant-specific control device.

If an emission unit is subject to a MACT standard as well as a SIP requirement, the emission unit could still be subject to CAM for the SIP requirement. That is the case even if the permit requires the same monitoring to assure compliance for both applicable requirements. Using the same monitoring for both emission units to satisfy CAM does not exempt the SIP requirement from CAM. An example is permit condition A.1.a which appears to be both a MACT standard as well as a PSD permit requirement. While the MACT standard is exempt (as noted in Table 2), the PSD permit requirement is not and should be addressed separately in Table 2. To that end, if you provide copies of the referenced PSD permits and their amendments, that will help facilitate our review.

Streamlining requirements in the permit by identifying the most stringent requirement or monitoring and then referring other, less stringent, monitoring requirements to that requirement does not exempt the less stringent requirements from CAM. Using the same monitoring for both requirements is acceptable as long as the monitoring for the emission unit subject to CAM meets CAM.

As noted in my sixth comment below, opacity is an applicable requirement that must be addressed in CAM. If an emission unit has a particulate control device and pre-control particulate emissions greater than 100 tons per year, CAM applies to the opacity limit unless that limit is exempt for some other reason. Your statement near the top of page 13 in the statement of basis that “opacity has no mass so applicability of CAM for opacity is not appropriate” is incorrect. The discussion that follows on page 13 regarding opacity compliance is good but does not belong in the CAM applicability analysis and does not justify exempting opacity from CAM.

Table 2 in the statement of basis does not indicate whether there are controls, one of the key questions regarding CAM applicability. The only place I could find a description of controls was in a table on page 25 of the statement of basis, but that list did not look complete – there were no controls listed for the hogged fuel fired boiler. I recommend adding a column describing the control device(s) and which pollutant(s) the device(s) control. That is a good first step in the CAM applicability decision tree.

In Table 2, several CAM applicability explanations state “subject to requirements of Part 70 permit specifying a continuous compliance determination method” for emission units that do not have continuous compliance determination monitoring. I’d like to discuss this to understand your reasoning. Also in Table 2, where the explanation of the CAM decision states “pre-control emissions of specific pollutant would not classify as major source”, there should be emission-related documentation to support that claim in the statement of basis.

Table 1 in the statement of basis presents a summary of the actual to potential emissions for the plant. It includes a column labelled CAM Requirement, with “no” listed for each pollutant. As you know, CAM applicability is determined on the emission unit level basis. It is not clear what the purpose is of the CAM column in this table?

The permit cites the CAM regulation as an authority for four different emission units: C.7.a, E.3.a, J.2 and L.1. Did you intent those emission units to be subject to CAM in Table 2 of the statement of basis?

Assuming you will identify several emission units subject to CAM when you re-examine CAM applicability, you will then need a separate analysis in the statement of basis that explains what CAM is – that is, the monitoring and other requirements being added to the permit to meet the CAM requirements in Part 64. While monitoring that already exists in the permit might satisfy CAM for some emission units and applicable requirements, the statement of basis should provide your justification for those decisions.

Once you have re-examined CAM applicability, depending on the outcome, you may need to revise your responses to my original comments in the public participation section of the statement of basis.

I believe Judy Schwieters in your office is working on a CAM guidance document. She presented her approach for making CAM applicability determinations at the 2014 Region 10 Title V Workshop held in Spokane and seemed to have some good ideas. She could be a good resource for examples of text and a table that efficiently documents CAM applicability.

Please let me know if you like to discuss CAM in more details.

Ecology Response 10:

Ecology has worked to enhance the CAM evaluation and clarify the decisions made in evaluating CAM applicability. The Support Document has been enhanced and worked through both by Ecology and the Permittee to try and best address EPA's concerns.

Comments received during the October 27 through November 30, 2017 public comment period are presented below:

EPA Comment

Thanks for sharing the draft Part 70 permit for the Boise White Paper Wallula facility again. As we discussed before the comment period began, I am providing my comments on the draft regarding the compliance assurance monitoring requirements that apply. Most of my comments suggest better documentation of the CAM analysis which concludes which pollutant specific emission units are subject to CAM and what the resulting compliance assurance monitoring should be. Without clear documentation, it is impossible to conclude whether the permit meets 40 CFR Parts 70 or 64.

Statement of Basis:

1. On page 12, under the subtitle Plan Content, the citation in the first sentence should just be 40 CFR 64, rather than 64.3.

Ecology Response: The suggested change has been made.

2. On page 14, Table 3 should note that the control for the lime kiln is a wet scrubber (not an ESP). I also assume that the caustic addition controls both SO₂ and TRS. If that is correct, the third column should say “yes” and additional analysis should be done to determine applicability. If the caustic addition is not needed to comply with the TRS emission limit, that should be explained. There is a chance that the precontrol TRS emissions do not exceed the CAM threshold. Whether the caustic addition is needed for TRS and whether the pre-control emissions exceed the CAM threshold can be explained in the CAM Applicability/Monitoring Details section of the statement of basis, on page 25, where the precontrol SO₂ emissions are discussed.

Ecology Response: The correction has been made in Table 3. Caustic is added to control SO₂ but not TRS as the lime kiln itself thermally oxidizes introduced TRS. There is no additional control device for TRS as the oxidized result is the transformation of TRS into SO₂ in the lime kiln.

3. In Table 4, permit condition A.1.a is missing the NSPS emission limit, 40 CFR 60.282(a)(1)(i). Adding that limit should not change anything.

Ecology Response: The suggested change has been made.

4. In Table 4, permit conditions A.3.a, A.3.b, B.2.a and B.2.b do not require continuous compliance determination monitoring (column 6 should say “no”). Permit conditions A.3.b and B.2.b is still exempt from CAM because the limit was proposed after 1990. I suggest looking at the revisions to NSPS subpart BB to see whether the monitoring sections have been revised since 1990. If those sections have been revised, such that CAM-level monitoring was added, permit conditions A.3.a and B.2.a are also exempt (and column 5 would say “yes”). If permit conditions A.3.a and B.2.a are not exempt, the opacity limits should be further evaluated for CAM.

Ecology Response: Table 4 has been updated as indicated for Permit Conditions A.3.b. and B.3.b. Permit Conditions A.3.a and B.2.a have been clarified in the permit to indicate that EPA Method 9 is the reference test method for the performance test for opacity and that the facility must monitor continuously with a COMS. Therefore, the facility does have a continuous compliance determination method for the opacity standard under 40 CFR Part 60, Subpart BB.

5. In Table 4, permit condition C.1.b should be 40 CFR 60.282(a)(3). This looks like a typo.

Ecology Response: The suggested change has been made.

6. On page 22, before the section on the #2 recovery boiler, you could note that the additional information you will be adding regarding my comment #2 above.

Ecology Response: Comment noted but not implemented. See Response to Comment 2, above.

7. On page 22, the #2 recovery boiler PM/opacity section should:

- a. Use emission test data to show that the 20% opacity limit (parameter range) will assure that each applicable limit will be met.
- b. Demonstrate which limit is the most stringent if relating opacity to only one applicable emission limit.

Ecology Response: Condition A.1.a sets the PM/HAP limit at 0.044 gr/dscf and EPA's own regulation (40 CFR 63.864(k)(1)(i)) cites opacity at 20% as the ongoing monitoring threshold for initiating corrective action. Condition A.1.a is a more restrictive limit than that set forth in Condition A.1.b (0.1 gr/dscf). Conditions A.2.a, b, and c are mass limits for which compliance is demonstrated using the source test results required by Condition A.1.a. Based on the fact that facility has maintained compliance with the mass limits previously, Ecology believes that compliance assurance monitoring associated with Condition A.1.a will continue to adequately assure compliance with the subsequent PM limitations.

8. On page 23, the #3 recovery boiler PM/opacity section should:

- a. Demonstrate that the grain loading limit is the most restrictive limit; if that is not possible, the opacity thresholds should be set for each applicable emission limit to assure compliance.

Ecology Response: Wording has been added to Condition B.1.a clarifying that the results from the most recent source test will be used in determining mass loading. Condition B.1.a includes the most restrictive short term limit (0.021 gr/dscf at 8% O₂), which is more restrictive than the short term limits set forth in Condition B.1.b (0.044 gr/dscf) and B.1.c (0.10 gr/dscf @ 8% O₂). Condition B.1.a also includes a mass limit for which compliance is demonstrated using the source test results required by Condition B.1.a. Based on the fact that facility has maintained compliance with the mass limits previously, Ecology believes that compliance assurance monitoring associated with Condition B.1.a will continue to adequately assure compliance with all of the PM limitations.

9. On page 24, the lime kiln PM/opacity section should:
- Present the emission test data that shows that the scrubber parameter thresholds will assure that each applicable limit (including opacity) will be met.
 - Demonstrate which limit is the most stringent if relating the scrubber parameters to only one applicable emission limit.

Ecology Response: As indicated in Permit Condition C.7.a., the scrubber parameter thresholds are based on the performance test results from June 26-28, 2012. Please refer to the “Discussion on Specific Permit Conditions”, Section III (Page 58) of this document for the measured emissions from that performance test. Condition C.1.e is a mass limit for which compliance is demonstrated using the source test results required by Condition C.1.c. Based on the fact that facility has maintained compliance with the mass limits previously, Ecology believes that compliance assurance monitoring associated with Condition C.7.a will continue to adequately assure compliance with the subsequent PM limitations.

With respect to opacity, Condition C.2.a has been modified to require the mill to conduct an EPA Method 9 test to confirm the validity of relying on the surrogate parameters set forth in Condition C.7.a for ongoing compliance.

10. On page 25, a section similar to the lime kiln sulfur dioxide section could be added to address TRS – whether the controls are needed and whether the pre-control TRS emissions meet the CAM applicability threshold.

Ecology Response: Table 3 summarizes the conditions that must be met for CAM applicability. As discussed in Response to Comment 2 above, there is no control device added to the kiln to address TRS emissions.

11. On page 25, the #2 smelt dissolving tank PM/opacity section should:
- Present emission test data that shows that the scrubber parameter thresholds will assure that each applicable limit (including opacity) will be met or add different monitoring approach for the other limits.
 - Demonstrate which limit is the most stringent if relating the scrubber parameters to only one applicable emission limit.

Ecology Response: As indicated in Permit Condition D.5.a, the scrubber parameter thresholds were established from the initial performance test (IPT) that was conducted on July 2, 2004. A summary of the test results showing the relationship between the surrogate setpoints and the most restrictive limit has been included in Table 13 of this document. Refer to the discussion about the #2 smelt dissolving tank on page 66 for this table. Condition D.2 is a mass limit for which compliance is demonstrated using the source test

results required by Condition D.1.a. Based on the fact that facility has maintained compliance with the mass limits previously, Ecology believes that compliance assurance monitoring associated with Condition D.5.a will continue to adequately assure compliance with the subsequent PM limitations.

A requirement has been included into Condition D.3 affirming that opacity will be well below the 35% limit if the surrogate setpoints defined in Condition D.5.a are maintained. Ecology notes that currently the #2 recovery furnace and #2 smelt tank are in layup and not in current use.

12. On page 26, the #3 smelt dissolving tank PM/opacity section should:

- a. Present emission test data that shows that the scrubber parameter thresholds will assure that the opacity limit will be met or add different monitoring approach for opacity.
- b. Demonstrate which limit is the most stringent if relating the scrubber parameters to only one applicable emission limit.

Ecology Response: As stated in Permit Condition E.1.a, the scrubber parameter thresholds were established with the IPT that was conducted on June 15, 2004. The results of that IPT are presented in Table 5 on page 27 of this document. The results of the test indicate that the facility is in compliance with both of the short term PM limits associated with #3 smelt dissolving tank.

A requirement has been included into Condition E.2 affirming that opacity will be well below the 35% limit if the surrogate setpoints defined in Condition E.3.a are maintained. Remember that currently the #2 recovery furnace and #2 smelt tank are in layup and not in current use.

13. On page 27, the hogged fuel boiler PM/opacity section should:

- a. Demonstrate which limit is the most stringent if relating the control device parameters to only one applicable emission limit.

Ecology Response: The PM limit of 0.026 gr/dscf presented in Conditions F1 is the most restrictive short term limit. Conditions F.3 and F.4 are mass limits for which compliance is demonstrated using the source test results required by Condition F.1. Based on the fact that facility has maintained compliance with the mass limits previously, Ecology believes that compliance assurance monitoring associated with Condition F.12 will continue to adequately assure compliance with the subsequent PM limitations.

14. On page 28, the cyclone box PM/opacity section should:

a. Identify a monitoring approach that does not rely on pressure drop of the baghouse because pressure drop is not an adequate parameter for assuring compliance with a particulate emission limit. Baghouse leak detectors or visible emissions are alternative options you should consider.

b. Present emission test data that shows that the selected parameter and range will assure compliance with the applicable particulate and opacity limits.

Ecology Response: Ecology revisited the vendor provided information on baghouse operation. Pressure drop as a compliance indicator is the parameter proposed by the vendor. Ecology has deferred to the vendor expertise. An expanded explanation of the nature of the boxplant operation has been added to the Support Document. The boxplant operation does not involve combustion. Emissions collection goes through both a cyclone and baghouse. There is no practical reason to go further in evaluating opacity under existing mill scenario.

15. In general, when you do not have emission test data to establish operational parameters that will assure compliance, the permit should require the appropriate testing and establishment of compliance assurance monitoring.

Ecology Response: Ecology notes the comment and has included additional monitoring for some emission units, as discussed in the response to comments above.

Boise White Paper, L.L.C. comments

During our meeting at your office last month, we indicated that we would likely be submitting a comment regarding the CAM applicability determination. After further review of the EPA comments, your responses to those comments, and the final incorporation into the permit, we feel that there is no need to comment further. We appreciate your efforts in working through the CAM comments and finding a resolution that works for all parties.

We do have a few minor comments for the Statement of Basis as noted below:

16. Table 2 Facility Information, Page 6 of 115:

Responsible Official: Sean Krajnik – Mill Manager

PO Box 138

Wallula, WA 99363

Replace with Bert Brown

17. Ecology Response 7, Page 106 of 115

“Table 2 within this Support Document summarizes the CAM applicability determination for the mill’s emission units. Table 2 has been modified to better summarize the CAM review determinations made in this permit renewal effort. The testing referred to on page 13 has been completed and the results incorporated into the AOP and fact sheet. The fact sheet has been adjusted accordingly.”

We believe this should reference Tables 3 and 4 where the potential CAM applicability is listed and then exemptions are applied, respectively.

18. Ecology Response 8, Page 107 of 115:

Ecology has modified Table 2 to better clarify the CAM review determinations made in this permit renewal effort. Ecology notes that the fact sheets themselves are not legally binding documents. Table 2 is a voluntary inclusion intended as an aid. Each permit writer and permit reviewer may have differing perspectives on how best to present information.

Same comment as above. Suggest wording, “Table 3 and Table 4 have been modified to better summarize CAM review determinations made in this permit renewal effort.”

Ecology Response to Comments 16 through 18: All the suggested changes or corrections submitted by Boise have been made.

APPENDIX A - EXISTING ORDERS AND PERMITS

All of the following past permits and regulatory orders are applicable (included).

Order 1614-AQ04

Order DE 96-AQ-I078

PSD-X-77-04

PSD-95-04

PSD-01-07

All of the following past permits and regulatory orders are inapplicable (not included).

Regulatory Order 36-8

DE 78-112

DE 78-120

DE 88-112

DE 92-AQI045

DE 95-AQI053 Amendment 1

DE 95AQI055

DE 95AQI084 Modification 1

DE 96-AQI013

Regulatory Order/NOC 7847, 8/17/10

APPENDIX B - HISTORICAL EMISSION TESTING RESULTS

A summary of historical PM emissions is presented below. The entire emission history is not presented here for the sake of brevity. PM emissions are considered representative of overall mill environmental performance. There is a break in summarized history as there were several permit cycles when the emissions history was not updated. The earliest emissions are retained for perspective. A reduction in required testing frequency was initiated years ago as a performance incentive. The No. 2 Recovery Furnace and No. 2 Smelt Tank were idled in December 2012 to accommodate reduced pulp mill production rates. They have remained idle since then. They may be brought on-line in the future if needed, at which time source testing would resume.

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
No. 2 Recovery Furnace	1	0.004	0.014	0.003	down	down
	2	0.010	0.015		down	down
	3	0.011	0.014		down	down
	4	Mill Down	0.011		down	down
	5	0.033	(a)		down	down
	6	0.012	(a)		down	down
	7	0.012	0.018		down	down
	8	0.015	(a)		down	down
	9	0.031	(a)		down	down
	10	0.027	0.014		down	down
	11	0.026	(a)		down	down
	12	0.027	(a)		down	down
		Permit Limit: 0.044 gr/dscf				

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
No. 3 Recovery Furnace	1	0.006	0.004	0.002	0.002	0.003
	2	0.005	0.005			
	3	0.009	0.005			
	4	1995	0.011			
	5	0.006	0.013			
	6	0.014	(a)			
	7	0.015	0.003			
	8	0.015	(a)			
	9	0.011	(a)			
	10	0.006	0.004			
	11	0.005	(a)			
	12	0.005	(a)			
		Permit Limit: 0.1 gr/dscf				

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
No. 2 Dissolver Tank Vent	1	0.040	(a)		down	down
	2	0.016	0.100		down	down
	3	0.110	(a)		down	down
	4	Mill Down	(a)		down	down
	5	0.060	0.090		down	down
	6	0.100	(a)		down	down
	7	0.080	0.190		down	down
	8	0.050	0.150	.12	down	down
	9	0.090	0.190		down	down
	10	0.080	0.160		down	down
	11	0.110	0.120		down	down
	12	(a)	0.110		down	down
		Permit Limit: 0.2 lbs/ton Black Liquor Solids (BLS) Fired				

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
No. 3 Dissolver Tank Vent	1	0.030	0.150			
	2	0.060	0.110			
	3	0.090	0.110			
	4	Mill Down	(a)			
	5	0.070	0.140			
	6	0.200	(a)			
	7	0.260	0.190			
	8	0.120	(a)		0.155	0.16
	9	0.110	(a)			
	10	0.120	0.190			
	11	0.080	(a)	0.062		
	12	0.100	(a)			
		Permit Limit: 0.3 lbs/ton Black Liquor Solids (BLS) Fired				

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
Lime Kiln	1	0.026	0.035	.038		
	2	0.021	0.024	.045	0.022	0.013
	3	0.030	0.032	.041		
	4	Mill Down	0.045	.048		
	5	0.036	0.041	.029		
	6	0.037	(a)	.031		
	7	0.030	0.016			
	8	0.047	(a)	.022		

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
	9	0.060	(a)			
	10	0.033	0.038			
	11	0.052	(a)			
	12	0.046	(a)			
		Permit Limit: 0.067 gr/dscf (Gas), 0.12 gr/dscf (Oil)				

Source	Month	Particulate -- gr/dscf				
		1996	1997	2012	2013	2014
Hog Fuel Boiler	1	0.020	.0030			
	2	0.020	0.030	0.008		0.01
	3	0.020	0.033			
	4	Mill Down	0.030			
	5	0.030	0.030			
	6	0.030	0.040		0.009	
	7	0.030	0.040			
	8	0.020	0.040			
	9	0.020	0.040		0.011	
	10	0.030	0.030			
	11	0.030	0.040		0.011	
	12	0.030	0.030			
		Permit Limit: 0.04 gr/dscf				

See Appendix G of the AOP which summarizes source testing frequency as function of performance.

Monitoring is required only when emission unit is operating.

If monitored emissions are equal to or less than 75% of the emission limitation for any six consecutive months, emissions will be monitored by three 1-hour test per quarter and reported quarterly.

If monitored emissions are less than or equal to 65% of the emission limitation for any four consecutive quarters, emissions will be monitored by three 1-hour tests per year and reported annually.

If monitored emissions are less than or equal to 50% of the emission limitation for any four consecutive quarters, emissions may be monitored by one 1-hour test per year and reported annually.

Three 1-hour tests averaging less than or equal to 50% of the limitation qualify for the 1-hour annual test per year option.

The Permittee shall conduct source testing within 105 days between two consecutive quarterly tests. If monitored emissions exceed the current threshold, the monitoring frequency will revert to the previous frequency. [PSD-X-77-04, WAC 173-401-615, or underlying applicable air order as basis for testing frequency flexibility]

APPENDIX C - PLANT SCHEMATIC

