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NEW SOURCE

Preliminary Determination to Approve

Direct-fired Continuous Dry Kiln and New Truck Bins

Weyerhaeuser NR Company
Raymond Lumbermill

23NOC1614

April 1, 2024

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NOTICE OF CONSTRUCTION
PRELIMINARY DETERMINATION TO APPROVE

Olympic Region Clean Air Agency

Issued to:	**Weyerhaeuser NR Company Raymond Lumbermill**	**County:**	**49- Pacific**
Location:	**51 Ellis Street** **Raymond**	**Source:** **RC:**	**4** **OP1**
Application #:	**23NOC1614**	**File:**	**475**
Prepared on:	**April 1, 2024**		

1. Summary

Weyerhaeuser NR Company Raymond Lumbermill (Weyerhaeuser) seeks approval from Olympic Region Clean Air Agency (ORCAA) to install a direct-fired continuous dry kiln (CDK) rated 310 million board feet/year (MMbf/yr), five (5) truck bins, a baghouse, and relocate two existing cyclones at 51 Ellis Street, Raymond, Washington. The new and relocated equipment will replace eight (8) existing batch kilns, a hog fuel boiler, and truck bins. The action qualifies as establishing new "Stationary Sources" of air emissions and therefore requires prior approval by the Olympic Region Clean Air Agency (ORCAA). ORCAA staff reviewed Weyerhaeuser's proposal and concluded it may be conditionally approved. Recommended conditions of approval are detailed in Section 18 of this Preliminary Determination report.

2. Regulatory Background

Pursuant to the Washington Clean Air Act under chapter 70A.15 of the Revised Code of Washington, ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c)[1] require New Source Review (NSR) for new stationary sources of air pollution (referred to as new sources) in ORCAA's jurisdiction. NSR is also required prior to installing, replacing, or substantially altering any air pollution control technology. NSR generally refers to the process of evaluating air quality impacts and the likelihood of compliance with applicable air regulations and standards. NSR and approval of an air permit by ORCAA is required prior to commencing construction or modification of any new source or prior to installing, replacing, or substantially altering air pollution control technology. The goal of NSR is to assure compliance

[1] A State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the National Ambient Air Quality Standards, or NAAQS, and to fulfill other requirements of the federal Clean Air Act. The Clean Air Act requires the EPA to review and approve all SIPs. ORCAA's SIP was last approved by EPA in 1995.

with applicable air regulations and standards, including equipment performance standards and ambient air quality standards.

NSR is initiated by a project proponent submitting an air permit application referred to as Notice of Construction (NOC) application[2], which provides ORCAA information on the proposed project of sufficient detail to characterize air impacts. NOC applications are posted on ORCAA's website and may undergo a public notice and comment period if requested by the public or if emissions increases trigger an automatic public notice. Approval of a NOC in an attainment or unclassifiable area[3] is contingent on verifying a proposed project meets the following criteria from ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6:

1. ***Performance Standards*** **-** The new stationary source will likely comply with applicable air-performance standards such as federal new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAPs), or any performance standards adopted under chapter 70A.15 RCW;
2. ***BACT*** **-** The new stationary source will employ "Best Available Control Technology" (BACT) to control all air pollutants emitted;
3. **RACT** – Replaced or substantially altered air pollution control technology meets the standard of "Reasonably Available Control Technology" (RACT) as defined in ORCAA Rule 1.4;
4. ***Ambient Air Quality*** **–** Emissions from the new stationary source will not cause or contribute to a violation of any ambient air quality standard;
5. ***Federal Air Permitting Requirements*** **-** The new stationary source secures all applicable federal air permits that may apply; and,
6. ***Air Toxics*** **-** If there are increases in toxic air pollutant (TAP) emissions, the requirements of Washington's Controls for New Sources of Toxic Air Pollutants under Chapter 173-460 WAC are met.

In this case, Weyerhaeuser is proposing to install a direct-fired continuous dry kiln rated 310 million board feet/year (MMbf/yr), five (5) truck bins, a baghouse, and relocate two existing cyclones at their lumbermill located in Raymond, Washington. These are considered new stationary sources of emissions and trigger NSR, even though they will be replacing similar equipment and systems that were part of the existing mill. Equipment and systems at the mill that will not be replaced, reconstructed, or modified, are not subject to NSR. The planer mill and the sawmill will not be replaced or modified and, therefore, will not be subject to NSR.

[2] There are two categories of NOC applications: Notice of Construction (NOC) and Notice of Construction Revision (NOR). NOCs are required for new or modified sources, new control technology, replacing an existing stationary source or control technology, and substantially altering control technology. NORs are required when an owner or operator requests a revision to an existing air permit issued by ORCAA.

[3] Unclassified area or "attainment area" means an area that has not otherwise been designated by EPA as nonattainment with ambient air quality standards for a particular regulated pollutant. Attainment area means any geographic area in which levels of a given criteria air pollutant (e.g., ozone, carbon monoxide, PM10, PM2.5, and nitrogen dioxide) meet the health-based National Ambient Air Quality Standards (NAAQS) for that pollutant. An area may be an attainment area for one pollutant and a nonattainment area for others.

3. Facility Background

Weyerhaeuser produces kiln-dried lumber and several other products from wood residuals and has been in operation since the 1950's. Weyerhaeuser has received several permits through ORCAA over the years. A summary of NOC's issued at Weyerhaeuser is included in Table 3.1 below.

Table 3.1. Summary of Air Regulatory History

NOC # (date)	Description (for informational purposes only)	Status
NOC no number issued: 7/17/73	Unconditional approval for shake mill equipment.	Retired
NOC no number issued: 2/5/74	Unconditional approval of cyclone for separating cedar waste (unit ID# 4, 55' ht, 2000 acfm).	Retired
NOC no number issued: 2/5/74	Unconditional approval of cyclone for separating wood chip material (unit ID# 5, 55' ft, 1500 cfm)	Retired
NOC no number issued: 2/5/74	Unconditional approval of cyclone for separating cedar sawdust (cyclone #6, 45' ht, 2000 acfm)	Retired
NOC no number issued: 11/25/74	Unconditional approval of bark press and fluid bed unit to be added to boiler #1 (old fluidized bed boiler).	Retired
NOC no number issued: 9/9/75	Unconditional approval of "low pressure" cyclone for separating dry shavings and sawdust (unit ID# 8, 63' ht, 1377 acfm).	Superseded
NOC no number issued: 9/9/75	Unconditional approval of "high pressure" cyclone for separating dry shavings and sawdust (cyclone #8, 50' ht.)	In effect, unconditional.
NOC no number issued: 9/9/75	Unconditional approval of cyclone for separating dry shavings and sawdust (unit ID #7, 108' ht, 9480 acfm). Notes on NOC data sheet refer to unit as "Wellons Bin".	Superseded by subsequent NOC for cyclone #7 issued 9/9/75.
NOC no number issued: 9/9/75	Unconditional approval of cyclone for separating dry shavings and sawdust (cyclone #7, 95' ht, , Sutorbilt model 22x60, 200 hp blower). Notes on NOC data sheet refer to unit as "Wellons Bin".	In effect, unconditional.

NOC # (date)	Description (for informational purposes only)	Status
NOC #112 issued: 4/19/76	Unconditional approval for a cyclone for separating sawdust and shavings (Cyclone #11, 60' ht, 9500 acfm, Sutorbilt model 22x60, 200 hp blower).	Retired: Cyclone replaced by Western Pneumatics, Inc. cyclone.
NOC #152 issued: 10/27/76	Unconditional approval of boiler ID fan and air pre-heater bypass.	Retired. Fluidized bed boiler was replaced by the current Wellons hog fuel boiler in 1995.
NOC #213 issued 12/30/77	Unconditional approval of cyclone for separating cedar and shingle mill waste (19,800 acfm)	Retired
NOC #263 issued sometime in 1978	Unconditional approval of wet scrubber for boiler #1.	Retired. Fluidized bed boiler was replaced by the Wellons hog fuel boiler in 1995.
NOC #270 4/30/79	Unconditional NOC approval of multiclone for fluidized bed boiler.	Retired. Fluidized bed boiler was replaced by the Wellons hog fuel boiler in 1995.
NOC #338 8/30/83	Unconditional approval of filing room for saw and planer knife sharpening.	In effect, unconditional.
NOC #483 10/12/92	Determination was that a NOC for the dry kiln replacements was not required as the replacement was "in-kind".	Cancelled. NOC application submitted, however final determination was that NOC approval was not required.
NOC #501 11/23/92	Conditional approval of new Dayton cyclone for cross-cut saw.	Superseded by 98NOC009
NOC #553 issued: 2/14/93 amended: 5/18/95 amended: 12/3/99	Conditional approval of new dust collection system for planing mill. System includes: 1. planing mill BH #1 2. planing mill cyclone #5	Active

NOC # (date)	Description (for informational purposes only)	Status
NOC #554 issued: 2/14/93 amended: 5/18/95 amended: 12/3/99 Superseded: 3/15/2006	Conditional approval of powerhouse baghouse system.	Superseded – equipment destroyed in fire and superseded by 06NOC467
NOC 94NOC589 Reissued: 5/18/95	ESP Approval: Conditional approval to install an electrostatic precipitator.	Superseded by 95NOC646.
NOC 95NOC646 95NOC647 combined Issued: 8/8/95 Amended: 12/3/99	Conditional approval for: 1. Wellons boiler Dry kilns #5 & #6	Active, though equipment will be retired after CDK conditioning period's successful conclusion.
NOC #589 issued 12/13/95	This NOC approved a temporary diesel fired portable boiler that was brought on-site for a period of less than a year.	Expired. This boiler was intended as a temporary unit and is now gone.
NOC 96NOC031 Issued: 12/4/96 Amended: 12/3/99	Conditional approval of new planing mill baghouse (#2, "Carter Day") and cyclone #21.	Active
NOC 97NOC025 issued 7/25/97 amended: 12/3/99	Conditional approval of 4 new lumber dry kilns	Active, though equipment will be retired after CDK conditioning period's successful conclusion.
NOC 98NOC004 issued 1/21/98 amended: 12/3/99	Conditional approval of a new sawmill dust collection system (sawmill baghouse).	Active

NOC # (date)	Description (for informational purposes only)	Status
NOC 98NOC009 issued 3/31/98 amended: 12/3/99	Conditional approval of a new baghouse dust collection system (Superior Systems, Inc. MRM-12) for the package saw, replacing Cyclone#19.	Active
NOC 01NOC110 Issued: 2/2/2001	Revised Condition 12 of 95NOC646. This condition allows for the burning of hog fuel that has been in contact with salt water.	Active, though equipment will be retired after CDK conditioning period's successful conclusion.
NOC 01NOC177 Issued: 8/7/2001	Relocation of two cyclones (#8 & #21), new fuel feed system to boiler, add roof section of existing hog fuel pile, and combustion of on-site demolition debris in hog fuel boiler.	This NOC did not result in ongoing applicable requirements.
NOC 06NOC467 Issued: 4/6/2006	Install a Model 40-20 Clarke baghouse to replace an identical model destroyed in a fire.	Active
NOC 15NOC1130 Issued: 11/9/2015	Replace hog fuel cyclone (Cyclone #11) with "in-kind" high efficiency cyclone.	Active

4. Facility Description

Weyerhaeuser is a lumbermill located in Raymond, WA. Extensive background and facility information is provided in Weyerhaeuser's Technical Support Document located on ORCAA's webpage (www.orcaa.org). A summary of existing equipment is included in Table 4.1 below.

Table 4.1 – Existing Emission Unit Summary

Emission Unit #	Equipment ID	Description	NOC
EU1 Boiler	Wellons hog fuel boiler	• Wellons dual cell furnace. • 80,000 lbs/hr rated saturated steam • 115 MMBtu/hr design heat rate • Controls include multiclone followed by 2 field ESP.	95NOC646 94NOC589
EU2 Kilns	Dry Kiln #1	• 48 MMbf/yr design capacity • 104’ x 34’ x 27’ (ht), double track	97NOC025
	Dry Kiln #2	• 48 MMbf/yr design capacity • 104’ x 34’ x 27’ (ht), double track	97NOC025
	Dry Kiln #3	• 24 MMbf/yr design capacity • 104’ x 34’ x 27’ (ht), single track • shares common wall with #4	94NOC570
	Dry Kiln #4	• 24 MMbf/yr design capacity • 104’ x 34’ x 27’ (ht), single track • shares common wall with #3	94NOC570
	Dry Kilns #5 - #6 identical units	• 24 MMbf/yr design capacity • 104’ x 34’ x 27’ (ht), single tracks	95NOC646/ 95NOC647
	Dry Kilns #7 - #8	• 13 MMbf /yr design capacity each • Single track • Single track kilns with common wall between • 68’ x 34’ x 27’ (ht)	97NOC025
EU3 Planer Mill	Cyclone #5	• Clarke Pneu-Aire, 65,000 acfm • Catch to cyclone #6 or cyclone #7 • Exhaust to planer mill #1 (Clarke) baghouse • Alternatively, may exhaust to atmosphere when #1 baghouse is malfunctioning. There are indicators by way of a reader board in the sawmill and planer.	95NOC553 95NOC554
	Cyclone #6 (shavings bin)	• Shavings bin cyclone • Grandfathered unit (no NOC) • Processes catch from cyclone #5 • Exhausts to the Carter day baghouse (#2) • Catch empties into shavings truck bin	none

Table 4.1 – Existing Emission Unit Summary

Emission Unit #	Equipment ID	Description	NOC
	Planer Chip Truck Bin (dual bin)	• Planer chips blown to chip truck bin target box. • Exhausts directly to atm.	none
	"Green" Planer Shavings Truck Bin	• Green planer shavings blown to knock-out box above truck bin. • Grandfathered unit (no NOC)	none
	Baghouse #1 (Clarke baghouse)	• Clarke baghouse, Model 40-20 • 65,000 acfm • 100 x 20' bags • Reverse air cleaning system • Pressure drop 1- 3.5 inches water • Processes exhaust from cyclone #5 • Catch to baghouse #2 Carter Day baghouse. • Emergency abort gate bypasses unit and exhausts directly to atm.	95NOC553
	Baghouse #2 (Carter Day baghouse)	• Carter Day, Model 144RJ120 • 38,250 acfm • Reverse air • Pressure drop 0.5- 5.0 inches water • Processes catch from baghouse #1, exhaust from cyclone #6 and emissions from planing mill. • emergency abort gate bypasses unit and exhausts directly to atm. There are indicators by way of a reader board in the sawmill and planer.	96NOC031
	Baghouse #3 (Package Saw Shaker baghouse)	• Superior Systems, Model MRM-12 • Operating air flow: 3500 acfm • Pressure drop: 0.5-4.5" water • 15HP fan • Filter material: 12 oz shaker felt • Control efficiency: 99.9%	98NOC009
EU4 Sawmill	Sawmill Baghouse (Superior Systems)	• Superior Systems, Model 12-138-12 • 44,793 acfm • Purged air • Pressure drop "about 2" per NOC application; 0.5 -4.0 inches water column • Emergency abort system shuts down sawmill dust collection during baghouse malfunctions.	98NOC004

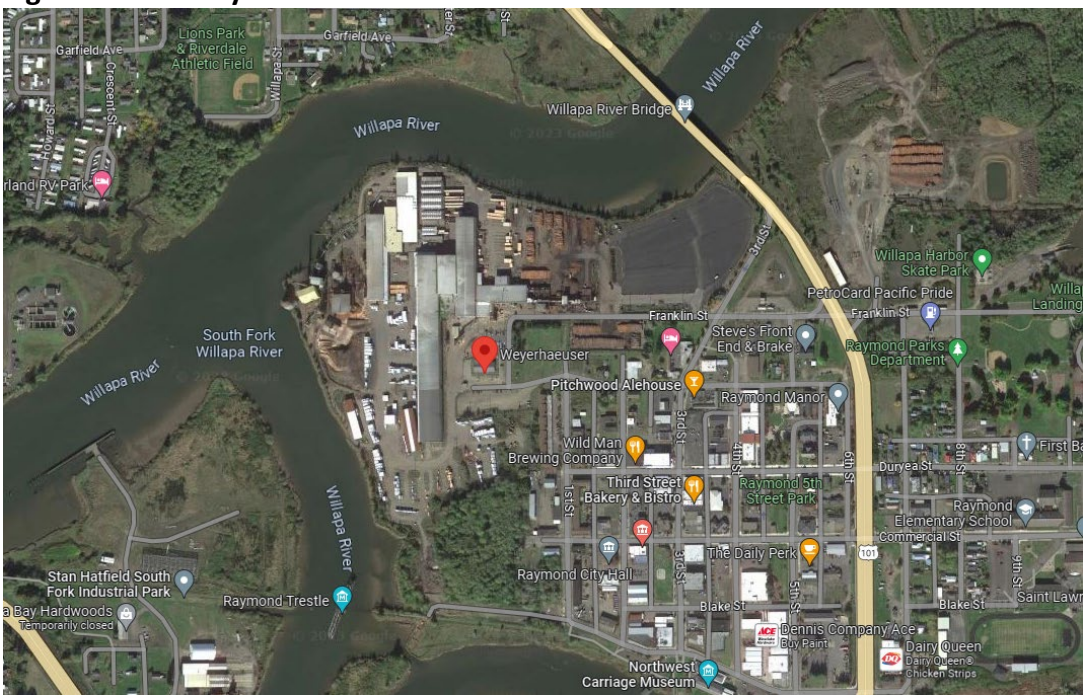
Table 4.1 – Existing Emission Unit Summary

Emission Unit #	Equipment ID	Description	NOC
	Band Saw Filing Room Baghouse	• Exhausts Indoors (no outdoor emissions; exempt unit, included for informational purposes) • Controls emissions from metal filings in the filing room	None
	Sawdust Truck Bin	Fugitive dust emissions during truck loading	None
	Dual Chip Bin	Fugitive dust emissions during truck loading	None
EU5 Hog Fuel System	Powerhouse Baghouse	Controls emissions from cyclones 2, 7, 8, 15, and 21 • Clarke baghouse Model# 40-20 • 15,590 acfm • Reverse air cleaning system • Pressure drop 0.75 - 3.5 inches water • Effective cloth area of 2668 ft^2 • Forty (40) @ 10 oz. Polypropylene felt bags	06NOC467
	Cyclone #2 (not currently in use)	• Attached to Atlas bin • Exhausts to Powerhouse Baghouse • Not currently in use	1975 NOC approval
	Cyclone #7 (The Wellons Bin Cyclone is out of use ever since the Wellons bin fire)	• Wellons Bin Cyclone • Make: unknown, Mod#: unknown • Processes residuals from the planing mill • Catch goes to Wellons bin • Exhaust goes to powerhouse baghouse	1975 NOC approval
	Cyclone #8 (Planer cyclone, Out of use)	• Make: unknown, Mod#: unknown • Processes residuals stored in Wellons bin which is pneumatically transported to cyclone #8. • Catch goes to the wet fuel belt • Exhaust goes to the powerhouse baghouse	1975 NOC approval
	Cyclone #11 (Hog Fuel Pile Cyclone)	• Hog Fuel Pile Cyclone • Make: Western Pneumatics, Inc., • 8,564 acfm • Processes hog fuel from sawmill • Catch goes to conveyor and drops to hog fuel pile • Exhaust goes to atm.	15NOC1130

Table 4.1 – Existing Emission Unit Summary

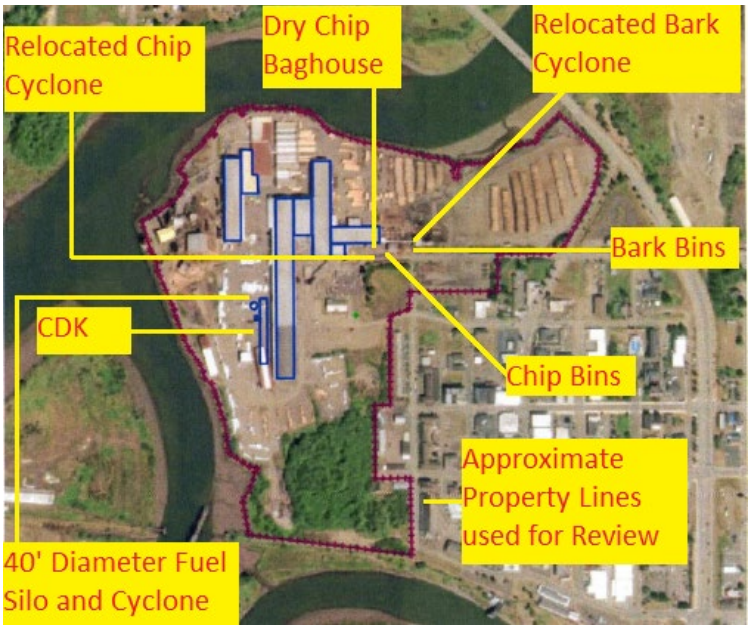
Emission Unit #	Equipment ID	Description	NOC
	Cyclone #15 (Shavings Building Cyclone, out of use)	• Shavings Building Cyclone • Make: Suterbilt, Mod# 22x60HD, Ser# 140 • 200 H.P. • 10,907 ACFM • Exhaust goes to powerhouse baghouse	1975 NOC approval
	Cyclone #21 (powerhouse dust cyclone)	• Superior Systems, Mod# SSI-SL-5 • 5150 acfm • Processes catch from powerhouse baghouse • Catch goes to wet fuel belt • Exhaust goes to powerhouse baghouse	96NOC031
EU6 Log Yard/ Roads	Log Yard/ Roads	• Paved roads in the log yard and other high traffic areas	none

Figure 4.1: Facility Location



*Imagery ©2023 Airbus, CNES/Airbus, Maxar Technologies, USDA/FPAC/GEO, Map data ©2023

Figure 4.2: Site Map – Project Relevant Equipment



-Image provided as part of Weyerhaeuser's permit application
-Annotated by ORCAA Staff

5. Project Description

This project description is primarily taken from Weyerhaeuser's NOC application, as indicated by the passages in italics.

Weyerhaeuser is proposing the installation of one new direct-fired CDK with associated equipment and process changes to replace the Facility's current eight batch kilns and hog fuel boiler. As a part of the project, the Facility will move from processing both Hemlock and Douglas fir to only processing Douglas fir…

[CDK]'s are an emerging technology that significantly improves productivity, lumber grade, and energy efficiency as compared to the operation of conventional steam-heated batch kilns. For example, much of the heat that is lost between batches in a traditional kiln when the doors open is retained within a [CDK]. Since there is no downtime between batches, the continuous kiln remains at operating temperatures, which results in significant energy savings. Additional energy-recovery chambers are constructed on each end of the kiln heating chamber and a pusher system on each end conveys a continuous feed of lumber on one track into the kiln and on a second track in the opposite direction out of the kiln. The heat from the dried lumber coming out of the kiln preheats the green lumber entering the kiln on the second track, resulting in additional efficiency gains.

The operation is continuous and does not shut down except for unplanned malfunction events or planned maintenance outages. The continuous operating features result in improved energy efficiency and productivity of the lumber drying process. In addition, the moisture driven off the green lumber entering the kiln on one track conditions the dried lumber exiting the kiln heating chamber on the other track, resulting in improved product quality. The gasifier system will have an abort stack which will be closed and only used during periods of startup/shutdown, which is not expected to occur frequently based on the current system design. Vapor extraction modules

will also be installed at each end of the CDK to reduce potential ground level fog hazards and send the majority of the water vapor upwards into the atmosphere.

The proposed CDK will have a capacity of 310 MMbf/yr and will process Douglas fir at a maximum drying temperature of 220 ^{o}F[4]. Heat for the CDK will be provided by direct firing of green sawdust at a capacity of 50 MMbtu/hr…

Five 40-unit truck bins will be installed onsite for storage of green lumber material— two bark bins and three chip bins. Green bark (also referred to as "hog fuel") will be transferred by existing blow pipe from the hog unit to the cyclone on top of the bark bins. This cyclone is not a new unit, but rather is relocated from its present location just north of the fuel house in order to control particulate emissions from the bark transfer. Similarly, dry chips from the planer mill (also referred to as "planer shavings") will be sent by blow pipe to the cyclone on top of the chip bins, which will also be relocated from just north of the fuel house. Exhaust from the chip bins cyclone will be routed to a new dry chip baghouse. The planer shavings will be mixed with green chips that are transferred from the trimmer/sorter/stacker building to the chip bins via covered conveyor. To eliminate fugitive emissions, all conveyor drops are enclosed and cyclone loadings into the truck bins are enclosed by airlock. The last remaining transfer is truck loadout, where each bark and chip bin will be fitted with steel siding to minimize fugitive particulate emissions while loading the trucks.

The Facility currently has paved roads in high-traffic areas, such as inbound/outbound shipping roads, the log yard, and the lumber/shipping areas for vendor traffic. With the CDK project, about 538,700 ft^2 of land will be paved for various uses, such as chip and bark bin truck loading, green lumber holding and staging areas, product storage, and vehicle traffic.

The existing eight batch kilns are being decommissioned once the new CDK is installed. After decommissioning, the kilns will be disassembled and the land will be paved over. Additionally, the proposed CDK will be directly fired, so the existing hog fuel boiler will no longer be necessary, and therefore will also be decommissioned.

Since the green chips and planer shavings will be transferred to new chip truck bins to be sold, the existing dry and green chip bins will be removed. Therefore, the "truck bins" emission unit will no longer exist. Similarly, the "wood waste" (e.g. hogged fuel) emission unit is also removed, since the hog fuel will be transferred to the bark bins for sale, as well as the new use for green sawdust as CDK fuel. [Green fuel will be transferred to the 40' diameter by 84' tall fuel silo and stored prior to entering the CDK. The transfer of fuel to the silo will be controlled by the fuel silo high efficiency cyclone located atop the fuel silo.]

Weyerhaeuser plans to operate two (2) ten hour shifts operating 5 days a week for the saw mill operation (i.e., the steps to convert logs to green lumber), which is different from the CDK lumber drying operations. The CDK will operate on a continuous basis with infrequent startups and shutdowns.

[4] Original application called for 200 ^{o}F

The CDK has two types of stacks, the main stacks (i.e., the Vapor Extraction Modules, VEM) and the abort/bypass stack. From the CDK vendor specification sheet, Weyerhaeuser Raymond's gasifier burner system will be equipped with a "factory poured and cured refractory tee and burner abort stack assembly with sleeved intake for pre-heat of gas combustion air and failsafe shutdown" and a "factory poured and cured refractory lined discharge stack for keeping combustion ducts hot during idle periods for quick burner system re-starts." Emissions are released through the abort/bypass stacks during shutdown, idling, or sudden upsets when the burner must be shutdown. The CDK will normally run on a continuous basis with infrequent startups and shutdowns. When the CDK is not actively drying lumber, it operates in the idling mode.

Based on information shared by the CDK vendor, the burner increases to its maximum firing capacity (50 MMBtu/hr) as quickly as possible. Time to reach maximum firing capacity is dependent on ambient conditions and the current temperature of the firing chamber as determined by the time from the previous operation. The startup may last up to 4 hours without wood moving through the CDK but may occur in less than an hour. During startup, all emissions from the green sawdust combustion are routed into the CDK, exhausting at the vapor extraction points and openings at each end of the CDK.

[Excerpts, 23NOC1614 permit application, and 23NOC1614 permit application addendum as amended by ORCAA staff]

After discussion with the applicant, Weyerhaeuser stated that they will not operate the existing hog fuel boiler and kilns concurrently with the new CDK during the CDK's commissioning period. Weyerhaeuser will operate either the existing boiler and batch kilns or the CDK at any given time until the CDK's commissioning period successfully concludes, at which point Weyerhaeuser will permanently shut down the exiting boiler and batch kilns. Concurrent operating scenarios are prohibited and enforced through Condition 3. The concurrent operation condition will sunset once the existing boiler and batch kilns are removed or made otherwise inoperable at the facility.

Table 5.1: New, Remaining, and Modified Emission Points

Emission Point	Description
Direct-fired Continuous Dry Kiln (CDK) (New)	Manufacturer: KDS Windsor Make: HC-CDK-351 Burner: KDS Windsor 50MMBtu/hr green sawdust gasifier Drying Capacity: 310 MMbf/year Maximum Permitted Drying Temperature Setpoint: 220 ^{o}F (dry bulb) Permitted Drying Species: Douglas Fir Four (4) vapor extraction stacks configured in two (2) sets of two (2) stacks located at north and south ends of CDK Fuel: Fired on green sawdust generated in sawmill
Green Sawdust Residuals Handling System (New)	**Fuel Silo** (New; Fuel Silo loading emissions controlled by Cyclone) Dimensions: 40' Diameter x 84' Height Holds and transfers green sawdust to CDK Emissions controlled by Fuel Silo Cyclone

Emission Point	Description
	Fuel Silo High Efficiency Cyclone (Located atop Fuel Silo; Cyclone Exhausts to Atmosphere) Model: HE1400 Dimensions (approximate): 30’ height x 4’7” diameter Rated ACFM: 6,227
Bark Residual Handling System (New)	**Two (2) Bark Bins #3-4** (New): Fuel Delivery Surge bin and truck bin; surge bin transfers bark to CDK Fuel Silo Intended Use: receives, stores, and transfers bark (aka hog fuel) from sawmill for sale Capacity: 40-Units (each) Truck loadout mitigated by steel siding Exhausts to Cyclone #11 **Cyclone #11** (Existing and relocated; Cyclone #11 Exhausts to Atmosphere) Manufacturer: Western Pneumatics, Inc. Design ACFM: 8,564
Chip/Shavings Residual Handling System (New)	**Three (3) Chip/Shavings Bins #5-7** (New) Receives, stores, and transfers dry chips and planer shavings from planer mill, as well as green chips from the Trimmer/Sorter/Stacker building. Capacity: 40-Units (each) Exhausts to Cyclone #21 Truck loadout mitigated by steel siding **Cyclone #21** (Existing and relocated; Cyclone #21 Exhausts to Baghouse described below) Manufacturer: Superior Systems Model: SSI-SL-5 Design ACFM: 5,150 **Baghouse** (New) Manufacturer: Superior Systems, Inc Model: P12-338-12 Cloth Area: 5,070 ft^2 Control Efficiency: 99% Design ACFM: 40,000 Dimensions: 42’0” Height x 12’3” Diameter
Log Yard/Haul Roads (Modified)	Additional 538,700 ft^2 to be paved Paved surfaces in log yard, haul roads, lumber/shipping areas, chip and bark bin truck loading, green lumber holding and staging areas, product storage, vehicle traffic.
Planer Mill (Existing)	**Cyclone #5** (Existing) Manufacturer: Clarke Pneu-Aire Design ACFM: 65,000 Cyclone #5 Exhausts to Baghouse #1 (Alternatively, may exhaust to atmosphere when Baghouse #1 is malfunctioning) Catch to Cyclone #6 or Cyclone #7 **Cyclone #6** (Existing; Shavings Bin Cyclone)

Emission Point	Description
	Processes catch from Cyclone #5 Cyclone #6 Exhausts to Baghouse #2 Catch empties into shavings truck bin **Dry Planer Shavings Truck Bin #1** (Existing; dual bin) Dual bin Dry planer shaving blown to shavings truck bin target box Exhausts directly to atm **Baghouse #1** (Existing; Clarke Baghouse) Manufacturer: Clarke Model: 40-20 Design ACFM: 65,000 Pressure Drop: 1-3.5" water Processes exhaust from Cyclone #5 Emergency abort gate bypasses unit and exhausts directly to atm Catch to Baghouse #2 **Baghouse #2** (Existing; Carter Day Baghouse) Manufacturer: Carter Day Model 144RJ120 Design ACFM: 38,250 Pressure Drop: 0.5-5.0" water Processes catch from Baghouse #1 Processes exhaust from Cyclone #6 and Planer Mill emissions Emergency abort gate bypasses unit and exhausts directly to atm **Baghouse #3** (Existing; Package Saw Shaker Baghouse) Manufacturer: Superior Systems Model: MRM-12 Design ACFM: 3,500 Pressure Drop: 0.5-4.5" water Control Efficiency: 99.9%
Sawmill (Existing)	**Sawmill Baghouse** (Existing) Manufacturer: Superior Systems Model: 12-138-12 Design ACFM: 44,793 Pressure Drop: 0.5-4.0" water Emergency abort system shuts down sawmill dust collection during baghouse malfunctions **Band Saw Filing Room Baghouse** (Existing) Exhausts Indoors (no outdoor emissions; exempt unit, included for informational purposes) Controls emissions from metal filings in the filing room **Sawdust Truck Bin #2** (Existing) Stores excess sawdust that is not directed to the CDK Fuel Silo Fugitive dust emissions during truck loading

-Emissions Units will be redesignated during the Air Operating Permit 12AOP915 renewal
-Existing EU1 - Wellons Hog Fuel Boiler will be removed after CDK successful conditioning period
-Existing EU2 - Eight (8) Dry Kilns will be removed after CDK successful conditioning period
-Existing EU3 - "Green" Planer shavings truck bin will be removed after CDK successful conditioning period
-Existing EU4 - Dual Chip bin will be removed after CDK successful conditioning period

6. Emission Increases

Except for formaldehyde, Weyerhaeuser's project will result in a decrease in potential emissions in comparison to the existing facility. Weyerhaeuser's consultant calculated PTE assuming the CDK burner operates continuously 8,760 hours a year and the CDK's maximum annual production drying rate of 310 MMbf/year. Facility operations assumed the sawmill runs twenty hours a day in two (2) ten (10) hour shifts on a schedule of five days a week. The facility's potential to emit and the net change in emissions is documented in Table 6.1. Overall facility-wide emissions will decrease due to use of a smaller combustion unit to provide heat for the kilns, drying only Douglas Fir in the kilns, and limiting the drying temperature to a maximum of 220 ^{o}F. ORCAA staff reviewed emissions calculations and emissions factors used and agrees with the methodology and conclusions.

Table 6.1. Project Emissions

Pollutant	Classification (Criteria[a]/ HAP[b]/TAP[c])	Project Emission Rate (lb/hr)	Project Emission Rate (ton/yr)	Previous Facility-Wide PTE (ton/yr)	New Facility-Wide PTE (ton/yr)	Net Change (ton/yr)
PM (Total Particulate)	Criteria	25.5	52.1	Unknown	60.3	Unknown
PM_{10} (Total Particulate) (<= 10 µm)	Criteria	1219.1	30.4	35.4	34.7	-0.7
$PM_{2.5}$ (Fine Particulate (<=2.5 µm)	Criteria	15.2	25.2	27.2	26.4	-0.8
VOC[d] (Volatile Organic Compounds as VOC)	Criteria	53.5	224.9	263	224.9	-38.1
SO_2 (Sulfur Dioxide)	Criteria	1.3	5.5	12.6	5.5	-7.1
NO_X (Nitrogen Oxides)	Criteria	10.3	45.2	271	45.2	-226
CO (Carbon Monoxide)	Criteria	26.9	116.4	282	116.5	-166
CO_2e (CO_2 equivalent; GHG)	N/A	10,478	45,906	96,800	45,906	-50,894

Hazardous Air Pollutants (total HAP)	HAP	5.1	21.7	43.4	21.7	-2
Acetaldehyde	HAP/TAP	1.0	4.3	18.9	4.3	-14.6
Methanol	HAP/TAP	3.3	14.0	29.0	14.0	-15
Formaldehyde	HAP/TAP	0.4	1.8	0.7	1.8	+1.1
Toxic Air Pollutants (total TAP)[f]	TAP	44.0	190	602	190	-412

[a] EPA has established national ambient air quality standards (NAAQS) for six of the most common air pollutants—carbon monoxide, lead, ground-level ozone, particulate matter, nitrogen dioxide, and sulfur dioxide—known as "criteria" air pollutants (or simply "criteria pollutants").
[b] HAP means Hazardous Air Pollutant. Hazardous Air Pollutants are those known to cause cancer and other serious health impacts and are regulated under the federal Clean Air Act.
[c] TAP means any toxic air pollutant regulated in Washington and listed in WAC 173-460-150.
[d] VOC is regulated as a Criteria Air Pollutant because it is a precursor to Ground Level Ozone (O_3)
[e] Table 6.1 includes criteria air pollutants and pollutants of concern. All pollutant emissions are documented in Weyerhaeuser's application addendum dated 2-22-2024.
[f] Total TAP also includes CO and NO_x and assumes all NO_x is emitted as NO_2.

7. Administrative Requirements for NOC Applications

NOC applications are subject to filing fees according to ORCAA Rule 3.3(b) and may incur additional NOC processing fees at an hourly rate according to ORCAA Rule 3.3(c). Applicable NOC filing fees for Weyerhaeuser's NOC application were paid prior to ORCAA commencing processing of the application. Additional NOC processing fees may apply and will be determined and assessed prior to issuing a Final Determination and the Approval Order (a.k.a.: Air Permit).

NOC applications are subject to a 15-day public notice and an opportunity to request a 30-day public comment period and opportunity for a public hearing. Public notice of Weyerhaeuser's NOC application was posted on ORCAA's website on August 24, 2023. The time period for filing comments on the application and requests for a public comment period expired on September 8, 2023. There were no comments.

There were no requests for a public comment hearing during the application noticing period. However, the NOC application is subject to a mandatory public comment period per ORCAA Rule 6.1.3(b) as the project required a Tier II analysis by the Washington State Department of Ecology (Ecology) and the proposal would cause a significant net increase in emissions of several pollutants. Per ORCAA regulations, a public hearing may be scheduled if requested during the public comment period. However, Weyerhaeuser proactively requested ORCAA to schedule a Public Hearing. Therefore, ORCAA will schedule and issue public notice for a public hearing after a preliminary determination has been made.

8. SEPA Review

The State Environmental Policy Act (SEPA) under Chapter 197-11 WAC is intended to provide information to agencies, applicants, and the public to encourage the development of

environmentally sound proposals. The goal of SEPA is to assure that significant impacts are mitigated.

The City of Raymond issued a SEPA Determination of Non-Significance (DNS) number 202304492 for the project on 9/20/2023. The DNS is also available online in the Washington State Department of Ecology's SEPA Register.

9. Criteria for Approval

ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, establish the following general criteria for approving new stationary sources and modifications to existing stationary sources of air pollution in ORCAA's region:

1. ***Performance Standards*** **-** Any new stationary source or modification will likely comply with applicable air-performance standards such as the federal new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAPs), and any performance standards adopted under chapter 70A.15 RCW;
2. ***BACT*** **-** The new or modified stationary source is controlled to a level that meets the standard of "Best Available Control Technology" (BACT);
3. ***Ambient Air Quality*** **–** Any increase in air emissions will not cause or contribute to violation of any ambient air quality standard;
4. ***Federal Air Permitting Requirements*** **–** All applicable federal air permits, if required, are secured;
5. ***Washington Air Toxics Regulations*** **-** If there are increases in toxic air pollutant (TAP) emissions, the requirements of Washington's Controls for New Sources of Toxic Air Pollutants under Chapter 173-460 WAC are met; and,
6. ***Public Outreach*** **–** Public notice and comment requirements in ORCAA's regulations and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6 are met.

The following sections provide more detail on each criterion.

10. Applicable Performance Standards (Summary)

ORCAA's Rule 6.1.4(a)(1) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require a finding that any new or modified stationary source will likely comply with applicable state, federal and local performance standards for air emissions including emission standards adopted under chapter 70A.15 RCW, emissions standard of ORCAA, and federal emission standards including New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT standards). The performance standards in Table 10.1 were determined applicable to the proposed CDK and facility upgrades project. The performance standards in Table 10.2 were determined relevant to the proposed CDK and kiln upgrades project, but inapplicable. A comprehensive list of applicable performance standards that apply to all stationary sources of air pollution located at the facility, as well as general air regulations and standards that apply, are included in the Appendix.

Table 10.1: Applicable Performance Standards specific to the proposed CDK and Facility Upgrades Project

Title Citation	Brief Description (Consult rule/regulation for specific requirements)	discussion/determination
40 CFR Part 63 Subpart ZZZZ	Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources for HAP emissions. In this case, Weyerhaeuser is a major source of HAPs.	Applies to 238 BHP fire pump engine. 238 BHP fire pump engine is not a part of this permitting action and requirements will be included in AOP renewal.
40 CFR Part 63 Subpart DDDD	National Emission Standards for HAP: Plywood and Composite Wood Products (PCWP MACT). According to 40 CFR 63.2231(a), facilities that are major sources of HAP and kiln dry lumber are subject to this subpart. According to 40 CFR 63.2252, no requirements from this subpart or subpart A other than initial notification apply to equipment, including lumber kilns, that are not subject to any of the compliance options or work practice standards. The only requirements therein to which the facility is subject are the initial notification requirements in 40 CFR 63.9(b).	Applies to CDK. However, there are no ongoing requirements to Subpart DDDD beyond initial reporting, which is accomplished through this permitting action.

Table 10.2: Relevant Performance Standards Determined Inapplicable

Regulation Title Citation	Relevant Performance Standard Determined Inapplicable	Basis
40 CFR Part 60 Subparts D, Db, Dc	Standards for Fossil Fuel-Fired Steam Generating Units. Subparts D, Db, and Dc apply to steam generating units, which are devices that combust any fuel or byproduct/waste and produces steam, or heats water, or heats any heat transfer medium, which is any material that is used to transfer heat from one point to another point. Since the CDK gasifier will directly-fire wood and heat green wood materials only and no heat form the gasifier will be used to generate steam for any other purpose at the facility, the CDK gasifier and CDK does not meet the definition of a steam generating unit and the Subparts do not apply.	Neither CDK nor CDK's gasifier meets definition of a steam generating unit.
40 CFR Part 60 Subparts Cb, Eb, Ec	Standards for Incineration Units. Subparts Cb, Eb, and Ec apply to units incinerating municipal solid waste or hospital/medical/infectious waste.	Neither CDK nor CDK's gasifier incinerates municipal solid waste or hospital/medical/infectious waste.
40 CFR Part 60 Subpart Part 60 Subpart CCCC	Standards of Performance for Commercial and Industrial Solid Waste Incineration Units. Applies to commercial and industrial solid waste incineration units and air curtain incinerators combusting secondary materials and/or solid waste.	Green sawdust as combusted in the CDK gasifier is not classified as secondary materials or solid waste, so neither the CDK nor the CDK's gasifier are subject to CCCC.

40 CFR Part 60 Subpart EEEE	Standards of Performance for Other Solid Waste Incineration Units. The affected facility to which this subpart applies is each new incineration unit as defined in 40 CFR 60.2886, and other solid waste incinerator (OSWI) unit as defined in 40 CFR 60.2977.	Weyerhaeuser does not operate any units meeting the definition of OSWI found in Subpart EEEE.
40 CFR Part 63 Subpart QQQQ	National Emission Standards for Hazardous Air Pollutants for Wood Building Products. The National Emission Standards for Hazardous Air Pollutants for Wood Building Products was promulgated on June 21, 2002 and applies to all new and existing facilities that apply coatings to wood building products and that are located at a major source of HAPs.	Weyerhaeuser does not apply coatings to any of the products produced at the facility.
40 CFR Part 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (The Boiler MACT). Subpart DDDDD (commonly referred to as the Boiler MACT) applies to industrial, commercial, and institutional boilers and process heaters at major sources of HAP.	The CDK is direct-fired as the combustion gases from the fuel will directly contact the lumber during the drying process. Therefore, the CDK is not considered a "process heater" or "boiler" and therefore is not subject.
40 CFR Part 63 Subpart HHHHH	National Emission Standards for Hazardous Air Pollutants for Miscellaneous Coating Manufacturing. The National Emission Standards for Hazardous Air Pollutants for Miscellaneous Coating Manufacturing applies to miscellaneous coating manufacturing operations defined in 40 CFR 63.7985(b) that are used to manufacture coatings.	Weyerhaeuser uses stencil and/or paint to mark lumber bundles, but the facility does not use manufacturing operations as described in 40 CFR 63.7985(b), or any other manufacturing operation, to manufacture these marking materials.
40 CFR Part 63 Subpart JJJJJJ	40 CFR Part 63, Subpart JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters at Area Sources. In June of 2010, EPA proposed the NESHAP for boilers and process heaters at area sources of hazardous air pollutants (HAP).	The CDK is not a "process heater" or "boiler" and the facility is a major source of HAP, not an area source of HAP.

11. Best Available Control Technology (BACT)

ORCAA Rule 6.1.4(a)(2) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require the finding that a new source or modification to an existing source of air pollution in an attainment or unclassifiable area will employ best available control technology for all pollutants (BACT) not previously emitted or whose emissions would increase as a result of the new source or modification.

New sources of air pollution and modifications to existing sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, *"an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under chapter 70A.15 RCW emitted from or which results from any new or*

modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

In a December 1, 1987 memorandum from the U.S. Environmental Protection Agency (USEPA) Assistant Administrator for Air and Radiation, the agency provided guidance on the "top-down" methodology for determining BACT. The "top-down" process involves the identification of all applicable control technologies according to control effectiveness. Evaluation begins with the "top," or most stringent, control alternative. If the most stringent option is shown to be technically or economically infeasible, or if environmental impacts are severe enough to preclude its use, then it is eliminated from consideration and then the next most stringent control technology is similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by technical or economic considerations, energy impacts, or environmental impacts. The top control alternative that is not eliminated in this process becomes the proposed BACT basis.

Weyerhaeuser's consultant conducted a top-down BACT analysis for the project and queried the RBLC database, surveyed regulatory agencies, used experience with similar emissions control strategies, surveyed air pollution control equipment vendors for a cost analysis where applicable, and researched available literature. ORCAA staff reviewed Weyerhaeuser's BACT determinations and concurs with the technologies and control limits proposed.

A summary of BACT limits and the method by which Weyerhaeuser will comply with the limits is summarized in Table 11.1. BACT will be enforceable by condition in Section 18.

Table 11.1 Summary of BACT

Emission Unit	Pollutant	BACT Description	BACT Limit and Methodology
Direct-fired CDK	HAPs, TAPs, VOCs	Proper maintenance and operating practices	-Use of energy management system to control drying temperatures and; -Maximum dry bulb drying temperature set point of 220 ^{o}F -Drying temperatures must be maintained at 220 ^{o}F or less on a 3-hour average basis -Drying temperature must be continuously monitored and recorded -Temperature sensors must be maintained and positioned to accurately monitor drying temperatures - O&M Plan
	PM, PM10, PM2.5	Proper maintenance and operating practices	20% opacity per EPA Method 9 O&M Plan
	CO		Annual burner tune-up O&M Plan
	NO_x	Combustion modifications (including secondary gas burner	Annual burner tune-up O&M Plan

		system and flue gas recirculation); Proper maintenance and operating practices	
	SO_2	Low sulfur fuel; Proper maintenance and operating practices	O&M Plan
	Bypass (all pollutants)	Work practice standards	Abort/bypass stack usage monitoring and reporting
Log Yard/ Haul Roads	PM, PM10, PM2.5	Additional portions of haul roads paved to minimize dust.	-Regular watering and vacuuming
Material Transfer: Fuel Silo Loading; Bark Bin Loading	PM, PM10, PM2.5	-Enclosures required for fugitive dust points -Conveyors completely enclosed -Material drop points enclosed or shrouded	-High Efficiency Cyclone -Particulate emissions from the cyclone must not exceed 0.03 gr/dscf -10% opacity per EPA Method 9
Material Transfer: Chip Bin Loading (Dry Chips)			-Cyclone exhausts to baghouse -The baghouse filter efficiency of 99+% -0% opacity per EPA Method 9
Material Transfer: Green Sawdust Sawmill Drop Point			-Building enclosure -10% opacity per EPA Method 9
Material Transfer: Bark and Chip Bin Truck Loadout	PM, PM10, PM2.5	-Steel sidings -Shroudings	-10% opacity per EPA Method 9

12. Ambient Impact Analysis (Criteria Pollutants)

ORCAA's Rule 6.1.4(a)(3) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require emissions from any new stationary source or modification not delay the attainment date of an area not in attainment, nor cause or contribute to a violation of any Ambient Air Quality Standard (AAQS). ORCAA's current Dispersion Modeling Guidance (2009) recommends this approval criteria be demonstrated using dispersion modeling techniques when Potential to Emit (PTE) of any pollutant with an ambient standard is above ORCAA's adopted significant emission level for the pollutant. Any pollutant with a PTE below its significant emission level can be considered insignificant with respect to maintaining the AAQSs.

Weyerhaeuser conducted modeling to determine criteria pollutant ambient impacts and submitted the results as part of the permit application. ORCAA staff reviewed the calculations, modeling protocol, and modeled impacts, and agrees with Weyerhaeuser's conclusion the project will not cause or contribute to a violation of any ambient air quality standard.

Weyerhaeuser's modeling was conducting on all equipment at the facility using worst-case emission rates, except for the sawmill which was modeled at 20 hours a week (two ten-hour shifts) and five days a week. ORCAA will make the assumptions enforceable by condition in Section 18. The CDK's emissions were modeled assuming full PTE and as such, no additional requirements will be made limiting the CDK's hours of operation.

The project was modeled using AERSCREEN using MET data processed with V22112 from 2018-2022 (most recent version at the time). The modeled criteria pollutant impacts review is summarized in Tables 12.1 and 12.2 below.

Carbon Monoxide (CO) was modeled below its associated 1-hour and 8-hour Significant Impact Limits (SIL) identified in WAC 173-400-113 Table 4a, and therefore can be considered not to cause or contribute to a violation of an ambient air quality standard. The SIL analysis is demonstrated below in Table 12.1.

Table 12.1 SIL Model Results

Pollutant	Averaging Period	Concentrations (ug/m3)		Exceeds SIL?
		Modeled	SIL	
CO	1-hr	631.7	2,000	No
	8-hr	261.3	500	No

The remaining project criteria pollutant impacts were modeled with respect to their NAAQS. All remaining criteria emissions impacts were found to be below their associated NAAQS as shown in Table 12.2.

Table 12.2 Criteria Pollutant NAAQS Results

Pollutant	Averaging Period	Concentration (µg/m^3)			NAAQS	Exceeds NAAQS?
		Modeled	Background	Combined		
PM_{10}	24-hr	76.9	42.70	119.6	150	No
$PM_{2.5}$	24-hr	22.9	10.2	33.1	35	No
	Annual	5.6	4.3	9.9	12	No
NO_2	1-hr	111.1	21.81	133	188	No
	Annual	9.8	4.34	14.1	100	No
SO_2	1-hr	18.5	12.28	30.7	196	No

As demonstrated above, it can be concluded the project complies with the requirements of ORCAA's Rule 6.1.4(a)(3) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6 and will not likely cause or contribute to a violation of any AAQS.

13. Ambient Impact Analysis (Toxic Air Pollutants)

Washington's regulation titled Controls for New Sources of Toxic Air Pollutants (Air Toxics Rule) under Chapter 173-460 of the Washington Administrative Code applies to new stationary sources of Toxic Air Pollutants (TAP), including modifications to existing emissions units that increase TAP. The purpose of the Air Toxics Rule is to, "… maintain such levels of air quality as will protect human health and safety." The TAPs covered under the Air Toxics Rule include carcinogens and non-carcinogens. TAP emissions increases for determining applicability are the increases attributable to the new or modified emissions unit - Decreases from existing emissions units are not allowed to be subtracted from project-attributable TAP increases when determining applicability. Also, the Air Toxics Rule provides that review of modifications are limited to the emission unit or units proposed to be modified and the TAPs whose emissions would increase as a result of the modification.

The Air Toxics Rule has two independent requirements for new sources and modifications that increase TAP emissions above de-minimis levels:

1) **tBACT:** The new or modified emission units must use Best Available Control Technology to control TAP emissions (WAC 173-460-040(3)(a)).
2) **Ambient Impact:** The NOC application must demonstrate that any increase in TAP from the new or modified emission units are sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects (WAC 173-460-070).

tBACT

The tBACT requirement applies to any new or modified emission units that triggers the Air Toxics Rule (results in a TAP increase above de-minimis levels), regardless of facility-wide or "net" TAP emissions. The term tBACT means Best Available Control Technology, as that term is defined in WAC 173-400-030, but applied to control of TAP (see BACT definition in Section 11).

All TAP associated with the project are emitted as VOC or particulate (PM) from the CDK. Therefore, Weyerhaeuser proposes that the BACT proposed for control of VOC and particulate emissions (see Table 11.1) also meets tBACT. ORCAA staff agrees that a maximum dry bulb drying temperature of 220 ^{o}F and proper maintenance and operating practices meets tBACT.

Ambient Impact Review

The Air Toxics Rule provides a multi-tiered, screening approach under WAC 173-460-080 to assess health impacts and demonstrate compliance with the ambient impact requirement under WAC 173-460-070, which is that TAP increases must be sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects.

The "First Tier Review" (Tier 1 Review) is a two-step process. First, the emissions increase of each TAP is compared to its unique Small Quantity Emission Rate (SQER). SQERs are listed for each TAP under WAC 173-460-150. An SQER is the level of emissions of a TAP below which dispersion modeling is not required to demonstrate compliance with the ambient impact requirement. TAP emissions increases used in this first step must be based on the maximum potential to emit considering control or reduction in emissions achievable using the air pollution control technology or methods proposed to meet the tBACT requirement. Any TAP with an increase below its SQER can be presumed to be in compliance with the ambient impact requirement. If this is the outcome, further analysis is not required for that TAP. However, TAPs with emissions increases above their SQER must undergo the second step of the Tier 1 Review.

The second step of the Tier 1 Review requires evaluating TAP impacts against Acceptable Source Impact Levels (ASIL) and is referred to as an ASIL Analysis. An ASIL is the adopted health-based concentration for a TAP below which can be presumed as meeting the ambient impact requirement of WAC 173-460-070. ASILs are provided for each TAP under WAC 173-460-150. An ASIL analysis typically involves using an ambient air dispersion model to estimate ambient concentrations resulting from TAP emissions increases and considering air dispersion and local meteorological characteristics of the source. If the modeled impact of the increase in emissions

of a TAP does not exceed its corresponding ASIL, the ambient impact requirement of WAC 173-460-070 may be considered met and the First Tier Review is completed for that TAP.

Emissions rates used to support an ASIL Analysis must be based on the maximum potential to emit considering control or reduction in emissions achievable using the air pollution control technology or methods proposed to meet the tBACT requirement. In addition, the Air Toxics Rule allows TAP reductions from existing emission units not subject to review to be subtracted or "netted out" from TAP increases, provided the reductions are included in the approval order as enforceable voluntary emission limits and meet all the requirements of WAC 173-460-071. These requirements include:

(1) The voluntary emissions reductions must be enforceable through a regulatory order issued by the air permitting agency.
(2) The approval order enforcing the voluntary emissions reductions must include monitoring, recordkeeping, and reporting requirements sufficient to ensure the reductions are maintained.
(3) The agency's preliminary determination to approve the voluntary emissions reductions are subject to a 30-day public notice and comment period and opportunity for a public hearing.

For pollutants with ambient concentrations found to be greater than their ASIL, a "Second Tier Review" (Tier 2 Review) by the Washington Department of Ecology (Ecology) is required. An application for a Tier 2 Review by Ecology is referred to a Tier 2 petition. Tier 2 petitions must include a Health Impacts Assessment (HIA) and estimated ambient TAP impacts based on refined air dispersion modeling. Ecology will not act on a Tier 2 petition unless a written preliminary determination on the NOC application for the new or modified TAP source and a draft approval order have been completed by the local agency with jurisdiction. Ecology's review and approval of a Tier 2 petition is contingent on a finding that TAP impacts meet the ambient impact requirement of WAC 173-460-070 that increases in TAP emissions are sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects. If Ecology recommends denial of a Tier 2 petition, the permitting authority may not approve the project. The applicant then has the option of submitting a petition for a "Third Tier Review" (Tier 3 Review) by Ecology and a request for a risk management decision.

Weyerhaeuser compared the worst-case emissions of all 65 TAPs associated with the project to their respective SQERs. The results of the SQER analysis are included in Weyerhaeuser's 2-22-2024 application addendum. For each TAP that initially exceeded its SQER, Weyerhaeuser conducted an offsetting analysis as allowed by WAC 173-460-080(3) and WAC 173-460-090(6) for Tier I and Tier II reviews, respectively. The offsetting analysis was conducted using actual emissions based on the last ten years of annual emissions inventories for the current combustion and lumber drying operations (hog fuel boiler and indirect-heated batch kilns, respectively). Although the facility's drying capacity is increasing, emissions of several HAPs will decrease as the facility is no longer drying western hemlock. The offset emissions (proposed emissions - actual emissions) were then compared to the SQER.

Not all pollutants previously emitted have quantified emissions. The unquantified emissions are specific to the Wellons boiler emissions. The emissions are unquantified because historical source tests only test for a limited number of TAP of concern and many of the other TAP

emitted were not reviewed in previous permitting actions. As the proposed direct-fired CDK will have a lower maximum heat input than the existing boiler (and the emission factor for both units are the same), emissions from the direct-fired CDK will be lower than actual emissions from the existing boiler. In these instances, net emissions were set to zero and do not exceed the associated SQER. The results of the SQER analysis are included in Table 13.1 below.

Table 13.1 SQER Analysis

Pollutant	CAS #	CDK Emissions (lb/hr)	CDK Emissions (tpy)	Averaging Period	SQER[1] (lb/avg. period)	Project Emissions without netting (lb/avg. period)	Exceed SQER without netting?	Actual Emissions [2] (lb/avg. period)	Net Emissions [2] (lb/avg. period)	Exceed SQER with netting?
Acetaldehyde	75-07-0	1.02E+00	4.30E+00	year	60	8,594	Yes	16,674.31	-8,080.55	No
Acrolein	107-02-8	2.48E-02	1.05E-01	24-hr	0.026	0.60	Yes	0.66	-0.07	No
Formaldehyde	50-00-0	4.18E-01	1.76E+00	year	27	3518.08	Yes	288.09	3,229.99	Yes
Methanol	67-56-1	3.34E+00	1.40E+01	24-hr	1500	80.20	No	N/A	N/A	No
Propionaldehyde	123-38-6	1.21E-02	5.12E-02	24-hr	0.59	0.29	No	N/A	N/A	No
Carbon monoxide	630-08-0	2.69E+01	1.16E+02	1-hr	43	26.94	No	N/A	N/A	No
Nitrogen dioxide	10102-44-0	1.03E+01	4.52E+01	1-hr	0.87	10.33	Yes	14.92	-4.59	No
Sulfur dioxide	7446-09-5	1.25E+00	5.48E+00	1-hr	1.2	1.25	Yes	0.65	0.60	No
Benzene	71-43-2	2.10E-01	9.20E-01	year	21	1839.60	Yes	474.03	1,365.57	Yes
Bis(2-ethylhexyl)phthalate	117-81-7	2.33E-06	1.02E-05	year	68	0.02	No	N/A	N/A	No
Bromobenzene	108-86-1	3.84E-04	1.68E-03	24-hr	4.4	0.01	No	N/A	N/A	No
Bromodichloromethane	75-27-4	2.95E-01	1.29E+00	year	4.4	2584.20	Yes	Not Calculated	0.00	No
Bromomethane	74-83-9	1.84E-04	8.04E-04	24-hr	0.37	0.00	No	N/A	N/A	No
Carbon Tetrachloride	56-23-5	1.28E-04	5.58E-04	year	27	1.12	No	N/A	N/A	No
Carbon-Disulfide	75-15-0	6.25E-03	2.74E-02	24-hr	59	0.15	No	N/A	N/A	No
Chlorobenzene	108-90-7	8.30E-04	3.64E-03	24-hr	74	0.02	No	N/A	N/A	No
Chloroform	67-66-3	1.28E-04	5.58E-04	year	7.1	1.12	No	N/A	N/A	No
Chloromethane	74-87-3	1.33E-03	5.83E-03	24-hr	6.7	0.03	No	N/A	N/A	No
Cresols (mixed isomers)	1319-77-3	1.00E-03	4.38E-03	24-hr	44	0.02	No	N/A	N/A	No
Cumene	98-82-8	8.85E-04	3.88E-03	24-hr	30	0.02	No	N/A	N/A	No
1,2-Dibromoethane	106-93-4	9.15E-05	4.01E-04	year	0.27	0.80	Yes	Not Calculated	0.00	No
1,2-Dibromo-3-chloropropane	96-12-8	5.50E-05	2.41E-04	year	0.052	0.48	Yes	Not Calculated	0.00	No
1,4-Dichlorobenzene	106-46-7	1.40E-02	6.11E-02	year	15	122.20	Yes	Not Calculated	0.00	No
1,1-Dichloroethane	75-34-3	1.50E-03	6.55E-03	year	100	13.10	No	N/A	N/A	No
1,2-Dichloroethane	107-06-2	1.46E-03	6.39E-03	year	6.2	12.79	Yes	18.66	-5.87	No
1,2-Dichloropropane	78-87-5	8.40E-04	3.68E-03	year	16	7.36	No	N/A	N/A	No
2,4-Dinitrotoluene	121-14-2	4.71E-05	2.06E-04	year	1.8	0.41	No	N/A	N/A	No
Ethyl Benzene	100-41-4	1.57E-03	6.85E-03	year	65	13.71	No	N/A	N/A	No

Hexachlorobenzene	118-74-1	5.15E-05	2.26E-04	year	0.35	0.45	Yes	Not Calculated	0.00	No
n-Hexane	110-54-3	1.44E-02	6.31E-02	24-hr	52	0.35	No	N/A	N/A	No
Hexachlorobutadiene	87-68-3	1.83E-05	7.99E-05	year	7.4	0.16	No	N/A	N/A	No
Hydrogen Chloride	7647-01-0	5.55E-03	2.43E-02	24-hr	0.67	0.13	No	N/A	N/A	No
Hydrogen Fluoride	7664-39-3	4.25E-04	1.86E-03	24-hr	1	0.01	No	N/A	N/A	No
Isopropanol	67-63-0	5.50E-02	2.41E-01	1-hr	5.9	0.06	No	N/A	N/A	No
Methyl Ethyl Ketone	78-93-3	2.70E-04	1.18E-03	24-hr	370	0.01	No	N/A	N/A	No
Methyl Isobutyl Ketone	108-10-1	2.23E-02	9.75E-02	24-hr	220	0.53	No	N/A	N/A	No
Methylene Chloride	75-09-2	1.41E-03	6.18E-03	year	9800	12.35	No	N/A	N/A	No
Naphthalene	91-20-3	4.07E-04	1.78E-03	year	4.8	3.56	No	N/A	N/A	No
Pentachlorophenol	87-86-5	2.24E-06	9.81E-06	year	35	0.02	No	N/A	N/A	No
Phenol	108-95-2	7.65E-04	3.35E-03	24-hr	15	0.02	No	N/A	N/A	No
Styrene	100-42-5	7.70E-04	3.37E-03	24-hr	65	0.02	No	N/A	N/A	No
Tetrachloroethene	127-18-4	1.23E-03	5.39E-03	year	27	10.77	No	N/A	N/A	No
Toluene	108-88-3	1.84E-04	8.04E-04	24-hr	370	0.00	No	N/A	N/A	No
Tribromomethane	75-25-2	1.83E-05	7.99E-05	year	150	0.16	No	N/A	N/A	No
1,1,1-Trichloroethane	71-55-6	1.97E-03	8.61E-03	24-hr	370	0.05	No	N/A	N/A	No
1,1,2-Trichloroethane	79-00-5	1.20E-02	5.26E-02	year	10	105.12	Yes	Not Calculated	0.00	No
Trichloroethylene	79-01-6	9.95E-04	4.36E-03	year	34	8.72	No	N/A	N/A	No
2,4,6-Trichlorophenol	88-06-2	1.38E-05	6.04E-05	year	52	0.12	No	N/A	N/A	No
1,2,3-Trichloropropane	96-18-4	1.10E-04	4.80E-04	24-hr	0.022	0.00	No	N/A	N/A	No
Vinyl Chloride	75-01-4	9.20E-04	4.03E-03	year	18	8.06	No	N/A	N/A	No
Xylenes (mixed isomers)	1330-20-7	2.61E-04	1.14E-03	24-hr	16	0.01	No	N/A	N/A	No
Arsenic	7440-38-2	5.05E-04	9.18E-04	year	0.049	1.84	Yes	0.11	1.72	Yes
Beryllium	7440-41-7	2.12E-06	9.26E-06	year	0.068	0.02	No	N/A	N/A	No
Cadmium	7440-43-9	1.55E-04	6.77E-04	year	0.039	1.35	Yes	0.08	1.28	Yes
Chromium	Cr(III)	5.00E-04	2.19E-03	24-hr	0.37	0.01	No	N/A	N/A	No
Chromium, VI	18540-29-9	1.18E-05	5.15E-05	year	0.00065	0.10	Yes	0.98	-0.88	No
Cobalt	7440-48-4	3.06E-05	1.34E-04	24-hr	0.0074	0.00	No	N/A	N/A	No
Copper	7440-50-8	6.70E-04	2.93E-03	1-hr	0.19	0.00	No	N/A	N/A	No
Lead	7439-92-1	1.75E-03	7.64E-03	year	14	15.29	Yes	0.13	15.16	Yes
Manganese	7439-96-5	6.35E-03	2.78E-02	24-hr	0.022	0.15	Yes	0.02	0.13	Yes
Mercury	7439-97-6	4.13E-05	1.81E-04	24-hr	0.0022	0.00	No	N/A	N/A	No
Nickel	7440-02-0	4.42E-04	1.94E-03	year	0.62	3.87	Yes	0.45	3.42	Yes
Phosphorus	7723-14-0	4.93E-03	2.16E-02	24-hr	1.5	0.12	No	N/A	N/A	No
Selenium	7782-49-2	5.15E-05	2.26E-04	24-hr	1.5	0.00	No	N/A	N/A	No

Vanadium	7440-62-2	4.90E-05	2.15E-04	24-hr	0.0074	0.00	No	N/A	N/A	No

1The SQER for each TAP is obtained from the 2019 WAC 173-460 TAP list.
2For each TAP that initially exceeds its SQER, netting was conducted to determine actual emissions based on the last ten years of annual emissions inventories (AEIs) for the current combustion and lumber drying operations (hog fuel boiler and indirect-heated batch kilns, respectively). The net emissions (proposed emissions - actual emissions) are then compared to the SQER. For pollutants that do not have previously quantified emissions, which are evidenced by "Not Calculated" in the Actual Emissions column, it is assumed that by using the same emission factor, proposed emissions will be lower than actual emissions due to the CDK's lower maximum heat input. In these instances, net emissions are set to zero and do not exceed the SQER.

Calculated by applicant and included in 2-22-2024 application addendum. Reviewed by ORCAA Staff.

Seven TAPs from the project were found to exceed their associated SQER. Therefore, emissions from the project were modeled by the applicant with AERMOD using the same methodology and assumptions as described in the NAAQS Ambient Impact Analysis review described in Section 12 above. The results of the TAP model results are shown in Table 13.2 below.

Table 13.2 TAP Model Results

Pollutant	Model Results (ug/m3)	Averaging Period	ASIL[1] (ug/m3)	Above ASIL?
Formaldehyde	0.43	year	0.17	Yes
Benzene	0.23	year	0.13	Yes
Arsenic	0.00022	year	0.00030	No
Cadmium	0.00017	year	0.00024	No
Lead	0.002	year	0.083	No
Manganese	0.15	24-hr	0.30	No
Nickel	0.00047	year	0.0038	No

The ASIL for each TAP is obtained from the 2019 WAC 173-460-150 TAP list.

The maximum modeled impacts of all modeled pollutants except Formaldehyde, Benzene, and Arsenic were found below their respective ASIL across all receptors and model years, and therefore the First Tier Review is completed for these TAPs. Weyerhaeuser submitted a Tier II Health Impact Assessment for Formaldehyde, Benzene, and Arsenic to the Washington State Department of Ecology for review.

During the Health Impact Assessment portion of the permitting process Weyerhaeuser requested a more representative emissions factor for CDK Arsenic emissions be used than the emissions factor initially proposed. The updated emissions factor was calculated using the Weyerhaeuser 2009 source test and the expected CDK emission factor. The 2009 source test used the same fuel (hogged Douglas fir) the CDK will be using. The 2009 source test determined a non-detect value for Arsenic and Weyerhaeuser is requesting to conservatively use a ratio of the non-detect arsenic value and PM10 to represent the relative emissions expected from this fuel type. This ratio is multiplied by the PM10 emission factor expected from the CDK to determine a potential arsenic emission factor. ORCAA staff agreed site-specific emissions factors are likely more representative and agreed to Weyerhaeuser's request.

However, since the 2009 source test determined a non-detect value for Arsenic and the Tier II results are predicated on accurate emissions factors, additional monitoring requirements for Arsenic are required to ensure public health and safety are maintained. Therefore, ORCAA is including requirements to create a fuel monitoring plan, and a requirement to sample fuel for Arsenic content and to create a predictive relationship between Arsenic content in the fuel and Arsenic emissions to demonstrate compliance.

Weyerhaeuser will be required to ensure Arsenic is not emitted at a rate greater than what was reviewed in the Tier II analysis, which was 1.84 lbs/year on a 12-month rolling basis.

The Washington State Department of Ecology (Ecology) completed the Tier II review on April 1, 2024. Ecology recommends approval of the project because:

- *We determined that the emission controls for the new and modified emission units represent best available control technology for toxics.*

- *The applicant demonstrated that the increase in emissions of toxic air pollutants is not likely to result in an increased cancer risk of more than one in one hundred thousand (10 in one million) which is the maximum risk allowed by a second tier review.*
- *We determined that the non-cancer hazard is acceptable.*

[Excerpt from letter from Chris Hanlon-Meyer Re: *Second Tier Review of Weyerhaeuser Inc. Continouous Dry Kiln Project — Raymond, WA*; April 1, 2024]

Ecology noted that because Weyerhaeuser offset toxic air pollutant emission increases under WAC 173-460-080, the existing lumber dry kilns and hog fuel boiler must be removed from service as a condition of approval. ORCAA included the removal of the existing batch lumber dry kilns and existing hog fuel boiler as a requirement under Condition 3(b).

14. ORCAA Formaldehyde Standard – ORCAA 8.6(b)

ORCAA's Rule 8.6(b) does not allow any person to cause or allow the emission of formaldehyde (CAS 50-00-0) into the ambient air beyond such person's property line which will result in a concentration exceeding 61 micrograms per cubic meter 1-hour average. Emissions from the project were therefore modeled by the applicant with AERMOD using the same methodology and assumptions as described in the NAAQS Ambient Impact Analysis review described in Section 12 above. Modeled maximum Formaldehyde emissions were determined to be 9.81 ug/m^3. Therefore, the Weyerhaeuser facility is likely to comply with ORCAA's formaldehyde standard.

15. Requirements for Major Stationary Sources and Major Modifications to Major Stationary Sources (PSD)

Projects that are major stationary sources and major modifications to major stationary sources as defined in 40 CFR 52.21(b) may be subject to permitting requirements under WAC 173-400-700 through 173-400-860.

Based on the emissions factors used in the permit application, Weyerhaeuser's potential to emit is 224.9 tons per year VOC which is below the 250 ton per year PSD applicability threshold. ORCAA is including a federally-enforceable 224.9 TPY as-reviewed limit for VOCs in the recommended conditions of approval in Section 18 to assure that Weyerhaeuser is a minor source with respect to the PSD program.

Weyerhaeuser therefore is not a "Major Stationary Source" as defined in 40 CFR 52.21(b) and not subject to the permitting program required by WAC 173-400-700 through WAC 173-400-860. Therefore, these permitting requirements do not apply.

16. Title V Air Operating Permit (AOP) Implications

The State of Washington program pursuant to Title V of the federal Clean Air Act is governed under Chapter 173-401 WAC, the Washington Air Operating Permit Program. Chapter 173-401 WAC requires existing major stationary sources to operate in compliance with an approved Air Operating Permit (AOP). Major stationary sources are those stationary sources with a potential

to emit which is greater than 100 tons per year of any criteria pollutant, greater than 10 tons per year of any hazardous air pollutants (HAP), or greater than 25 tons per year of any combination of HAP.

Weyerhaeuser is a "Major Source" under the Title V program and is subject to the requirement to operate under an AOP. Weyerhaeuser has operated under a Title V permit since the promulgation of the program and will continue to do so as Weyerhaeuser will be a Major Stationary Source for VOCs, CO, and the HAP Methanol.

17. Environmental Justice Considerations

EPA defines Environmental Justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The purpose of an EJ review in conjunction with an air permitting action is to ensure no group of people bear a disproportionate share of the negative environmental consequences as the result of the permitting action. Further, ORCAA strives to engage the affected community effectively and meaningfully regarding the permitting action, and to ensure compliance with obligations pursuant to Title VI of the Civil Rights Act.

With respect to factoring EJ into air permitting decisions, EPA Region 10 expects air agencies to:

· Identify overburdened communities;
· Engage with communities;
· Evaluate cumulative impacts; and,
· Use available authority to minimize emissions.

However, EPA Region 10 does not expect air agencies to use the Clean Air Act's authorities to address existing disproportional impacts to communities when implementing New Source Review in areas that are "attainment/unclassifiable" with respect to meeting the NAAQS. The following subsections describe how these expectations from EPA Region 10 were met.

17.1 Identify Overburdened Communities

The initial step in an EJ review is to identify any affected populations or communities of concern and to identify whether they are disproportionally impacted. ORCAA used EPA's environmental justice screening and mapping tool, EJScreen, to answer this first part of this question. An EJScreen Community Report was generated for Pacific County. The Community Report estimates a minority population of 20%, with approximately 7% of the total population speaking Spanish and 3% speaking another Non-English language at home. All demographic indicators were below the 80th percentile for the nation. Likewise, the Community Report indicates that Pacific County is below the 80th percentile for all environmental indicators. Environmental indicators above the 80th percentile are an indication that a community is already disproportionately impacted. Therefore, ORCAA staff's conclusion is that the project impact area does not include any preexisting, overburdened communities. A copy of the

Community Report with more detailed information will be filed as part of the supporting documentation for the project.

Preexisting air quality impacts were evaluated based on ambient air quality monitoring data and designation of the area with respect to maintaining compliance with the NAAQS. If air quality in a geographic area meets or is cleaner than a national standard based on ambient air monitoring data, it is called an attainment area and designated "attainment/unclassifiable." Areas may also be presumed "attainment/unclassifiable" based on population density and air pollutant emissions being below certain thresholds. For this case, the project impact area and Pacific County as a whole is designated "attainment/unclassifiable." Therefore, there are no preexisting nonattainment issues identified within the County. The project's criteria emissions will not cause or contribute to a violation of an AAQS. Therefore, ORCAA staff's conclusion is that there are no indications of any existing disproportional impacts to communities of concern within the project impact area.

17.2 Engage with Communities

Based on the size and scope of the project, and that there are no overburdened communities near the project, ORCAA staff determined the public noticing procedures outlined in Section 7 above are sufficient notifications.

17.3 Evaluate Cumulative Impacts

The air permitting action for this case triggered a cumulative impacts analysis. Weyerhaeuser modeled emissions from the north and south CDK stacks, the fuel silo cyclone, the bark cyclone, baghouse #2, the band saw filing room baghouse, the Clarke baghouse, the package saw shaker baghouse, the sawmill baghouse, the powerhouse baghouse, the dry chips baghouse, the CDK north and south inlet doors, the green sawdust sawmill drop, log debarking operations, the chip bin truck loadout, and the bark bin truck loadout to demonstrate compliance with the NAAQS[5] and any triggered ASIL reviews. The TAP and NAAQS reviews demonstrated the worst-case ambient impacts are approvable. ORCAA staff concluded the air analysis can be considered a cumulative analysis with respect to the NAAQS.

17.4 Use Available Authority to Minimize Emissions

As described elsewhere in this report, ORCAA applied existing New Source Review authorities provided under the Clean Air Act and the Washington Clean Air Act to minimize emissions from the proposed new CDK and facility upgrades. Principally among these authorities is the

[5] With the exception of CO, because CO emissions were modeled below the SIL as demonstrated in Table 12.1 above.

requirement to use BACT for controlling emissions. The BACT requirement was applied and corresponding BACT and tBACT emissions limits are included in the air permit.

18. Conditions of Approval

The following conditions of approval were determined necessary for assuring compliance with applicable air regulations and standards and protecting air quality. Recommended conditions of approval will become effective once the Approval Order is issued:

1. **Approved Equipment.** The Continuous Dry Kiln and Facility upgrade project as described in Notice of Construction application No. 23NOC1614 and the associated Final Determination is approved for construction and operation subject to conditions in this Order of Approval. [Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(l); 40 CFR part 52.2470(c), Table 6]

2. **Preapproval Required.** Prior approval by ORCAA may be required for the following as specified in ORCAA Rule 6.1:
    a. Construction, installation, or establishment of any stationary source;
    b. Modification to any existing stationary source;
    c. Replacement or substantial alteration of emission control technology installed on an existing stationary source; or,
    d. Deviations from the approved plans, drawings, data, and specifications of the stationary sources listed in Table 1.

Table 1 New and Modified Stationary sources located Weyerhaeuser

Emission Point	Description
Direct-fired Continuous Dry Kiln (CDK) (New)	Manufacturer: KDS Windsor Make: HC-CDK-351 Burner: KDS Windsor 50MM Btu/hr green sawdust gasifier Drying Capacity: 310 MMbf/year Permitted Drying Species: Douglas Fir only Four (4) vapor extraction stacks configured in two (2) sets of two (2) stacks located at north and south ends of CDK Fuel: Fired on green sawdust
Green Sawdust Residuals Handling System (New)	**CDK Fuel Silo** (New; Fuel Silo loading emissions controlled by Cyclone) Dimensions: 40’ Diameter x 84’ Height Holds and transfers green sawdust to CDK Emissions controlled by Fuel Silo Cyclone **Fuel Silo High Efficiency Cyclone** (Located atop Fuel Silo; Cyclone Exhausts to Atmosphere) Make: HE1400
Bark Residual Handling System (New)	**Two (2) Bark Bins #3-4** (New): Fuel Delivery Surge bin and truck bin; surge bin transfers bark to CDK Fuel Silo Intended Use: receives, stores, and transfers hog fuel from sawmill Capacity: 40-Units (each) Truck loadout mitigated by steel siding Exhausts to Cyclone #11

	Cyclone #11 (Existing and relocated; Cyclone #11 Exhausts to Atmosphere) Manufacturer: Western Pneumatics, Inc.
Chip/Shavings Residual Handling System (New)	**Three (3) Chip Bins #5-7** (New) Receives, stores, and transfers dry chips and planer shavings from planer mill, as well as green chips from the Trimmer/Sorter/Stacker building Capacity: 40-Units (each) Exhausts to Cyclone #21 Truck loadout mitigated by steel siding **Cyclone #21** (Relocated; Cyclone #21 Exhausts to Chip Bins Baghouse) Manufacturer: Superior Systems Model: SSI-SL-5 **Chip Bins Baghouse** (New) Manufacturer: Superior Systems, Inc Model: P12-338-12 Control Efficiency: 99%
Log Yard/ Haul Roads (Modified)	Paved surfaces in log yard, haul roads, lumber/shipping areas, chip and bark bin truck loading, green lumber holding and staging areas, vehicle traffic.

[Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(l); WAC 173-400-110(2); WAC 173-400-111(10)]

3. **Concurrent operation prohibited and decommissioning required.**
   a) The following requirements apply from initial startup of the CDK's KDS Windsor burner until the time that the Wellons hog fuel boiler is permanently decommissioned or removed from the facility.
      i) The Wellons hog fuel boiler and the CDK's KDS Windsor burner may not operate at the same time. For the purposes of determining compliance with Condition 3(a), "operate" is defined as any time there is ignited fuel in the unit.
      ii) For purposes of demonstrating compliance with Condition 3(a), Weyerhaeuser must monitor and record the start and end times of the Wellons boiler operation and the start and end times of the CDK's KDS Windsor burner operation.
   b) The existing batch lumber dry kilns and existing hog fuel boiler must be permanently decommissioned or removed from the facility. The existing batch lumber dry kilns and existing hog fuel boiler must be decommissioned no later than 30 days from the date the KDS Windsor CDK successfully concludes the conditioning period.

[Regulatory Basis: ORCAA Rule 6.1.4(a)(3); ORCAA Rule 6.1.4(a)(5); WAC 173-460-040(3)(b); WAC 173-460-080(3)]

4. **Facility-wide Limits.**
   a) Facility-wide emissions must not exceed the following limits on a 12-month rolling basis:
      i) Volatile Organic Compounds (VOC) emissions must not exceed 224.9 tons per 12-month rolling period;

ii) Particulate matter (PM) emissions must not exceed 60.3 tons per 12-month rolling period;
iii) Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10) emissions must not exceed 34.7 tons per 12-month rolling period;
iv) Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers PM2.5 emissions must not exceed 26.4 tons per 12-month rolling period;
v) Carbon monoxide (CO) emissions must not exceed 116.5 tons per 12-month rolling period;
vi) Nitrogen Oxides (NOx) emissions must not exceed 44.8 tons per 12-month rolling period;
vii) Sulfur Dioxide (SO2) emissions must not exceed 5.5 tons per 12-month rolling period;
viii) Methanol emissions must not exceed 14.0 tons per 12-month rolling period;
ix) Formaldehyde emissions must not exceed 1.8 tons per 12-month rolling period;
x) Phenol emissions must not exceed 3.35E-03 tons per 12-month rolling period;
xi) Acetaldehyde emissions must not exceed 4.3 tons per 12-month rolling period;
xii) Acrolein emissions must not exceed 1.05E-01 tons per 12-month rolling period.

b) Within 30 days of the end of each month, the permittee must determine compliance by calculating actual emissions of each pollutant for the previous month and preceding consecutive 12-month period.

[Regulatory Basis: ORCAA 6.1.2(l); WAC 173-400-111(10)]

5. **Emission Calculations.** Unless otherwise specified in this Order, actual emissions must be calculated according to the methods approved in the application for NOC# 23NOC1614, unless source-specific emission factors have been established through stack testing or other more representative emission factors have been approved by ORCAA.
[Regulatory Basis: ORCAA 6.1.2(l); ORCAA 8.11; WAC 173-400-111(10); ORCAA 6.1.12]

6. **Kiln-Dried Lumber Production Limit.** Kiln-dried lumber production must not exceed 310 million board feet (MMBF) over any 12-consecutive-month period. Within 30 days of the end of each month, the permittee must determine compliance by calculating actual production of kiln-dried lumber for the previous month and preceding consecutive 12-month period.
[Regulatory Basis: ORCAA 6.1.2(l); WAC 173-460-040(3)(b)]

7. **Sawmill and Planer Mill Operation Schedule:**
a) Sawmill and planer mill operations generating point or fugitive particulate emissions are limited to a maximum of twenty (20) hours on any calendar day.
b) Sawmill and planer mill operations generating point or fugitive particulate emissions are limited to a maximum of 100 hours in any calendar week.
[Regulatory Basis: ORCAA Rule 6.1.4(a)(3); WAC 173-400-113(3)]

8. **CDK Opacity Limits.**

a) Visible emissions from the CDK must not exceed 20% opacity during any 6-minute average period in accordance with EPA Reference Method 9 of 40 CFR Part 60, Appendix A.

[Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)]

9. **Facility-wide Arsenic Emission Limit.** Facility-wide emissions of arsenic & inorganic arsenic compounds, NOS must not exceed 1.84 lbs/year on a 12-month rolling basis. Within 30 days of the end of each month, the permittee must determine compliance by calculating actual emissions of Arsenic & inorganic arsenic compounds, NOS for the previous month and the preceding consecutive 12-month period using the emission factors determined according to Condition 10.

[Regulatory Basis: ORCAA Rule 6.1.4(a)(5); ORCAA Rule 8.6(a); WAC 173-460-040(3)(b)]

10. **Arsenic Testing.** The permittee must determine the heat content (Btu/lb), moisture, and percent by weight of Arsenic & inorganic arsenic compounds, NOS through sampling and analysis of a composite sample of the biomass fuel. Unless prior approval is granted by ORCAA, Arsenic & inorganic arsenic compounds, NOS content must be determined using a method from Table 6 to Subpart DDDDD of Part 63. The method used must have a minimum detection limit for arsenic sufficient to verify compliance with the limit in Condition 9. The testing must be conducted:
    i) Monthly for the first twenty-four (24) months of CDK operation,
    ii) in conjunction with any stack testing required under Condition 18, and
    iii) as requested by ORCAA.

    [Regulatory Basis: ORCAA Rule 6.1.4(a)(5); WAC 173-460-040(3)(b)]

11. **Continuous Dry Kiln Drying Temperature:**
    a) Drying temperatures must be maintained at a dry bulb temperature of 220 ^{o}F or less on a 3-hour block average basis during all hours of operation.
    b) For purposes of complying with the dry bulb temperature limit, dry bulb temperature sensors must be located in a position to determine the dry bulb temperature of the heated air in each zone in the drying section. The temperature sensors must be calibrated and replaced according to manufacturer specifications.
    c) The temperature sensors must continuously monitor and record CDK dry bulb temperatures at all times the CDKs are drying lumber.
    d) The permittee must record the average temperature in each zone in the drying section at least once every 15 minutes and calculate the 3-hour block average from the recorded readings for comparison to the temperature limit.

    [Regulatory Basis: Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)(a)]

12. **Minimize CDK Fugitive Emissions.** The permittee must operate the CDK Vapor Extraction systems at all times the CDK is drying lumber in a manner to minimize fugitive emissions from the doors of the kiln. The permittee must operate and monitor the operations of the system fans as established in the CDK O&M Plan.

    [Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)]

13. **CDK Bypass Stack Operation.** The permittee must monitor the CDK abort stack and any other bypass stacks by installing, maintaining, and operating a bypass line valve or damper indicator to continuous monitor valve or damper position. The monitoring system must be capable of notifying the operator whenever a bypass stack is in use. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve or damper position and that the notification system is working.
    [Regulatory Basis: ORCAA 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)]

14. **CDK Operation and Maintenance Plan**: The permittee must develop, implement, and modify when necessary an operation and maintenance plan for the CDK to assure continuous compliance with the permit requirements. At a minimum, the plan must include the following:
    a) Procedures for maintaining the integrity of lumber kiln internal air flow and heat distribution components (e.g., baffles, fans, vents, and temperature sensors) to provide as uniform a temperature and air flow as reasonably possible.
    b) Charge optimization practices to promote uniformity in lumber charged into the kiln (e.g., sizing, sorting, stickering, conditioning).
    c) Procedures to limit lumber over-drying including:
        i) Installing, operating, and maintaining a computerized kiln management system to control the entire drying process including in-kiln temperature and moisture monitoring; and
        ii) Corrective actions to be taken during abnormal CDK operation including actions taken if the CDK's main drying chamber temperature exceeds 220 ^{o}F (dry bulb temperature) or the lumber moisture content is below the target moisture content.
    d) Procedures to minimize fugitive emissions from the ends of the CDK, including establishing and monitoring the fan setting for each vapor extraction stack to achieve at least 80% capture of emissions.
    e) Establish and adhere to a maintenance schedule for the CDK according to manufacturer recommendations.
    f) Establish and adhere to a weekly inspection schedule of the CDK to inspect and take necessary corrective maintenance action of the following CDK components:
        i) Seals and CDK structure integrity;
        ii) CDK vent and fan systems (including, but not limited to regular air velocity checks)
        iii) CDK steam system
        iv) CDK control PC interface system
    g) Maintain a reasonable supply of frequently needed CDK spare parts.
    h) Procedures for monitoring the tons of sawdust combusted in the CDK burners.
    i) Procedures to ensure that, to the extent practicable, the CDK is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions at all times, including periods of startup, shutdown, and malfunction. Determination of whether acceptable operation and maintenance procedures are being used will be based on information available to ORCAA which may include, but is not limited to, monitoring results, opacity observations, review of O&M procedures, and inspection of the source.

    [Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)]

15. **CDK Burner Tune-Ups.** The permittee must conduct an initial tune-up on the CDK burner(s) during the CDK conditioning period. Subsequent tune-ups must be conducted no more than 12 months after the previous tune-up.
    a) Inspect the burner. Clean, repair, or replace any components of the burner as necessary.
    b) Inspect the combustion air system and system that controls the air-to-fuel ratio to make sure it is functioning properly (according to manufacturer's guidelines, if available).
    c) Inspect the fuel delivery system and, if applicable, the ash removal system to make sure each system is functioning properly (according to manufacturer's guidelines, if available).
    d) The burner must be tuned-up to meet manufacturer's recommended or guaranteed operating emission levels, whichever levels result in the least emissions of NOx and CO.
    e) A record of all measurements (before and after adjustment), adjustments, and maintenance actions must be retained.
    f) Emissions must be measured using an electrochemical cell combustion analyzer or another analyzer pre-approved by ORCAA;
    g) The analyzer(s) response to span (calibration) gas of a known concentration (reference) must be determined before and after testing. No more than 12 hours may elapse between span gas response checks. Test results are invalid if the analyzer zero or span drift exceeds 10% of the span value.
    h) The CO and NOx span gas concentrations must be no less than 50% and no more than 200% of the target emission concentrations per Condition 15(d). A lower concentration span gas may be used if it is more representative of measured concentrations. Ambient air may be used to zero the CO and NOx cells/analyzer(s) and span the oxygen cell/analyzer.
    i) Sampling and measurement must consist of at least 5 minutes of data collection. Data must not be collected until after the analyzer readings have stabilized.

[Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2); WAC 173-460-040(3)]

16. **Wood Residuals and Process Equipment Systems:** The following conditions apply to the green sawdust residuals handling system, bark truck bins #3-4, chip/shavings truck bins #5-7:
    a) Baghouses must achieve an effective control efficiency of at least 99%.
    b) Baghouse performance must be documented through one of the following means:
        i) Site-specific testing in accordance with EPA Method 5;
        ii) Testing performed on a similar unit; or,
        iii) Engineering calculations based on the filtering efficiency of the specific bags used.
    c) Baghouse performance must be maintained by:
        i) Assuring and documenting bag filtering efficiency;
        ii) Periodically inspecting the baghouse and bags for leaks;
        iii) Daily monitoring of pressure drops across the baghouses; and,
        iv) Maintaining pressure drops within the recommended range.
    d) Cyclone performance must be maintained by periodically inspecting the cyclones to ensure the doors/seals and surrounding ductwork are fully sealed.

e) Conveyors used to transport wood residuals containing particulate (sawdust, chipped wood, hog fuel, planer shavings, and wood dust) must be completely enclosed, except for portions of the system where materials are not transported such as return belts.
f) Material drop points along the enclosed wood residuals conveyor system must be enclosed or shrouded. Material drop distances should be minimized to the maximum extent practical to minimize dust.
g) Truck loading operations must be enclosed or shrouded sufficiently to prevent visible airborne dust that persists beyond the facility boundary.
h) Visible emissions from baghouses must not exceed 0% opacity during any 6-minute average period in accordance with EPA Reference Method 9 of 40 CFR Part 60, Appendix A.
i) Visible fugitive dust from cyclones must not exceed 10% opacity during any 6-minute average period in accordance with EPA Reference Method 9 of 40 CFR Part 60, Appendix A.

[Regulatory Basis: ORCAA 6.1.4(a)(2); WAC 173-400-113(2)]

17. **Log Yard/Road Fugitive Emissions**: The permittee must take reasonable precautions to prevent fugitive emissions from the log yard, haul roads, and other areas on site from becoming a nuisance or violating an emission standard or requirement. Reasonable precautions include, but are not limited to, the following:
    a) Using water or another ORCAA-approved dust suppressant as necessary to prevent visible fugitive emissions from haul roads, equipment, and storage piles.
    b) Posting on-site vehicle speed limit of 10 mph.
    c) Periodically clean and water paved haul roads as needed to prevent visible airborne dust that persists beyond the Facility's property lines.

    [Regulatory Basis: ORCAA Rule 6.1.4(a)(2); WAC 173-400-113(2)]

18. **CDK Source Testing.** When requested by ORCAA, the permittee must conduct performance testing of the CDK to establish emission factors. Performance testing must be conducted according to Condition 19.

[Regulatory Basis: ORCAA Rule 1.5(i); WAC 173-400-105(4)]

19. **Performance Testing Requirements.** All performance testing must be conducted as follows unless an alternative has been approved by ORCAA:
    a) Testing must be conducted at within 10% of maximum operating capacity of the unit being tested.
    b) Performance testing must be conducted using EPA methods from 40 CFR parts 51, 60, 61 and 63, approved procedures contained in "Source Test Manual – Procedures for Compliance Testing," state of Washington, Department of Ecology, as of September 20, 2004, on file at Ecology, or other methods approved by ORCAA.
    c) Appropriate Testing Facilities. The permittee is required to provide an appropriate source testing platform and sampling ports.
    d) A performance test must consist of three runs. Each run must be a minimum of one hour (or longer if the test method requires).
    e) During the performance test, the permittee must monitor and record process parameters sufficient to document the unit's operation during the test.

[Regulatory Basis: ORCAA 1.5(j); WAC 173-400-105(4)]

20. **Performance Testing Notifications, Plans and Reports.** Whenever performance testing is required:
    a) The permittee must submit a notification of the intent to conduct a performance test and a site-specific test plan to ORCAA at least 60 calendar days before the scheduled date of a performance test.
    b) At a minimum, the test plan must include the following:
        i. Test program summary;
        ii. Test schedule;
        iii. Data quality objectives;
        iv. Internal and external quality assurance program; and
        v. Identify the process parameters to be monitored during each test.
    c) The permittee must submit a performance test report to ORCAA no later than 60 days after completion of the test. The performance test must be certified as true and accurate by responsible officials from the testing contractor and the permittee. At a minimum, the performance test report must contain the following information:
        i. A description of the source and sampling location;
        ii. The date and time of each test;
        iii. A summary of test results reported in units and averaging period appropriate to the applicable standard;
        iv. A description of the test methods and quality assurance procedures used;
        v. Operating parameters of the emission units during each test;
        vi. Raw field data and sample calculations; and
        vii. Deviations from approved test plans or the O&M Plan.

    [Regulatory Basis: ORCAA Rule 8.11; ORCAA Rule 1.5(d)&(i)]

21. **Recordkeeping Requirements.** The following records must be maintained for at least five years and made available for inspection by ORCAA upon request:
    a) Records of start and end times of Wellons boiler and CDK burners as required by Condition 3.
    b) Records sufficient to document compliance with Condition 16(a, b, and c) for each baghouse.
    c) Records of sawmill and planer mill operating hours sufficient to demonstrate compliance with Condition 7.
    d) Records of fan speed monitoring for each CDK Vapor Extraction stack as required by Condition 12.
    e) Records of inspections, maintenance, and corrective actions taken under the CDK O&M plan. At a minimum, records must include:
        i) Date and time of inspection or action;
        ii) Description of findings or action;
        iii) Name of person (or company) performing the inspection or action; and,
        iv) Description of any corrective actions taken.
    f) CDK dry bulb temperature monitoring records as described in Condition 11.
    g) Results of arsenic testing required by Condition 10.

h) Records of emissions from the facility over the previous month and previous 12-consecutive month period. Records must include:
   i) MMbf of kiln-dried lumber produced;
   ii) Tons of green sawdust combusted by the CDK burners;
   iii) Records sufficient to calculate and report to ORCAA the quantity of criteria pollutants, TAP emissions, and HAP emissions from facility operations.
i) Records of CDK burner tune-ups as required by Condition 15.
j) Copy of the O&M Plan required by Condition 14.
k) Bypass stack monitoring records including date, time, and duration of bypass; gasifier operational status during bypass; and records of monitoring system inspections as required by Condition 13.

[Regulatory Basis: ORCAA 8.11]

19. Preliminary Determination to Approve

This Preliminary Determination documents ORCAA staff's determinations with respect to the applicable criteria of approval in ORCAA Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6. ORCAA staff recommends approval of Weyerhaeuser's proposed CDK and facility improvements, provided the conditions identified in Section 18 of this Preliminary Determination are implemented through an enforceable Order of Approval (AKA: Air Permit).

~ end of section ~

Attachments

Applicable Performance Standards that apply to Weyerhaeuser NR Company Raymond Lumbermill

Title Citation	**Brief Description (Consult rule/regulation for specific requirements)**	**Applies to**
Visible Emissions WAC 173-400-040(2) ORCAA Rule 8.2(a)	Prohibits emissions with opacity of greater than 20% for more than three (3) minutes in any one hour.	Applies generally to all air pollution sources
Sulfur Dioxide WAC 173-400-040(7)	No person shall cause or allow the emission from any emissions unit in excess of one thousand ppm of sulfur dioxide on a dry basis, corrected to seven percent oxygen for combustion sources, and based on the average of any period of sixty consecutive minutes.	Applies generally to facilities that emit Sulfur Dioxide.
Particulate Standards for Process units ORCAA Rule 8.3(a) WAC 173-400-060	Prohibits emissions from any process unit in excess of 0.1 grain/dscf. EPA test methods from 40 CFR Appendix A shall be used should demonstration of compliance be required.	Applies to generally to all stationary process units that exhaust to the atmosphere.
Particulate Standards for Combustion Units ORCAA Rule 8.3(a) WAC 173-400-050(1)	Prohibits emissions from any combustion unit in excess of 0.1 grain/dscf. EPA test methods from 40 CFR Part 60 Appendix A shall be used should demonstration of compliance be required.	Applies generally to all stationary combustion units that exhaust to the atmosphere.