

DEPARTMENT OF
ECOLOGY
State of Washington

DRAFT STATEMENT OF BASIS FOR AIR OPERATING PERMIT NUMBER 08AQE-252
BOISE BUILDING SOLUTIONS MANUFACTURING, LLC, KETTLE FALLS PLYWOOD FACILITY
STEVENS COUNTY, WA

ISSUE DATE

EFFECTIVE DATE

EXPIRATION DATE.....

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1.0 LIST OF ABBREVIATIONS

AOP	Air Operating Permit
BACT	Best Available Control Technology
BTU	British Thermal Units
°C	Degrees Celsius
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMS	Continuous Opacity Monitoring System
COC	Condensable Organic Compounds
dscf	Dry Standard Cubic Foot
dscf/m	Dry Standard Cubic Foot per minute
Ecology	Washington State Department of Ecology
E.I.T.	Engineer in Training
EPA	United States Environmental Protection Agency
ESP	Electrostatic Precipitator
°F	Degrees Fahrenheit
FBC	Fluid Bed Combustor
FCAA	Federal Clean Air Act
ft ³	Cubic foot
gr/dscf	Grains per dry standard cubic foot
hr	Hour
lb	Pound
MMBtu	Million British Thermal Units
MRRR	Monitoring, Recordkeeping, and Reporting Requirement
NOC	Notice of Construction
NO _x	Oxides of Nitrogen
NSPS	New Source Performance Standard
O ₂	Oxygen
O&M	Operation & Maintenance
P.E.	Professional Engineer
PM	Particulate Matter
PM-10	Particulate Matter with aerodynamic diameter ≤ 10 micrometers
ppm	Parts per million
PSD	Prevention of Significant Deterioration
PSEU	Pollutant Specific Emission Units
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
RM	EPA Reference Method from 40 CFR Part 60, Appendix A
RTCO	Regenerative Thermal/Catalytic Oxidizer
scfm	Standard Cubic Feet per Minute
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide

SSM	Startup, Shutdown and Malfunction
T	Temperature
TAP	Toxic Air Pollutant
TPD	Tons Per Day
TPY	Tons Per Year
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
w%	Percentage by Weight
yr	Year

2.0 INTRODUCTION

This statement of basis summarizes the legal and factual basis for the air operating permit issued by the Washington State Department of Ecology. Unlike the air operating permit, this document is not legally enforceable. This statement of basis summarizes the emitting processes, 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.

3.0 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 the Department of Ecology and Local Air Agencies with the necessary authority to implement a state-wide operating permit program. The law requires all sources with a potential to emit of 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.

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.

4.0 FACILITY INFORMATION

- 4.1 Company Name----- Boise Building Solutions Manufacturing, LLC
- 4.2 Facility Name ----- Kettle Falls Plywood Facility
- 4.3 Unified Business Identification Number ----- WA602-429-647
- 4.4 Facility Address----- 1274 S. Boise Rd., Kettle Falls WA, 99141

4.5 Facility Contact ----- Jennifer Wasley, Regional Environmental Engineer

4.6 Facility Contact Phone Number -----(509)738-3219

5.0 BASIS FOR TITLE V APPLICABILITY

WAC 173-401-200(19)(a) and (b) identify any source that emits or has the potential to emit one hundred tpy or more of any air pollutant, 10 tons of any HAP, or 25 tpy of any combination of HAP listed in §112(b) of the FCAA as a major source. Major sources are required to obtain Title V permits under 173-401-300(1)(a)(i).

Boise Building Solutions Manufacturing, LLC (Boise), Kettle Falls Plywood Facility emits or has the potential to emit carbon monoxide (CO) and oxides of nitrogen (NO_x) in excess of 100 tons per year.

Potential to emit by emission unit in tons per year is shown below.

	PM	PM-10	CO	NO _x	VOC _(as C)	SO ₂
HFB	9.5 ⁽³⁾ 95 ^{(3)*}	9.5 ⁽³⁾	924 ⁽³⁾	94 ⁽¹⁾	3.1 ⁽¹⁾	4.8 ⁽¹⁾
FBC/Veneer dryers	31.7 ⁽²⁾ 317 ^{(2)*}	31.7 ⁽²⁾	106 ⁽²⁾	21.7 ⁽²⁾	63 ⁽²⁾	1.2 ⁽²⁾
BH#1	0.2 ⁽⁴⁾					
BH#2	0.2 ⁽⁴⁾					
Plywood Presses	5 ⁽⁴⁾				8 ⁽⁴⁾	

⁽¹⁾ AP-42

⁽²⁾ 2009 stack test

⁽³⁾ 2004 stack test

⁽⁴⁾ Title V application

* Pre-control emissions for which CAM is applicable

6.0 ATTAINMENT CLASSIFICATION

The facility is located in an area classified as in attainment for all criteria pollutants as of July 2009

7.0 SOURCE DESCRIPTION

7.1 The facility consists of a plywood plant as well as a small log sawmill. The various components of the facility are discussed below:

7.1.1 *The Sawmill* – The sawmill is located on the west side of the property. Logs are delivered to the infeed of the small log mill debarker by loader. The small log mill debarker has a hydraulic log handler that loads the logs onto a mechanical conveyor and then strips off the bark. The bark drops to a conveyor leading to the small log mill hog which grinds up the bark before it is mechanically

conveyed via bucket conveyor to a fuel surge bin. The hog fuel in the surge bin is then pneumatically conveyed to the Fluid Bed Combustor (FBC) fuel silos. Debarked logs are transferred to the sawmill and go through primary and secondary log breakdown (i.e. the canter twin saw, gang saw, and edger) producing rough cut green lumber. The green scrap wood and sawdust drop to a conveyor leading to a small log mill chipper. The wood chips are then mechanically conveyed to a surge bin followed by a screen that separates out the fines (sawdust).

Green sawdust can be mechanically transferred back to the small log mill hog, and to the fuel surge bin, and pneumatically transferred to the FBC fuel silos. Alternatively, sawdust can be pneumatically transferred to either an existing rail car loadout or to cyclone 13, located atop a set of existing 30 unit truck bins. When the demand for short fiber by area paper mills warrants sawdust segregation, the green sawdust is transferred to either the rail car loadout or truck bins. The same set of rail car loadout and truck bins can also handle wood chips from the small log mill. The system allows sawdust to be diverted to the truck bins while wood chips are being sent to rail car loadout, and vice versa.

The rough lumber is then conveyed to the trim saws to be cut into useable lengths. The trimmed ends go to the small log mill chipper and the sawdust is pneumatically conveyed by cyclone 5 to the small log mill hog. The rough green lumber is conveyed to the sorting and stacking and bundling section of the sawmill building. Bundles of green lumber are then transferred either to temporary storage or shipped offsite for further processing. There is no lumber drying kiln at the plywood facility.

- 7.1.2 *The Plywood Plant* – Logs are delivered to the infeed of the plywood debarker using a loader. The plywood debarker has a hydraulic log handler that loads the logs onto a mechanical conveyor then strips off the bark. The bark drops to a conveyor leading to the plywood hog, located in the small log mill, which grinds up the bark before it is pneumatically conveyed to a three way switch that can send the hogged fuel to either the boiler fuel silo by cyclone 6, the fuel surge bin by cyclone 12, or truck bins. The debarked logs continue along the conveyor. Saw blades lower and cut the log into blocks (the number depending on the length of the log). The waste ends of the log, commonly referred to as lily pads, and the sawdust from the cutoff saws are then sent to the lily pad chipper. The chips generated are pneumatically conveyed to cyclone 4 atop the plywood plant chip surge bin. The chips then pass over a screen, removing the fines which are sent to cyclone 1. The screened chips are pneumatically conveyed to either a chip truck bin or rail car loadout. There is also an option to send plywood chips to the hog fuel truck bins.

The blocks are mechanically tipped into block bins where they are transferred to storage or conditioning vats (log vats). The log vats use hot water to raise the core temperature of the log to a desired temperature. The heated blocks are then transferred to the infeed of the plywood plant where each block is mechanically loaded onto the lathe. The lathe uses a knife to peel a continuous piece of veneer of pre-selected thickness (generally 1/8 in.) from the log leaving the

core. The veneer is then conveyed to a clipper that optically reads its quality and clips the veneer into sections, removing imperfections and damaged pieces. The clipped veneer is sorted and stacked using vacuum handlers and fed to the veneer dryers. The cores are sent to the core chipper and the clipped veneer scrap is sent to the veneer chipper. The chips are then sent to the plywood plant surge bin and combined with the lily pad chips, screened, and conveyed to either a truck bin or rail car loadout.

There are three veneer dryers at the plywood plant. The dryers are heated by exhaust from a fluidized bed combustor (FBC) rated at 70 MMBtu/hr.

Fuel for the FBC is primarily bark from the debarking processes at the plywood and lumber facilities.. The fuel is stored in FBC fuel silos or the hog fuel storage pile.

Dried veneer is sent to either the end trim saw to be cut into 8 foot lengths or to the core saw to be cut in 4 foot lengths. The trimmed pieces of dry veneer and sawdust are collected by cyclone 1 and subsequently routed through baghouse 2.

After trimming, the veneer is fed through the lay-up line where the veneer is combined with adhesive using vacuum handlers with suction through cyclone 2. At the lay-up line, an adhesive is applied to one side of a sheet of veneer, then another sheet is laid on top of it followed by more adhesive and an additional sheet, until a desired number of sheets are adhered together forming a sheet of plywood. (The number of sheets used in a piece of plywood is commonly referred to as the ply of the plywood. Thus, 3-ply plywood would be 3 sheets of veneer.) The plywood is then trimmed as necessary with the flying saw and sent to a plywood press where the plywood is compressed between hot plates to cause the adhesive to harden, and to strengthen the bond between the veneer sheets and adhesive.

There are currently two presses: a 44 opening and a 24 opening. Plywood is removed from the presses and sent to the panel saws where it is sawed to specification length and width. The plytrim waste generated by the flying saw and any wood scraps from the lay-up line are routed through the small dry hog to cyclone 15 and subsequently, baghouse 1. The panel saw trimmings and sawdust are also routed through the large dry hog to cyclone 15 and subsequently, baghouse 1. A stand-alone tongue and groove machine and its associated sander are controlled by cyclone 1 and subsequently, baghouse 2. The cyclone 1 catch is combined with the catch from cyclone 2 and the material collected in baghouses 1 and 2 and then transferred to either the hog fuel surge bin (controlled by cyclone 12) or the boiler hog fuel silo (controlled by cyclones 6 and 7). The plywood is then graded, banded, and stenciled before being transferred to temporary storage or shipped offsite by truck or rail.

7.1.2.1 Lay-up Line Adhesive – The ingredients required for the adhesive, utilized in the lamination process are automatically mixed. There are six primary components of the adhesive:

- 7.1.2.1.1** Resin
- 7.1.2.1.2** Caustic NaOH
- 7.1.2.1.3** Water
- 7.1.2.1.4** Wheat Flour
- 7.1.2.1.5** Dried Animal Blood
- 7.1.2.1.6** Foaming Agent

- 7.1.3 *Hogged Fuel Boiler* – The boiler provides steam to the plywood presses, block conditioning vats, and unit heaters. The primary fuel is ply-trim. Fuel is fed to the boiler by conveyor from the boiler fuel silo. The emissions from the boiler are controlled by fly ash re-injection, a multiclone, and an Electrified Filter Bed (EFB). The boiler ash is conveyed to a small storage area located east of the boiler building. This storage area is controlled by cyclone C-14.
- 7.1.4 *Fluid Bed Combustor* – Exhaust from the fluid bed combustor (“FBC 200”) provides direct heat to the three veneer dryers. The FBC is one of two constructed in 1979. The smaller FBC 100 has been removed from service.
- 7.1.5 *Maintenance* –Maintenance activities at the Kettle Falls Plywood Facility include an automotive maintenance shop including a gasoline and diesel dispensing tank and facility maintenance - grounds keeping, carpentry, painting, etc.
- 7.1.6 *Miscellaneous* – Miscellaneous sources at the facility encompass a range of units (i.e., a log yard, facility roads, and process water pond) and activities (i.e., fuel storage and lumber and plywood storage and shipping).

8.0 EMISSION UNITS

8.1 Facility Wide (Section 2.1 in AOP)

- 8.1.1 The following significant emission units are not subject to specific requirements (Notice of Construction Approval Orders, NSPS standards, etc.), but are subject to the facility-wide requirements in Section 2.1 of the AOP.
 - 8.1.1.1** Cyclone C-1 – Upstream of Baghouse 2. End Trim Saw, Tongue & Groove, and Sander
 - 8.1.1.2** Cyclone C-4 – Lilly Pad Chipper
 - 8.1.1.3** Cyclone C-5 – Trimmer at Small Log Sawmill
 - 8.1.1.4** Cyclones C-6 and C-7 – Boiler Hogged Fuel Silo
 - 8.1.1.5** Cyclones C-11 and C-12 – Clarke Surge Bin
 - 8.1.1.6** Cyclone C-13 – Sawdust Truck Bins

“Panel MACT”). The scrubber has been replaced by a combination RTCO/ESP permitted under Order No. 07AQ-E238. Compliance options and operating requirements were included NOC 07AQ-E238. The remaining veneer dryer work practices, general monitoring requirement and throughput limits are consolidated in a single approval Order No. 09AQ-E283.

- 8.2.5 Fluid Bed Combustor FBC 200 and ESP/RTCO - Section 5.6 in AOP.
Two fluid bed combustors and a veneer dryer were constructed in 1979 under Order No. DE 79-471 and PSD permit No. PSD X-80-01 (issued by EPA Region 10).

The original veneer dryer has since been replaced and the smaller fluid bed combustor (“FBC 160”) has been removed. The FBC 200 burns wet bark from the plywood and small log debarking processes, and has been de-rated from its original 100 MM Btu/hr capacity. During the March 5, 2009 stack test the average output was 58 MM Btu/hr. Estimated fuel use is 7.3 tons/hour.

Exhaust from the FBC provides direct heat to the three veneer dryers¹.

Moist air returning from the veneer dryers follows three paths:

- 1) Approximately 50% is routed to a blend chamber where it is mixed with FBC exhaust, routed through a multiclone to remove particulate matter and on to the veneer dryers.
- 2) Approximately 25% to the FBC as over-fire and fluidizing air.
- 3) Approximately 25% direct to the ESP/RTCO.

Hot air from the FBC may be routed directly to the ESP during startup and shutdown to minimize condensation.

Particulate emissions from the system are controlled by an ESP. The ESP is followed by an 8 MM Btu/hour RTCO for control of VOC and organic HAP. The RTCO is currently operated in thermal mode, and there are no plans for catalytic operation.

- 8.2.6 Hogged Fuel Boiler (“Riley boiler”) and Electrified Filter Bed (Section 5.7 in AOP)

The boiler was installed in 1975 and rated at 60,000 lb steam/hour. The boiler had a Riley spreader-stoker furnace and used a multiclone for particulate control. No NOC order was issued.

The boiler was unable to meet emission standards for particulate matter, and Order No. DE 91 AQ-E123 required installation of an electrified filter bed (EFB) downstream of the multiclone for improved particulate control, and de-rating the boiler. The Riley boiler burns mostly ply-trim, along with some bark and provides steam to the plywood presses, log conditioning vats and heaters. The steaming rate

¹ Attachment 2

is limited to less than 40,000 lb/hour from May through September and 45,000 lb/hour from October through April.

9.0 Insignificant Emission Units and Activities²

- 9.1 The following insignificant emission units were proposed by the permittee in the Title V Renewal Application materials submitted to Ecology and have been found by Ecology to meet the requirements outlined in WAC 173-401-533 as insignificant on the basis of size or production rate.
- 9.1.1 Two caustic soda storage tanks containing sodium hydroxide (WAC 173-401-533(2)(s), Tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding 99% or greater sulfuric acid or phosphoric acid, 70% or greater nitric acid, 30% or greater hydrochloric acid, or liquid phase combinations where the top phase is more than 1% VOC's.
 - 9.1.2 One 6,000 gallon capacity gasoline storage tank (T1), two 10,000 gallon capacity diesel storage tanks (T2, T3), and one 1,000 gallon capacity motor/hydraulic oil storage tank (T6) (WAC 173-401-533(2)(c), Operation, loading and unloading of VOC storage tanks (including gasoline storage tanks), ten thousand gallons capacity or less, with lids or other appropriate closure, vapor pressure not greater than 80 mm Hg at 21°C).
 - 9.1.3 Two used oil storage tanks with capacities of 550 and 1,000 gallons. (T7, T11) (WAC 173-401-533(2)(b), Operation, loading, and unloading of storage tanks, not greater than one thousand one hundred gallon capacity, with lids or other appropriate closure, not for use with hazardous air pollutants, maximum vapor pressure 550 mm Hg.
- 9.2 The following emission units were proposed by the permittee as outlined in WAC 173-401-530(4) as insignificant on the basis of actual emissions.
- 9.2.1 Truck Dump (TP1)
 - 9.2.2 Rail Car Loadout (TP2, TP3)
 - 9.2.3 Vents on Truck Bins #1 and #2 (TP4)
 - 9.2.4 Vents on Truck Bins #3 and #4 (TP5)
 - 9.2.5 Vents on Truck Bins #5 and #6 (TP6)
 - 9.2.6 Vent on FBC Fuel Silo #1 (TP7)
 - 9.2.7 Vent on FBC Fuel Silo #2 (TP8)
 - 9.2.8 Truck Bin Loadout (TP9, TP10, TP11, TP12, TP13, TP14)

² Designation of an emission unit or activity as insignificant does not exempt the unit or activity from any applicable requirement.

- 9.2.9 Fuel Storage Pile (S1)
- 9.2.10 Boiler Ash Storage Pile (S2)
- 9.2.11 Phenol-formaldehyde resin is used as a component of plywood glue. The PF resin is stored in two 8,500 gallon tanks (T13 and T14) located within the plywood building and kept at a fairly constant temperature. The resin contains approximately 0.1% free formaldehyde and 0.05 % phenol by weight. Emission calculations submitted by the permittee estimate the potential formaldehyde emissions to vary between <1 pound to approximately 23 pounds per year.
- The maximum emission threshold for emissions of formaldehyde as specified under WAC 173-401-531(1) is 0.5 tons per year. Due to the estimated emissions as discussed above, the storage tanks can be established as insignificant emission units.
- 9.2.12 The permittee uses four steel tanks (capacities of 8,300, 6,800, 1,000, and 800 gallons) to store the mixed glue used as adhesive in plywood production. Information submitted by the permittee indicates that the glue is made up of the following components: PF resin as discussed in Section 8.2.11 above, caustic NaOH, water, wheat flour, dried animal blood, and foaming agent. Based on submitted information, it has been determined that the mixed glue is approximately 54% PF resin. The other components of the glue are not expected to produce significant emissions of any hazardous air pollutant.
- Based on the formaldehyde emissions calculations performed in support of the discussion in Section 8.3.2 above, the annual emissions of free formaldehyde from the mixed glue storage tanks is estimated to be <0.5 tons.
- The maximum emission threshold for emissions of formaldehyde as specified under WAC 173-401-531(1) is 0.5 tons per year. Due to the estimated emissions as discussed above, the storage tanks can be established as insignificant emission units.

10.0 PERMITTING HISTORY

- 10.1 10/24/1978 – Delayed Compliance Order No. DE78-459. Boise was operating a hog fuel boiler (the “Riley boiler”) and veneer dryer³ at the Kettle Falls plywood plant. Ecology determined that neither the boiler nor the veneer dryer(s) were in compliance with air quality standards. Boise proposed installing a new fluid bed combustor; derating the hog fuel boiler, and removing the existing Energex⁴ system.
- The Order included a compliance schedule for de-rating of the hog fuel boiler and installation of the fluid bed combustors. Source testing of the new fluid bed

³ Two Coe veneer dryers were in operation. They were installed in an “over and under” configuration, and counted as one dryer.

⁴ A cyclonic burner using finely divided wood or bark. Used for direct heating

combustor and the derated boiler were required. Compliance was required by 7/1/1979.

10.2 9/18/1979 – Order No. DE79-471. Approved the installation of two new FBCs and one new veneer dryer at the Kettle Falls plywood facility⁵. The Order required a source test and submittal of a copy of the test results to Ecology. The unit(s) to be tested and the pollutants are not identified. The order contains no emission limitations, operating requirements or work practice requirements. The Order stated that the proposed changes were PSD-applicable, with EPA Region 10 doing the permitting.

10.3 12/18/1979 – PSD-X80-01. Approved construction of two new FBCs, modification of an existing veneer dryer⁶ and construction of a new veneer dryer (a.k.a “the Prentice dryer”). The two FBC’s were the “FBC200”—rated at 100MM Btu/hr, and the “FBC160”—rated at 60MM Btu/hr. The FBC 100 was seldom used, and has been removed from service and dismantled. The FBC 200 was de-rated to 70MM Btu/hr in 2008. The Order limited PM emissions from the FBC veneer dryer system to 186 tons per year, and the existing hog fuel boiler (the “Riley boiler”) to 196 tons per year. A COMS was required as compliance monitoring for the FBC/veneer dryer system, unless a wet scrubber was used as a control device. For a wet scrubber, compliance monitoring was monitoring of scrubber water flow rate and pressure drop.

2/11/2003 – 1st Amendment. The requirement to submit deviation to EPA Region 10 and Ecology was changed to require submittal to Ecology only.

10.4 8/11/1991 – Order No DE 91 AQ-E123. Approved installation of an electrified filter bed (EFB) control device downstream of the multiclone on the Riley boiler. The Order included limits on PM-10 emissions (0.030 gr/dscf @7% O₂), and opacity (10%). The Order also required de-rating the boiler from 60,000 lb steam/hour to <40,000 lb/hour from May through September, and <45,000 lb/hour from October through April.

2/2/2009 - 1st Amendment changed the frequency of required stack testing.

10.5 1/07/1993 – Order No DE92AQ-E152. Approved installation of a third veneer dryer⁷. The following limits were included:

- New dryer production limited to not greater than 50,7000,000 square feet of 3/8” plywood per year.
- VOC from scrubber exhaust not greater than 168,898 lb/year.
- PM as condensable organic compounds (COC), measured by RM5/202, not greater than 119,940 lb/year.
- Opacity from the scrubber stack not greater than 10% over any 6-minute interval.

⁵ There is no copy of the application in Ecology files.

⁶ See footnote 5 and explanation in section 19.1

⁷ Referred to as the “third veneer dryer” because the two COE dryers installed in 1967 were designated “dryer #1”, and the Prentice dryer permitted under PSD-X-0-01 was designated “dryer #2”.

BACT for dryer and combustion gases and organic compounds was determined as operation of the dryer so that there are no leaks or losses from the dryer during normal operations. This was not included as a work practice requirement in the Approval Conditions.

9/10/1993 – 1st Amendment changed the throughput limit to 246,682,000 square feet of plywood for all veneer dryers.

1/25/1994 – 2nd Amendment changed the limit on VOC from the scrubber exhaust to 204,100 lb/year.

2/2/2009 – Order No DE92AQ-E152 and its amendments rescinded. The scrubber was removed, and replaced by an ESP/RTCO. The replacement of emission control technology was permitted under Order No. 07AQ-E243. The remaining veneer dryer monitoring, recordkeeping and reporting requirements were incorporated into Order No. 09AQ-E283.

10.6 3/11/1994 – Order No. DE94AQ-E111. Installation of a baghouse (referred to as Baghouse #1) following the dry waste collection system cyclone. Install a new collection system controlled by a cyclone. The following limits were included:

- Total facility plywood production limited to 247,000,000 square feet of 3/8” plywood per year.
- Baghouse PM grain loading limited to not greater than 0.01 gr/dscf.
- Opacity from the baghouse not greater than 10%, averaged over 6 minutes.

1/08/2003 – 1st Amendment. Changed plywood production limit to 280,000,000 square feet of 3/8” plywood per year and modified monitoring, recordkeeping and reporting requirements.

2/2/2009 – 2nd Amendment. Administrative changes to remove reference to a non-existent “planer mill”, correct condition numbering and remove a one-time allowance for a testing and break-in period.

10.7 3/18/1994 – Order No. DE94AQ-E114. This Order was issued with the docket number DE93AQ-E114 incorrectly entered. The Order approved installation of two new cyclones: one to control particulate emissions from two previously uncontrolled exhaust points on the green veneer stacker conveying system, and another to control particulate emissions from uncontrolled emission points on the layup line conveyance system (referred to as Cyclone #2). The following limits were included:

- Facility plywood production limited to 247,000,000 square feet of 3/8” veneer.
- Opacity from the cyclone exhausts not greater than 10%, averaged over 6 minutes

3/15/1995 – 1st Amendment. Remove reference to a new green stacker cyclone to control particulate emissions from two previously uncontrolled exhaust points on the veneer stacker conveying system. Operation of this cyclone proved technically

unfeasible. Two new cyclones were voluntary changes initiated by Boise Cascade, and not required by Ecology to meet emission standards.

2/2/2009 – 2nd Amendment. Corrected the docket number to DE94AQ-E114, removed an erroneous reference to a baghouse, and removed the plywood throughput limit, which had been superseded by a later NOC Order.

10.8 1/20/1999 – Order No. DE99 AQ-E103. Approved installation of a new cyclone and baghouse (referred to a baghouse #2) to control sander dust from a new plywood underlayment line and sawdust from the plywood panel line. The Order included the following limits:

- Baghouse PM grain loading limited to not greater than 0.01 gr/dscf
- Opacity from the baghouse not greater than 10%, averaged over 6 minutes.

10.9 2/02/2001 – Order No. 01AQER-1920. Replacement of veneer dryer #3 (the Prentice dryer, installed in 1979). The following limits were included:

- Facility plywood production limited to 280,000,000 square feet of 3/8” veneer.
- PM emissions as COC from the scrubber stack not greater than 110,160 lb/year.
- VOC emissions from the scrubber stack not greater than 218,400 lb/year
- NOx emissions from the scrubber stack not greater than 226,000 lb/year
- CO emissions from the scrubber stack not greater than 187,500 lb/year
- SO2 emissions from the scrubber stack not greater than 8,480 lb/year.

1/08/2003 – 1st Amendment. Emission limits changed to reflect better data.

- PM emissions as COC from the scrubber stack not greater than 111,160 lb/year
- VOC emissions from the scrubber stack not greater than 237,720 lb/year

2/15/1999 – 2nd Amendment. Scrubber removed and replaced by ESP/RTCO. Emission limits removed from Order. New emission limits in Order No. 07AQ-E238.

2/02/2009 – Rescinded. Remaining general monitoring requirements incorporated in Order No. 09AQ-E283.

10.10 12/13/2007 – Order No. 07AQ-E243 issued under WAC 173-400-114

Requirements for Replacement or Substantial Alteration of Emission Control Technology at an Existing Stationary Source. Approves replacement of the wet scrubber on FBC 200. Particulate emissions controlled by an ESP, followed by a regenerative thermal/catalytic oxidizer (RTCO) for control of VOC and HAP. The oxidizer will initially be operated thermally. The Order includes emission limits, work practice requirements and monitoring, recordkeeping and reporting requirements (MRRR) for thermal and catalytic operation. Catalytic operation is included in sections 5.6.6, 5.9.1.4, and 5.9.1.5 of the AOP as an alternative operating scenario.

10.112/02/2009 – Order No. 09AQ-E283.

- Limits total veneer production to 280,000,000 square feet of 3/8” veneer.
- Work practice requirement for minimizing leaks from veneer dryers #2 and #3.

11.0 COMPLIANCE HISTORY

11.1 3/03/ 2000 and 3/23/2001 – EPA issues Notices of Violation to Boise Cascade Corporation for:

- Commencing construction or modification of facilities in Louisiana, Idaho, Oregon and Washington without obtaining preconstruction permits required by the State Implementation Plans.
- Construction of major emitting facilities and major modifications of major facilities in violation of PSD requirements.

11.2 3/13/2002 – EPA & Boise enter into a Consent Decree. Settlement includes three Supplemental Environmental Projects (“SEPs”), one of which is an overfire air project on the hogged fuel boiler at the Kettle Falls plywood facility.

11.3 9/08/2005 – Ecology Notice of Violation (NOV) No. 2742 for violations of opacity limits on the wet scrubber stack on August 9, 2005.

11.4 2/15/2006 – Ecology Notice of Penalty Incurred and Due No. 3019 in the amount of \$9,800 issued for NOV NO. 2742. Penalty paid.

11.5 6/12/2008 - Ecology Notice of Violation (NOV) No. 5683 for violations of limits on CO and VOC emissions from the wet scrubber exhaust.

11.6 9/8/2008 - Ecology Notice of Penalty Incurred and Due No. 6011 in the amount of \$15,280 issued for NOV NO. 2742.

11.7 12/16/2008 – Payment in the amount of \$15,280 received for NOP No. 6011.

12.0 OPERATIONAL FLEXIBILITY

The permit shield in Section 12 applies to all reasonably anticipated operating scenarios. The RTCO is capable of operating in thermal mode (no catalyst) or in catalytic mode. As of permit issuance, Boise has no plans for operating in catalytic mode.

13.0 PERMIT SHIELD

The permittee requested granting of the permit shield to a lengthy list of requirements described as inapplicable. Some were inherently inapplicable to the source. Others were determined by Ecology to be applicable requirements. The permit shield is extended only to the requirements listed in the following sections of the AOP:

Table 7.1: Inapplicability is based on a determination or comparison of size, age, emissions or other characteristic of the emission unit with the applicability criteria in the requirement.

Table 7.2: Identifies one-time requirements which have been met.

Table 7.3: Streamlining. A more stringent requirement has been included in the AOP. Compliance with the condition in the permit will assure compliance with the streamlined requirement.

14.0 INITIAL OR ONE-TIME REQUIREMENTS

Initial or one time requirements which have been met are listed in Table 7.2 of the AOP

15.0 STREAMLINING

Streamlined requirements are listed in Table 7.3

16.0 ENFORCEABILITY

Unless specifically designated otherwise, all terms and conditions of the Air Operating Permit, including any provisions designed to limit the source's potential to emit, are enforceable by EPA, and citizens, under the Federal Clean Air Act.

Those terms and conditions which are designated as state-only enforceable (S); are not included in the current State Implementation Plan (SIP) and are enforceable only by Ecology. All terms and conditions of the Air Operating Permit are enforceable by Ecology.

For permit conditions that have been included in the SIP, two dates are given. The first date is the date for the regulation that was adopted into the SIP. The second date is for the current version of the regulation. If a regulation is cited with no reference to enforceability, it is federally enforceable. For example, Standard condition 2.10.1 is followed by the notation "[WAC 173-400-107, 9/20/93, 9/6/07 (S)]". In this case, the 9/20/93 version of WAC 173-400-107 is included in the SIP and is federally enforceable. The 9/6/07 version of WAC 173-400-107 is State-only enforceable

17.0 EXPLANATION OF MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS (MRRR)

Each MRRR must be sufficient to assure compliance with the associated compliance condition, emission standard or work practice.

No additional MRRR required

No specific monitoring can reasonably be required for these requirements. The nature of the requirements makes it necessary to rely on the good faith of the permittee to conscientiously monitor site operations and to promptly report any deviations.

1M: Complaint Response

Ensures that complaints from the public are recognized, investigated and any appropriate corrective action taken. Recordkeeping provides documentation of complaints and the facility response to each.

2M: Visible Emissions surveys for sources with opacity standards

This MRRR is applied to emission units that are subject to an opacity standard, but are not equipped with continuous opacity monitoring systems (COMS). A monthly visible emission observation is considered to be sufficient monitoring for the emission units at the source. The monitoring provides periodic evaluation of each emission point, while requiring visible emission testing using EPA Method 9 or Department of Ecology Method 9A only when excess visible emissions are observed and cannot be eliminated quickly.

3M: Annual Review of Documents

The monitoring requires periodic reviews of Operation and Maintenance manuals and other documents in order to evaluate whether current operational practices are being conducted in a manner consistent with the information upon which permitting has been based. The recordkeeping and reporting required ensure that practices which are not consistent with the submitted information will be addressed in a timely manner

4M: Visible emissions walk-around

Periodic walk-around surveys are a simple and direct method of detecting the presence of visible emissions. The use of visible emission surveys as monitoring for particulate matter standards is appropriate for general process units which are not large enough to justify performance testing by EPA reference methods 5 and/or 202. An increase in visible emissions is also a general indication that good air pollution control practices are not being used. Ecology believes that a visible emissions/no visible emissions evaluation is acceptable monitoring for particulate emissions because visible emissions should appear before there is a compliance problem

5M: Fuel type

WAC 1730-400-040 (6) limits SO₂ emissions from combustion sources to 1,000 ppm, corrected to 7% oxygen.

Initial stack testing of the FBC stack measured an SO₂ content of 0.9 ppm. SO₂ emissions are a function of fuel sulfur content, and the FBC exhaust cannot exceed 1,000 ppm while combusting wood waste.

SO₂ emissions are a function of fuel sulfur content. Based on stoichiometric analysis, the exhaust from the Riley boiler will not exceed 1,000 ppm while burning wood waste.

6M: Baghouse #1 & #2 Monitoring

Incorporates specific monitoring, recordkeeping and reporting requirements from Notice of Construction Approval Orders

7M: Baghouse #1 & #2 O&M Manuals

Includes specific requirements for the contents of O&M Manuals. Requires periodic reviews of O&M Manuals to ensure that any changes in equipment or operating procedures are incorporated.

8M: Veneer dryers #2 & #3 Recordkeeping

Includes recordkeeping requirements from Notice of Construction Approval Orders.

9M: Veneer dryers #2 & #3 O&M Manuals

Includes specific requirements for the contents of O&M Manuals. Requires periodic reviews of O&M Manuals to ensure that any changes in equipment or operating procedures are incorporated.

10M: RTCO & ESP O&M Manual

Includes specific requirements for the contents of O&M Manual. Requires periodic reviews of O&M Manual to ensure that any changes in equipment or operating procedures are incorporated

11M: FBB, RTCO & ESP testing, monitoring and recordkeeping

Includes source testing and parameter monitoring from Order No. 07AQ-E243, 1st amendment. Cross references specific MACT monitoring & recordkeeping requirements from MRRR 21M.

12M: Compliance Assurance Monitoring

Includes general CAM requirements and specific requirements for the two PSEU at the facility.

13M: Hog Fuel Boiler monitoring, recordkeeping and reporting requirements

Includes specific monitoring, recordkeeping and reporting requirements from Notice of Construction Approval Order No. DE 91AQ-E123, 1st Amendment and PSD -X80-01, First Amendment.

14M: Hog Fuel Boiler testing requirements

Includes source testing requirements from Notice of Construction Approval Order No. DE 91AQ-E123, 1st Amendment.

15M: Hog Fuel Boiler COMS requirements

Includes requirements from Notice of Construction Approval Order No. DE 91AQ-E123, 1st Amendment. The COMS provides a direct measure of opacity. Use of a COMS provides sufficient assurance of compliance.

16M: Hog fuel boiler, multiclone & EFB O&M manuals

Requires periodic reviews of O&M Manuals to ensure that any changes in equipment or operating procedures are incorporated. Required by Notice of Construction Approval Order No. DE 91AQ-E123, 1st Amendment.

17M: Hog Fuel boiler Derating.

Includes requirements to derate the boiler from its 60,000 lb/hour nameplate rating. Derating the boiler is necessary to ensure compliance with emission limits in Notice of Construction Approval Order No. DE 91AQ-E123, 1st Amendment.

18M: Use of Hog Fuel Boiler abort gate

Includes requirements for use of the abort gate. Use of the abort gate bypasses the EFB control device, and is restricted to emergency situations only.

19M: PCWP MACT stack testing requirements

Includes specific source testing requirements from 40 CFR 63, subpart DDDD.

20M: PCWP MACT monitoring requirements

Includes specific source testing requirements from 40 CFR 63, subpart DDDD and 40 CFR 63.8.

21M: PCWP MACT Recordkeeping

Includes specific monitoring required by 40 FR 63.2282 & 2283

22M: PCWP MACT Notification

Includes specific monitoring required by 40 FR 63.2280

23M: PCWP MACT Reporting

Includes specific reporting required by 40 FR 63.2281

24M: Miscellaneous Coating Operations

Includes initial and continuing compliance demonstrations from Tables 6 and 8 of the PCWP MACT.

25M: Softwood Veneer Dryers

Includes initial and continuing compliance demonstrations from Tables 6 and 8 of the PCWP MACT.

26M Startup, Shutdown and Malfunction Plan

Includes requirements for development and revision of SSM Plan, recordkeeping and reporting from 40 CFR 63.6 & 63.10.

18.0 GAP-FILLING

Where an applicable requirement does not include sufficient monitoring, recordkeeping and reporting to satisfy WAC 173-401-615(1) & (2), the permit will establish adequate monitoring, recordkeeping and reporting. This is known as gap-filling. MRRR which include gap-filling are identified by a note following the MRRR citation.

19.0 CLARIFICATIONS AND INTERPRETATIONS

19.1 Veneer Dryer identification: There are currently three (3) veneer dryers at the plywood facility. Dryer identification is complicated by the fact that dryers have been referred to by number, but the numbering system has not been consistent.

Two Coe veneer dryers were installed at the facility in 1967. The two dryers were installed in a “stacked” configuration, with separate loading and unloading systems for each. Plant personnel have historically referred to the upper dryer as Dryer #1, and the lower as Dryer #2. In the permitting process for Order PSD-X80-01, the existing dryers were described as a single dryer.

Order PSD-X80-01: The “new dryer” permitted under was a 10 section, 6 deck Prentice dryer, sometimes identified as Dryer #2 because the two Coe dryers were considered as one. The Prentice dryer was replaced in 2001(Order 01AQER-1920).

Order DE92AQ-E152: approved the addition of a “third veneer dryer”. The two Coe dryers were considered as one dryer and the 10 section, 6 deck Prentice dryer was dryer #2.

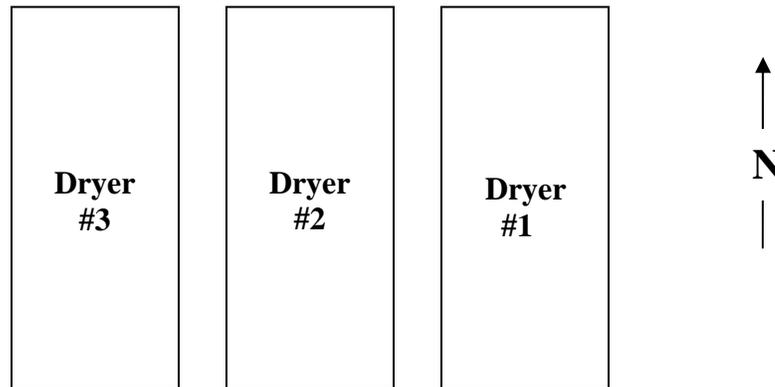
Order 01AQER-1920: approved installation of “a new dryer to replace the existing number three dryer (Prentice 1979)” The dryer is a 16 section, 6 deck Coe dryer.

In 2004, the individual loading and unloading systems for the 1967 Coe dryers were replaced with a single automatic system serving both dryers. At Boise’s request, the stacked Coe dryers are now designated dryer #1.

The dryer permitted under Order No. 01AQER-1920 is designated #2.

The dryer permitted under Order No. DE92AQ-E152 is designated #3.

The dryer arrangement is shown below.



- 19.2 Condition 2.8.4 of the AOP, PSD-X80-01, Approval Condition 1 – This approval condition limits PM emissions from the hogged fuel boiler. The original approval condition in the PSD Order does not specify that the test results be corrected for % O₂. Therefore, this approval condition is interpreted to apply to emissions before any O₂ correction is done. Compliance determination shall be made by comparing emissions as measured by RM 5 to the 0.04 gr/dscf limit.
- 19.3 “Plywood” production limit vs. “Dryer” production limit: In 2001, the permittee underwent NSR permitting for a veneer dryer replacement project that increased the production capacity of the plant. Order No. 01AQER-1920 permitted the dryer replacement project and included a new “dryer” production limit of 280,000,000 square feet of 3/8” equivalent plywood. The previous limit, included in the original Order No. DE 94AQ-E111 limited “plywood” production to 247,000,000 square feet of 3/8” equivalent plywood. It is clear from correspondence that took place during the 2001 permitting that both the permittee and Ecology considered the primary purpose of the permitting to be the increase of the production limit from 247 million to 280 million b.f. of 3/8” equivalent plywood. The 2nd amendment to Order No. DE 94AQ-E111 limits production to 280,000 square feet of 3/8” equivalent plywood. Order No. 01AQER-1920 has been rescinded.
- 19.4 Vacature of startup, shutdown and malfunction (SSM) rules: On December 19, 2008 the DC Court of Appeals vacated the startup, shutdown and malfunction rules in 40 CFR 63.6(f)(1) and 63.6(h)(1).
Section 63.6(h)(1) pertains to opacity and visible emission standards, and is not applicable to Subpart DDDD.
Section 63.6(f)(1) is applicable to Subpart DDDD. However, the vacatur affected only standards that incorporate the SSM rules by reference and contain no other

regulatory text exempting or excusing SSM events. Subpart DDDD contains specific SSM provisions, and is not affected by the vacatur.

- 19.5 Installation of a COMS on the FBB stack: Condition 6. a. *Compliance Monitoring* of Order PSD X-80-01 and its 1st amendment require the installation of a Continuous Opacity Monitoring System on the FBC/veneer dryer system stack unless a wet scrubber is used to control emissions.

The COMS was required to monitor compliance with the particulate matter limit in Condition 1 of Order PSD X-80-01. The wet scrubber system was replaced in 2008 by an ESP/RTO combination to meet the requirements of the PCWP MACT.

The CAM rule (40 CFR 64), issued on 10/22/1997 requires owners or operators to conduct monitoring that provides a reasonable assurance of compliance with applicable requirements.

On 2/5/2009, Boise applied for a 2nd amendment to Order PSD-X-80-01. Boise requested removal of the requirement for installation of a COMS on the grounds that the new ESP/RTO combination provides improved particulate matter control⁸ and that monitoring required by the CAM rule provides a greater assurance of compliance with the PM limit.

Pending a decision on Boise's request for amendment of Order PSD-X-80-01, Ecology will not require installation of a COMS. If the requirement to install a COMS is not removed, Ecology will amend the AOP to include a compliance schedule for COMS installation.

20.0 PUBLIC PARTICIPATION

Any comments received during the public review period will kept on file at Ecology's Eastern Region Office in Spokane, along with Ecology's response to the comments.

⁸ Stack testing of the FBB/wet scrubber combination measured a particulate matter concentration of 0.014 gr/dscf. Stack testing of the FBB/ESP/RTO measured a particulate matter concentration of 0.009 gr/dscf.

Attachment 1: Definitions

Continuous emission monitoring system (CEMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of emissions. [40 CFR 63.2]

Continuous monitoring system (CMS) is a comprehensive term that may include, but is not limited to, continuous emission monitoring systems, continuous opacity monitoring systems, continuous parameter monitoring systems, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation.[40 CFR 63.2]

Continuous parameter monitoring system (CPMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters. [40 CFR 63.2]

Continuous opacity monitoring system (COMS) means a continuous monitoring system that measures the opacity of emissions. [40 CFR 63.2]

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. [40 CFR 63.2]

Out of Control A CMS is out of control if—

(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or

(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or

(C) The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard. (§63.8 (c)(7)(i))

Deviation (MACT) means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any compliance option, operating requirement, or work practice requirement;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart, and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any compliance option, operating requirement, or work practice requirement in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart. A deviation is not always a violation. The determination of whether a deviation constitutes a violation of the standard is up to the discretion of the entity responsible for enforcement of the standards. (§63.2292)

Deviation (Title V) “Deviation” is not defined in Part 70. It is generally understood to mean any failure to comply with a permit term - which may or may not result in a violation. In the absence of a federal definition for deviation, the following statement on EPA’s reporting form for deviation under Part 71 is used as reference:

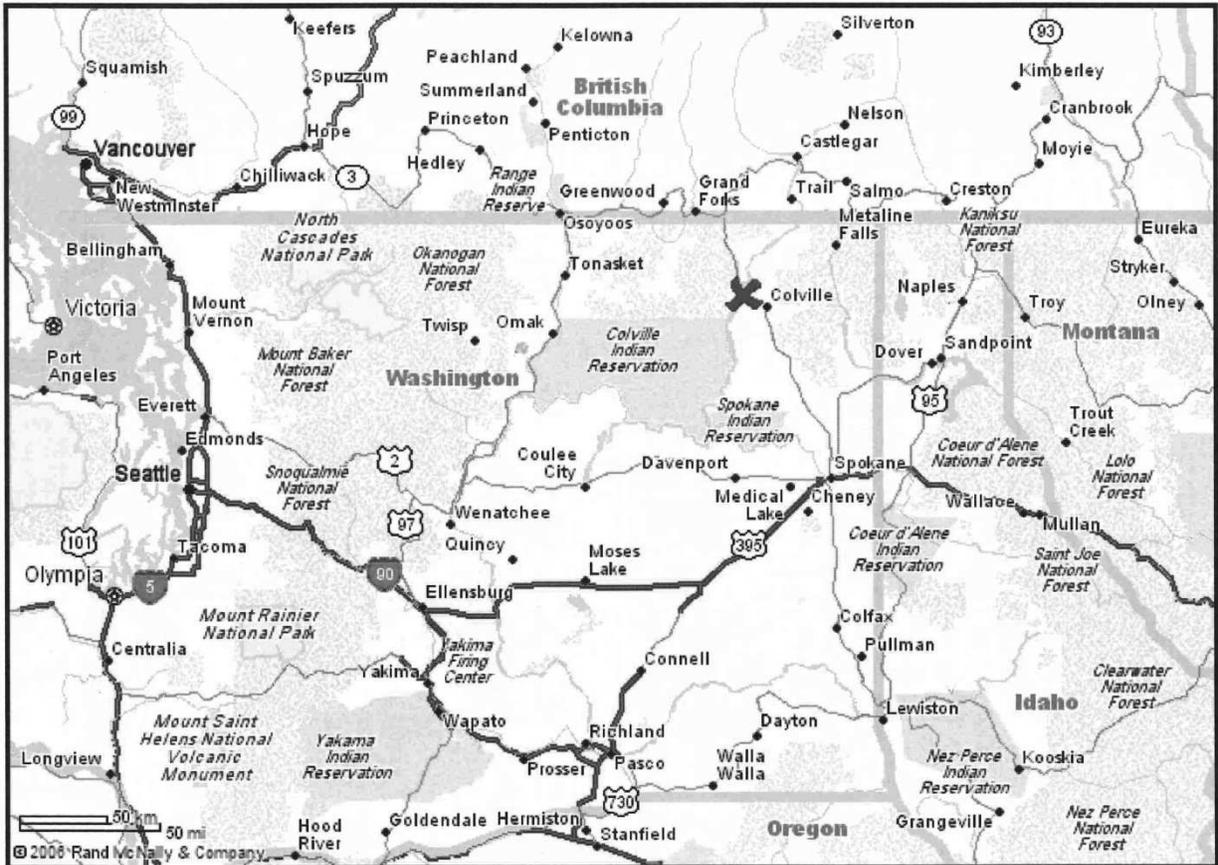
“Deviations from permit terms occur when any permit term is not met, including emission control requirements and compliance assurance methods (monitoring, recordkeeping, and reporting). For example, the following are examples of deviations: (1) emissions that exceed an emission limit; (2) parameter value that indicates that an emission limit has not been met; (3) observations or data that show noncompliance with a limitation or other requirement; (4) an exceedance or excursion as defined in 40 CFR part 64 (CAM); (5) required monitoring that is not performed; and (6) failure to submit a report. You also must include deviations from permit terms that occur during startup, shutdown, malfunction, and upset conditions. A deviation is not necessarily a violation; violations will be determined by EPA (or its delegate Agency).”

Hog fuel “Hog fuel” means wood waste that is reduced in size to facilitate burning [WAC 173-300-020(12)]. "Woodwaste" means solid waste that consists of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, and the handling and storage of raw materials, trees, and stumps. This includes but is not limited to sawdust, chips, shavings, bark, pulp, and log sort yard waste, but does not include wood pieces or particles containing chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate[WAC 173-300-020(29)].

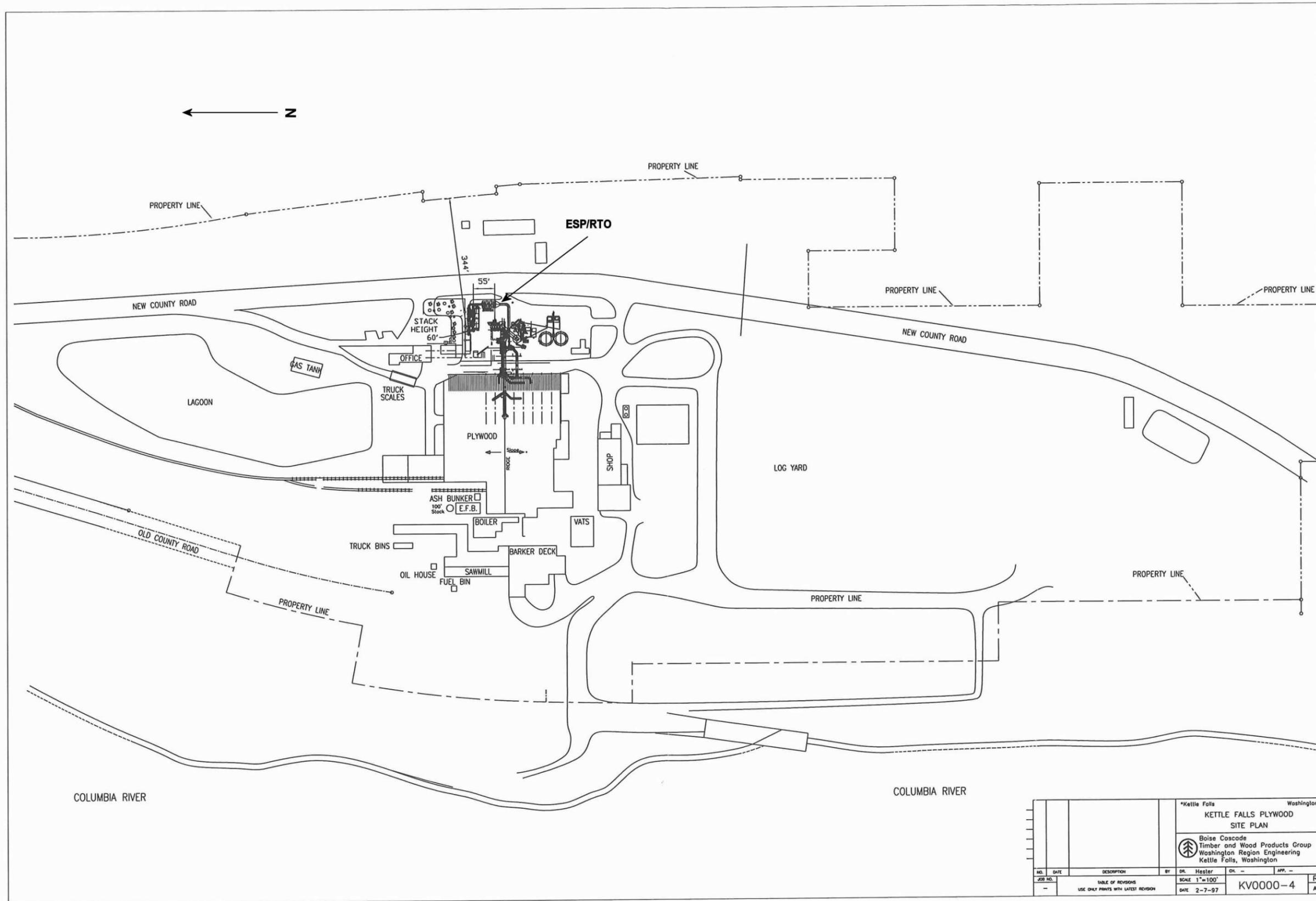
Startup means the setting in operation of an affected source or portion of an affected source for any purpose. [40 CFR 63.2]

Shutdown means the cessation of operation of an affected source or portion of an affected source for any purpose. [40 CFR 63.2]

Attachment 2: Location Map

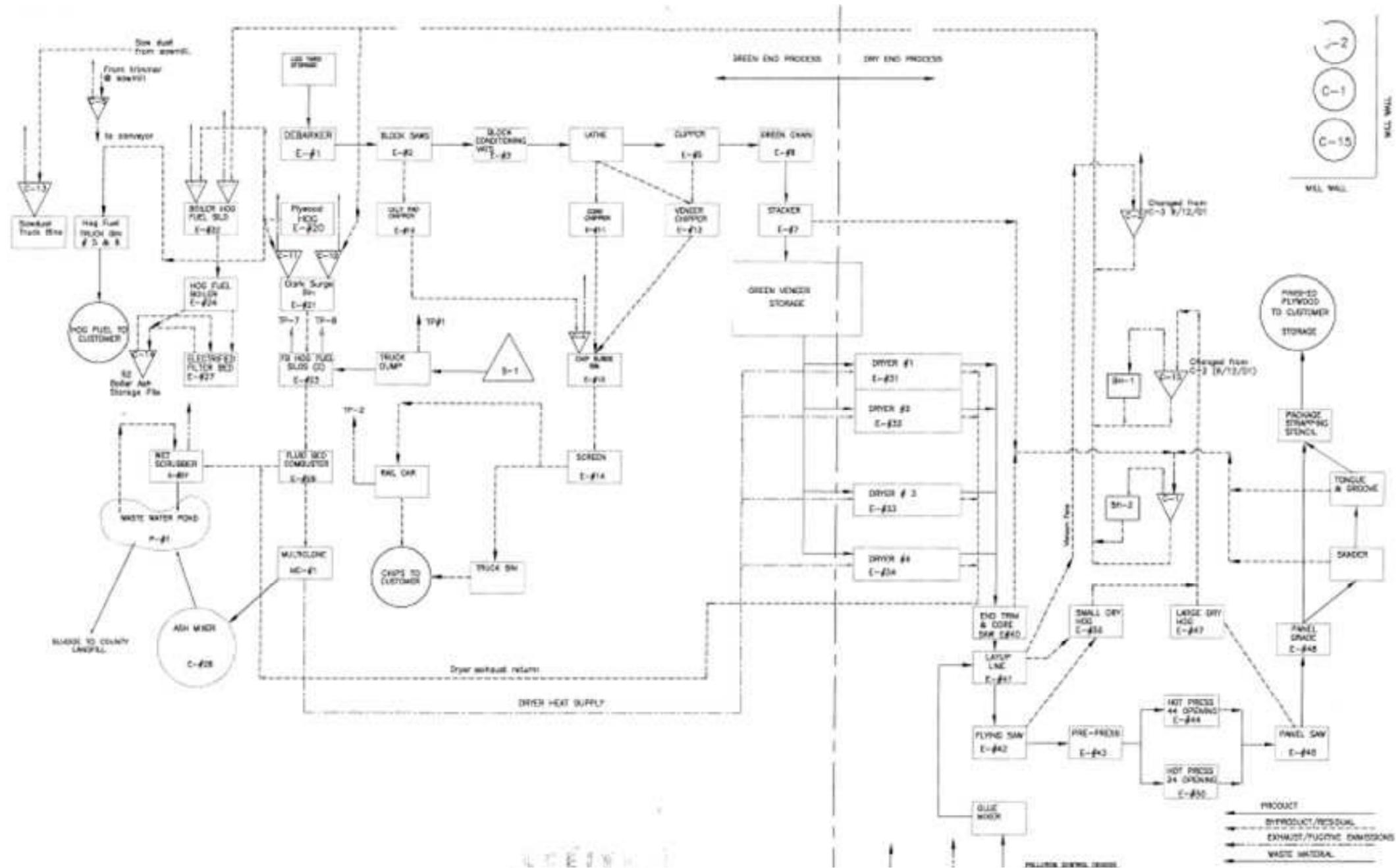


Attachment 3: Site Plan

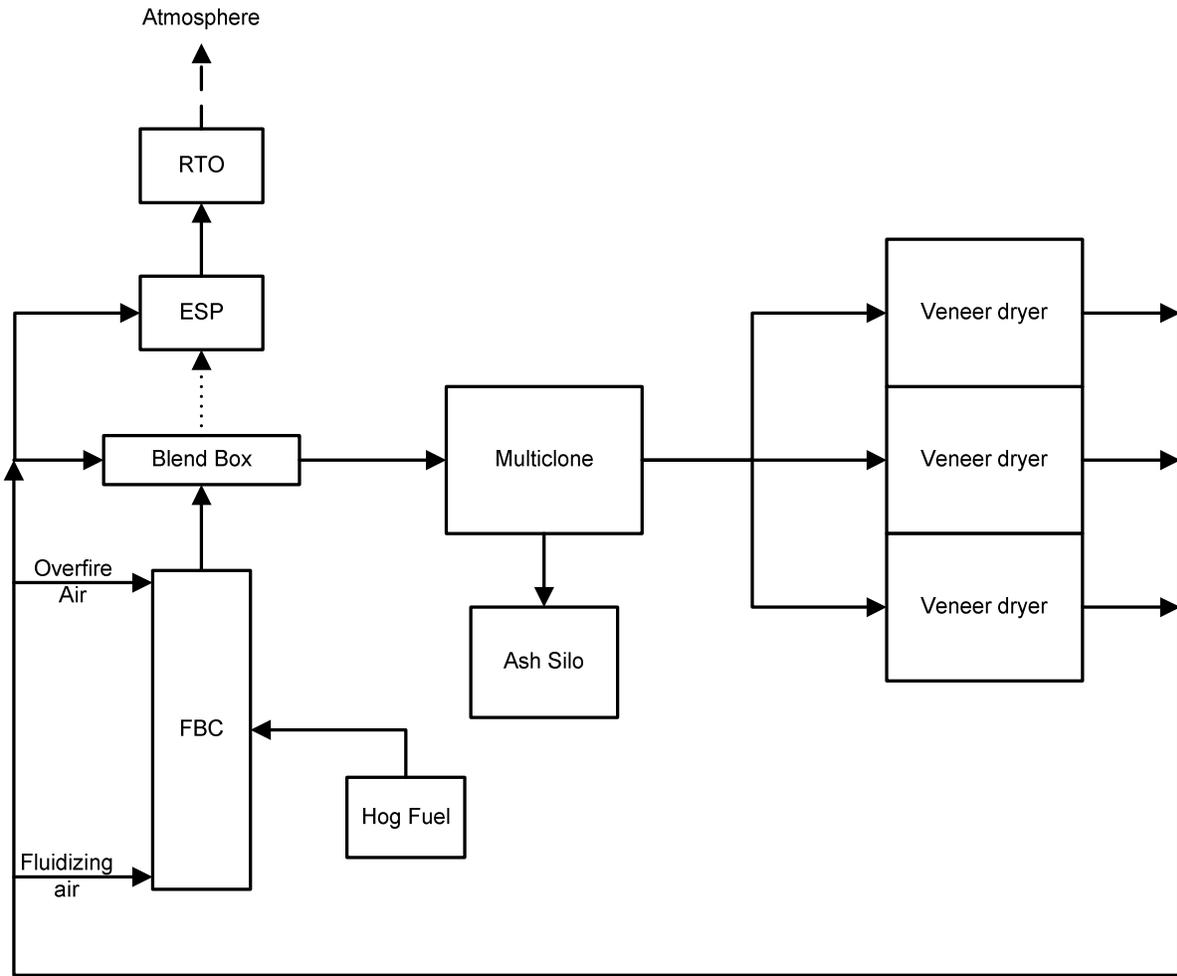


		*Kettle Falls Washington	
		KETTLE FALLS PLYWOOD	
		SITE PLAN	
		Boise Cascade Timber and Wood Products Group Washington Region Engineering Kettle Falls, Washington	
NO.	DATE	DESCRIPTION	BY
		TABLE OF REVISIONS	DK Hester
		USE ONLY PRINTS WITH LATEST REVISION	DK -
		SCALE 1"=100'	APP. -
		DATE 2-7-97	R
		KV0000-4	A

Attachment 4: Plywood Process flow



Attachment 5: FBC/Veneer dryer



Attachment 6: Log mill process flow

