

**PRELIMINARY**  
**ORDER OF APPROVAL**

**NOTICE OF CONSTRUCTION 23NOC1614**

ISSUED to Weyerhaeuser NR Company Raymond Lumbermill on

---

This Order of Approval (“Order”) is issued in accordance with Olympic Region Clean Air Agency (“ORCAA”) Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6.

Conditional approval 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, in Raymond (“Approved Location”), for operation solely as described in the associated Notice of Construction (“NOC”) application 23NOC1614, is hereby GRANTED to Weyerhaeuser NR Company Raymond Lumbermill (“Applicant”), subject to the Conditions of Approval listed below.

This Order and the Conditions of Approval herein remain in effect for the life of the Approved Equipment as used at the Approved Location and are binding on Applicant, current owners and operators of the equipment, and Applicant’s heirs, successors and assigns unless amended or superseded by a subsequent Order issued by ORCAA or unless the equipment is permanently shut down. The Applicant must notify any subsequent owner, operator, heirs, successor or assigns of this Order and the Conditions of Approval herein.

Conditions of Approval established in this Order are enforceable in addition to any applicable state, local and federal regulations, or standards in existence now or in the future. Compliance with the conditions of this Order do not relieve the Applicant or any owner or operator from compliance with ORCAA Regulations, chapter 70A.15 of the Revised Code of Washington, or any other emissions control requirements, nor from any penalties for failure to comply with the same. Applicant may appeal this Order to the Pollution Control Hearings Board (“PCHB”) by filing a written appeal with the PCHB and serving a copy upon ORCAA within thirty (30) days of receipt of this Order.

This Order is GRANTED, subject to the following Conditions of Approval:

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
<b>Direct-fired Continuous Dry Kiln (CDK) (New)</b>	<p>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</p>
<b>Green Sawdust Residuals Handling System (New)</b>	<p><b>CDK Fuel Silo</b> (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</p> <p><b>Fuel Silo High Efficiency Cyclone</b> (Located atop Fuel Silo; Cyclone Exhausts to Atmosphere)  Make: HE1400</p>
<b>Bark Residual Handling System (New)</b>	<p><b>Two (2) Bark Bins #3-4</b> (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</p> <p><b>Cyclone #11</b> (Existing and relocated; Cyclone #11 Exhausts to Atmosphere)  Manufacturer: Western Pneumatics, Inc.</p>
<b>Chip/Shavings Residual Handling System (New)</b>	<p><b>Three (3) Chip Bins #5-7</b> (New)  Receives, stores, and transfers dry chips and planer shavings from planer mill, as well as green chips from the Trimmer/Sorter/Stacker building</p> <p>Capacity: 40-Units (each)  Exhausts to Cyclone #21  Truck loadout mitigated by steel siding</p> <p><b>Cyclone #21</b> (Relocated; Cyclone #21 Exhausts to Chip Bins Baghouse)  Manufacturer: Superior Systems  Model: SSI-SL-5</p>

	<b>Chip Bins Baghouse (New)</b> Manufacturer: Superior Systems, Inc Model: P12-338-12 Control Efficiency: 99%
<b>Log Yard/ Haul Roads (Modified)</b>	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.** 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 disabled or removed from the facility.

- a) 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, "operate" is defined as any time there is ignited fuel in the unit.
- b) For purposes of demonstrating compliance with Condition 3, 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.

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

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 °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 continuously 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 °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 NO<sub>x</sub> 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 NO<sub>x</sub> 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 NO<sub>x</sub> 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 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]

---

PREPARED BY: Aaron Manley, Engineer II

date

---

REVIEWED BY: Jennifer DeMay, PE

date