Simple

air contaminant discharge permit

Department of Environmental Quality

Eastern Region

475 NE Bellevue Dr., Suite 110

Bend, Oregon 97701

(541) 388-6146

This permit is being issued in accordance with the provisions of ORS 468A.040 and

based on the land use compatibility findings included in the permit record.

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| ISSUED TO:  ZeaChem Inc.  165 S Union Blvd., Suite 380  Lakewood, CO 80228 | INFORMATION RELIED UPON:  Application No.: 023871  Date Received: 11/09/09 |
| PLANT SITE LOCATION:  71099 Rail Loop Drive  Boardman, OR 97818 | LAND USE COMPATIBILITY FINDING:  Approving Authority: Morrow County  Approval Date: 10/23/09 |
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**ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY**

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Air Quality Manager Dated

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-0020):

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| **Table 1 Code** | **Source Description** | **SIC** |
| Part B, 13 | Boilers and other fuel burning equipment over 10 MMBtu/hr heat input | 4961 |
| Part B, 57 | Organic or Inorganic Chemical Manufacturing and Distribution | 2869 |

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# GENERAL emission standards AND LIMITS

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| Visible Emissions | Emissions from any air contaminant source must not equal or exceed 20% opacity for a period aggregating more than 3 minutes in any one hour. |
| Particulate Matter Emissions | The permittee must comply with the following particulate matter emission limits, as applicable: |
|  | Particulate matter emissions from any fuel burning equipment must not exceed 0.1 grains per standard cubic foot, corrected to 12% CO2 or 50% excess air. |
|  | Particulate matter emissions from any air contaminant source other than fuel burning equipment and fugitive emission sources must not exceed 0.1 grains per standard cubic foot. |
|  | Non-fugitive particulate matter emissions from any process must not exceed the amount shown in Table 1 of OAR 340-226-0310 for the process weight allocated to such a process. |
| Fugitive Emissions | The permittee must take reasonable precautions to prevent fugitive dust emissions by: |
|  | Treating vehicular traffic areas of the plant site under the control of the permittee. |
|  | Operating all air contaminant-generating processes so that fugitive type dust associated with the operation will be adequately controlled at all times. |
|  | Storing collected materials from air pollution control equipment in a covered container or other method equally effective in preventing the material from becoming airborne during storage and transfer. |
| Particulate Matter Fallout | The permittee must not cause or permit the emission of any particulate matter larger than 250 microns in size at sufficient duration or quantity, as to create an observable deposition upon the real property of another person. The Department will verify that the deposition exists and will notify the permittee that the deposition must be controlled. |
| Nuisance and Odors | The permittee must not cause or allow air contaminants from any source to cause a nuisance. Nuisance conditions will be verified by Department personnel. |
| Fuels | The permittee must not use any fuel other than natural gas. |

# specific performance and emission standards

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| General Provision Requirements – NSPS Subpart A | The permittee must comply with all applicable provisions of 40 CFR Subpart A, including but not limited to the following, (the following summarizes applicable requirements of Subpart A, but is not intended to supersede the subpart): |
|  | Notification and recordkeeping [40 CFR 60.7] |
|  | Notification of the date construction commences for the affected facility, postmarked no later than 30 days after such date. [40 CFR 60.7(a)(1)] |
|  | Notification of the anticipated date of initial startup, postmarked not more than 60 days nor less than 30 days prior to such date. [40 CFR 60.7(a)(2)] |
|  | Notification of the actual date of initial startup, postmarked within 15 days after such date. [40 CFR 60.7(a)(3)] |
|  | The permittee must maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)] |
|  | The permittee must maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system or monitoring device calibration checks; adjustment or maintenance performed on these systems or devices; all other information required by 40 CFR Part 60, recorded in a permanent form, suitable for inspection. [40 CFR 60.7(f)] |
|  | The permittee must not build, erect, install or use any article machine, equipment, or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12] |
|  | At all times including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspections of the source. [40 CFR 60.11] |
| Boiler – NSPS Subpart Dc | The permittee must comply with all applicable provisions of 40 CFR Subpart Dc for the boiler (B9110). These provisions include but are not limited to the following. (Refer to 40 CFR Part 60, Subpart Dc and/or Subpart A for definitions of terminology. This condition summarizes the applicable requirements of Subpart Dc, but is not intended to supersede the subpart.) |
|  | The permittee must submit notification of the date of construction, anticipated startup, and actual startup of the boiler, as provided by Condition 2.1.a. [40 CFR 60.48c(a)] This notification must include: |
|  | The design heat input capacity of the boiler and identification of fuels to be combusted. [40 CFR 60.48c(a)(1)] |
|  | The annual capacity factor at which the permittee anticipates operating the boiler based on all fuels fired and based on each individual fuel fired. [40 CFR 60.48c(a)(3) |
| Equipment Leaks of VOC – NSPS Subpart VVa | The permittee must comply with all applicable provisions and standards of 40 CFR 60, Subpart VVa. (Refer to 40 CFR Part 60, Subpart VVa and/or Subpart A for definitions of terminology. This condition summarizes the applicable requirements of Subpart VVa, but is not intended to supersede the subpart.) |
|  | Standard for pumps |
|  | Each pump in light liquid service must be monitored monthly to detect leaks by the methods specified in 40 CFR 60.485a(b), except as provided in 40 CFR 60.482-1a(c) and (f) and 40 CFR 60.482-2a(d), (e), and (f). [40 CFR 60.482-2a(a)(1)] |
|  | Each pump in light liquid service must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. [40 CFR 60.482-2a(a)(2)] |
|  | If an instrument reading of 2,000 ppm or greater is measured, a leak has been detected. [40 CFR 60.482-2a(b)(1)] |
|  | If there are indications of liquid dripping from a pump seal, the permittee can either designate it as a leak, or monitor the pump within 5 days as specified in 40 CFR 60.485a(b) and use the criteria in permit Condition 2.3.a.iii to determine whether the pump is leaking. [40 CFR 60.482-2a(b)(2)] |
|  | When a leak is detected is must be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in Condition 2.3.g. [40 CFR 60.482-2a(c)(1)] |
|  | A first attempt at repair must be made no later than 5 calendar days after each leak is detected. [40 CFR 60.482-2a(c)(2)] |
|  | Standard for pressure relief devices in gas/vapor service: |
|  | Except during pressure releases, each pressure relief device in gas/vapor service must be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background as determined by the methods specified in 40 CFR 60.485a(c). [40 CFR 60.482-4a(a)] |
|  | After each pressure release, the pressure relief device must be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in Condition 2.3.g. [40 CFR 60.482-4a(b)(1)] |
|  | No later than 5 calendar days after the pressure release, the pressure relief device must be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in 40 CFR 60.485a(c). [40 CFR 60.483-4a(b)(2)] |
|  | Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device is exempted from the requirements of Conditions 2.3.b.i through 2.3.b.iii. [40 CFR 60.482-4a(c)] |
|  | Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of Conditions 2.3.b.i through 2.3.b.iii, provided a new rupture disk is installed as soon as practicable after each pressure release, but no later than 5 days after each pressure relief, except as provided in Condition 2.3.g. [40 CFR 60.482-4a(d)] |
|  | Standard for sampling connection systems: |
|  | Each sampling connection system must be equipped with a closed-purge, closed-loop, or closed-vent system, except as provided in 40 CFR 60.482-1a(c). [40 CFR 60.482-5a(a)] |
|  | Each closed-purge, closed-loop, or closed-vent system shall comply with the following requirements: [40 CFR 60.482-5a(b)] |
|  | 1. Gases displaced during filling of the sample container are not required to be collected or captured; 2. Containers that are part of a closed purge system must be covered or closed when not being filled or emptied; 3. Gases remaining in the tubing or piping between the closed-purge system valves and sample container valves after the valves are closed and the sample container is disconnected are not required to be collected or captured; 4. Each closed-purge, closed-loop, or closed-vent system must be designed and operated to meet one of the requirements in 40 CFR 60.482-5a(b)(4). |
|  | In-situ sampling systems and sampling systems without purges are exempt from Condition 2.3.c. [40 CFR 60.482-5a(c)] |
|  | Standard for open-ended valves or lines: |
|  | Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in 40 CFR 60.482-1a(c). [40 CFR 60.482-6a(a)(1)] |
|  | The cap, blind flange, plug, or second valve must seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line. [40 CFR 60.482-6a(a)(2)] |
|  | Each open-ended valve or line equipped with a second valve must be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. [40 CFR 60.482-6a(b)] |
|  | When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves, but must comply with Condition 2.3.d.iii at all other times. [40 CFR 60.482-6a(c)] |
|  | Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from Condition 2.3.d. [40 CFR 60.482-6a(d)] |
|  | Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block-and-bleed system are exempt from the requirements of Condition 2.3.d. [40 CFR 60.482-6a(e)] |
|  | Standards for valves in gas/vapor service and light liquid service: |
|  | Each valve must be monitored monthly to detect leaks by the methods specified in 40 CFR 60.485a(b), except as provided in 40 CFR 60.482-1a(c) and (f), 60.483-1a, and 60.483-2a. [40 CFR 60.482-7a(a)(1)] |
|  | If an instrument reading of 500 ppm or greater is measured, a leak is detected. [40 CFR 60.482-7a(b)] |
|  | Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected. The permittee may elect to subdivide the valves into two or three subgroups and monitor each subgroup in a different month during the quarter. [40 CFR 60.482-7a(c)(1)] |
|  | If a leak is detected, the valve must be monitored monthly until a leak is not detected for two successive months. [40 CFR 60.482-7a(c)(2)] |
|  | When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in Condition 2.3.g. A first attempt at repair must be made no later than 5 calendar days after each leak is detected. [40 CFR 60.482-7a(d)] |
|  | Valves that have no detectable emissions (as determined by 40 CFR 60.482-7a(f)), are unsafe to monitor (as determined by 40 CFR 60.482-7a(g)), or are difficult to monitor (as determined by 40 CFR 60.482-7a(h)) is exempt from the requirements of this condition. |
|  | Standard for pressure relief devices in light liquid service: [40 CFR 60.482-8a] |
|  | If evidence of a potential leak is found by visual, audible, olfactory or any other detection method, the permittee shall either eliminate the visual, audible, olfactory or other indication of potential leak within 5 calendar days of detection; or |
|  | Monitor the equipment within 5 days by the methods specified in 40 CFR 60.485a(b). When monitoring the equipment an instrument reading of 10,000 ppm or greater is considered detection of a leak. When a leak is detected it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in Condition 2.3.g. |
|  | Delay of repair: |
|  | Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment must occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit. [40 CFR 60.482-9a(a)] |
|  | Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service. [40 CFR 60.482-9a(b)] |
|  | Delay of repairs of valves and connectors will be allowed if: [40 CFR 60.482-9a(c)]  1. The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay or repair; and 2. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10a.  Delay of repair for pumps will be allowed if: [40 CFR 60.482-9a(d)]  1. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and 2. Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.  Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown. [40 CFR 60.482-9a(e)] |
|  | When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump valve or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition. [40 CFR 60.482-9a(f)] |
|  | Standards for connectors in gas/vapor service and in light liquid service: |
|  | The permittee must initially monitor all connectors in the process unit for leaks within 12 months of initial startup. [40 CFR 60.482-11a(a)] |
|  | Except as allowed in 40 CFR 60.482-1a(c), all connectors in gas and vapor and light liquid service must be monitored to detect leaks by the method specified in 40 CFR 60.485a(b) and as applicable, 40 CFR 60.485a(c). If an instrument reading greater than or equal to 500 ppm is measured, a leak is detected. [40 CFR 60.482-11a(b)(1) and (2)] |
|  | If 0.5% or more of the connectors in the process unit were leaking during the previous monitoring, subsequent monitoring must occur within 12 months. [40 CFR 60.482-11a(b)(3)(i)] |
|  | If less than 0.5% but greater than or equal to 0.25% of the connectors in the process unit were leaking during the previous monitoring, subsequent monitoring must occur within 4 years. The permittee may comply with this monitoring schedule by monitoring at least 40% of the connectors within 2 years, providing all connectors have been monitored by the end of the 4-year monitoring period. [40 CFR 60.482-11a(b)(3)(ii)] |
|  | If less than 0.25% of the connectors in the process unit were leaking during the previous monitoring, the permittee must monitor at least 50% of the connectors within 4 years of the start of the monitoring period. If 0.35% or more of the connectors monitored during the 4-year period are found to leak, the permittee must monitor all connectors that have not yet been monitored as soon as practical, but within the next 6 months. At the conclusion of the monitoring, a new monitoring period shall be started pursuant to Condition 2.3.h, based on the percent of leaking connectors. If less than 0.35% of the connectors monitored during the 4-year period are found to leak, the permittee must monitor all connectors that have not yet been monitored within 8-years of the start of the monitoring period. [40 CFR 60.482-11a(b)(3)(iii)] |
|  | If, during monitoring, a connector is found to be leaking, it must be monitored once within 90 days of repair to confirm that it is not leaking. [40 CFR 60.482-11a(b)(3)(iv)] |
|  | The permittee must keep a record of the start date and end date of each monitoring period. [40 CFR 60.482-11a(b)(3)(v)] |
|  | When a leak is detected it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in Condition 2.3g. A first attempt at repair must be made no later than 5 calendar days after detection. [40 CFR 60.482-11a(c)] |
|  | Any connector that is designated unsafe to monitor is exempt from the requirements of this Condition if the permittee demonstrates that the connector is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of monitoring, and the permittee has a written plan that requires monitoring of the connector as frequently as practicable during safe to monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the connector as required in this condition. [40 CFR 60.482-11a(e)] |
|  | Any connector that is inaccessible or is ceramic or ceramic lined is exempt from the monitoring, leak repair, recordkeeping and reporting requirements of this condition. However, if any inaccessible, ceramic, or ceramic lined connector is observed by visual, audible, olfactory, or other means to be leaking, the indications of leak shall be eliminated as soon as practicable. [40 CFR 60.482-11a(f)] |
|  | Test methods and procedures are specified in 40 CFR 60.485a. |
| VOC Emissions from Distillation Operations – NSPS Subpart NNN | The permittee must comply with all applicable provisions and standards of 40 CFR 60, Subpart NNN. (Refer to 40 CFR Part 60, Subpart NNN and/or Subpart A for definitions of terminology. This condition summarizes the applicable requirements of Subpart NNN, but is not intended to supersede the subpart.) |
|  | Within 60 days of achieving the maximum production rate, but no later than 180 days after initial startup the permittee must combust all emissions from distillation vent streams in a flare that meets the requirements of 40 CFR 60.18. [40 CFR 60.662(b)] |
|  | The permittee must install, calibrate, maintain and operate according to manufacturer’s specifications the following equipment: [40 CFR 60.663(b)] |
|  | A heat sensing device at the pilot light to indicate the continuous presence of a flame; |
|  | A flow indicator that provides a record of vent stream flow to the flare at least once every hour. The flow indicator shall be installed in the vent stream at a point closest to the flare and before being joined with any other vent stream. |
|  | The test methods listed in 40 CFR 664(e) must be used to determine the net heating value of the gas combusted in the flare. |
|  | The permittee must notify the Department of the specific provisions of 40 CFR 60.662 with which the permittee has elected to comply. Notification must be submitted with the notification of initial startup required by 40 CFR 60.7(a)(3). If the permittee elects at a later date to use an alternate provision of 40 CFR 60.662, then the permittee must notify the Department 90 days before implementing the change. A performance test must be performed as specified by 40 CFR 60.664 within 180 days of making the change. [40 CFR 60.665(a)] |
|  | The permittee is exempt from the quarterly reporting requirements in 40 CFR 60.7 for the distillation column vents. [40 CFR 60.665(k)] |
| VOC Emissions from Reactor Processes – NSPS Subpart RRR | The permittee must comply with all applicable provisions and standards of 40 CFR 60, Subpart RRR. (Refer to 40 CFR Part 60, Subpart RRR and/or Subpart A for definitions of terminology. This condition summarizes the applicable requirements of Subpart RRR, but is not intended to supersede the subpart.) |
|  | Within 60 days of achieving the maximum production rate, but no later than 180 days after initial startup the permittee must combust all emissions from reactor process vent streams in a flare that meets the requirements of 40 CFR 60.18. [40 CFR 60.702(b)] |
|  | The permittee must install, calibrate, maintain and operate according to manufacturer’s specifications the following equipment: [40 CFR 60.703(b)] |
|  | A heat sensing device at the pilot light to indicate the continuous presence of a flame; |
|  | A flow indicator that provides a record of vent stream flow diverted from the flare at least once every 15 minutes. The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream from being routed to the flare, resulting in emissions to the atmosphere. Where the bypass line is secured in the closed position with a car-seal or lock-and-key type configuration, a flow indicator is not required. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. |
|  | The test methods listed in 40 CFR 704(d) must be used to determine the net heating value of the gas combusted in the flare. |
|  | The permittee must notify the Department of the specific provisions of 40 CFR 60.702 with which the permittee has elected to comply. Notification must be submitted with the notification of initial startup required by 40 CFR 60.7(a)(3). If the permittee elects at a later date to use an alternate provision of 40 CFR 60.702, then the permittee must notify the Department 90 days before implementing the change. A performance test must be performed as specified by 40 CFR 60.664 within 180 days of making the change. [40 CFR 60.705(a)] |
|  | The permittee is exempt from the quarterly reporting requirements in 40 CFR 60.7(c) for the reactor process vents. [40 CFR 60.705(k)] |

# plant site emission limits

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| Plant Site Emission Limits (PSEL) | Plant site emissions must not exceed the following: | | |
| **Pollutant** | **Limit** | **Units** |
| PM | 24 | tons per year |
| PM10 | 14 | tons per year |
| SO2 | 39 | tons per year |
| NOX | 39 | tons per year |
| CO | 99 | tons per year |
| VOC | 39 | tons per year |
| Single HAP | 9 | tons per year |
| Combined HAPs | 24 | tons per year |
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| Annual Period | The annual plant site emissions limits apply to any 12-consecutive calendar month period. | | |

# compliance demonstration

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| Testing Requirements | By no later than 18 months after startup, the permittee must conduct a source test of the CO2 vent to verify emission factors used to determine compliance with the PSEL in Condition 3.1. |
|  | Non-water soluble VOC emissions must be measured using EPA Method 18; |
|  | Water soluble VOC emissions must be measured by an approved isokinetic method (i.e. aldehydes with SW-846 Method 0010); |
|  | EPA Methods 1-4 must be used for gas flowrate measurements; |
|  | The process operating parameters (syrup feed rate, ethanol production rate, etc.) must be monitored and recorded during the source test. |
|  | All tests must be conducted in accordance with the Department’s Source Sampling Manual and the approved pretest plan. The pretest plan must be submitted at least 15 days in advance and approved by the Regional Source Test Coordinator. Test data and results must be submitted for review to the Regional Source Test Coordinator within 30 days unless otherwise approved in the pretest plan. |
|  | Only regular operating staff may adjust the combustion system or production processes and emission control parameters during the source test and within two hours prior to the source test. Any operating adjustments made during the source test, which are a result of consultation with source testing personnel, equipment vendors or consultants, may render the source test invalid. |
| PSEL Compliance Monitoring | Compliance with the PSEL is determined for each 12-consecutive calendar month period based on the following calculation for each pollutant:  E = Σ(EF x P) + AI/2000 lbs  Where,  E = pollutant emissions (ton/yr);  EF = pollutant emission factor (see condition 10.0);  P = process production (see condition 11.0)  AI = Aggregate Insignificant Emissions (1.0 ton/yr) |
| Emission Factors | The permittee must use the default emission factors provided in condition 10.0 for calculating pollutant emissions, unless alternative emission factors are approved by the Department. The permittee may request or the Department may require using alternative emission factors provided they are based on actual test data or other documentation (e.g., AP-42 compilation of emission factors) that has been reviewed and approved by the Department. |
| Tank Emissions | The permittee must use the most recent version of EPA TANKs or equivalent AP-42 algorithm to calculate monthly emissions from the Combined Hydrolyzate Tank (T1040, Emission Point #4), Dilute Acetic Acid Day Tank (T4010, Emission Point #16) and Gasoline Storage Tank (T9960, Emission Point #27). The permittee must use the most recent version of EPA WATER9 or other appropriate method to calculate monthly emissions from the Wastewater Treatment Facility (X9510, Emission Point #26). |
| Equipment Leak Fugitives | The permittee must use the procedures outlined in EPA’s Protocol for Equipment Emissions Estimates, Synthetic Organic Manufacturing Industry (SOCMI) – EPA document 453/R-95-017. If the Average Emission Factor Approach is used to estimate equipment leak emissions then the following equation and assumptions shall be used to calculate equipment leak fugitives:  EVOC = (FA \* WFVOC \* N) \* (1 – CEF)  Where,  EVOC = Emission Rate of VOC from all equipment in the stream of a given type (lb/hr)  FA = Applicable average emission factor for the equipment type from Condition 10.0 (lb/hr/source)  WFVOC = Average weight fraction of VOC in the stream  N = Number of pieces of equipment of the applicable equipment type in the stream  CEF = LDAR control efficiency for the equipment type (0.87 for gas valves, 0.84 for light liquid valves, 0.69 for light liquid pumps, 0.93 for connectors, 0 for all other equipment). |

# recordkeeping requirements

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| Operation and Maintenance | The permittee must maintain the following records related to the operation and maintenance of the plant and associated air contaminant control devices: |
|  | All process and production records as required in Condition 11.0; |
|  | Throughput and fuel usage data as required in Condition 11.0; |
|  | Monthly calculated criteria pollutant emissions; |
|  | NSPS Subpart Dc – Records of the amount of natural gas combusted during each day. [40 CFR 60.48c(g)] |
|  | NSPS Subpart VVa - |
|  | For each monitoring event the permittee must record the monitoring instrument identification, operator identification, equipment identification, date of monitoring, and instrument reading. [40 CFR 60.486a(a)(3)] |
|  | When each leak is detected, the permittee must attach a weatherproof and readily visible identification tag to the leaking equipment. The tag must be marked with the equipment identification number. The tag on a leaking valve may be removed after it has been monitored for 2 successive months as specified in Condition 2.3.e and no leak has been detected during those 2 months. The tag on a connector may be removed after it has been monitored as specified in Condition 2.3.h and no leak has been detected during that monitoring. The tag on all other leaking equipment may be removed after it has been repaired. [40 CFR 60.486a(b)] |
|  | When each leak is detected, the following information must be recorded in a log and kept for 2 years in a readily accessible location:  1. Instrument and operator identification numbers and the equipment identification number, except when indications of liquid dripping from a pump are designated as a leak; 2. The date the leak was detected and the dates of each attempt to repair the leak; 3. Repair methods applied in each attempt to repair the leak; 4. Maximum instrument reading at the time the leak is successfully repaired or determined to be non-repairable, except when a pump is repaired by eliminating the indications of liquid dripping; 5. “Repair delayed” and reason for the delay if the leak is not repaired within 15 calendar days after discovery of the leak; 6. The signature of the owner or operator whose decision it was that repair could not be effected without a process shutdown; 7. The expected date of successful repair if the leak is not repaired within 15 days; 8. Dates of process unit shutdowns that occur while the equipment is unrepaired; and  Date of successful repair of the leak. [40 CFR 60.486a(c)] |
|  | The permittee must maintain the following information pertaining to all equipment subject to Condition 2.3 in a log that is kept in a readily accessible location:  1. A list of identification numbers for equipment subject to Condition 2.3; 2. A list of identification numbers for equipment that are designated for no detectible emissions under 40 CFR 60.482-2a(e), 60 482-3a(i), or 60.482-7a(f). The designation must be signed by the permittee; 3. A list of equipment identification numbers for pressure relief valves required to comply with Condition 2.3.b; 4. The dates, background level, and maximum instrument reading of each compliance test as required in 40 CFR 60.482-2a(e), 60.482-3a(i), 60 482-4a, and 60.482-7a(f); 5. The date and results of the weekly visual inspection for indications of liquids dripping from pumps in light liquid service; 6. Records of monitoring instrument calibrations including date of calibration, initials of operator performing the calibration, calibration gas cylinder identification, certification date, certified concentration, instrument scale(s) used, description of any corrective action taken if the meter readout could not be adjusted to correspond with the calibration gas values, results of each calibration drift assessment, and description of procedures used if the permittee makes its own calibration gas; 7. The connector monitoring schedule for each process unit as specified in Condition 2.3.h.vii; 8. Records of each release from a pressure relief valve subject to Condition 2.3.b. |
|  | The following information for all valves subject to 40 CFR 60.482-7a(g) and (h), all pumps subject to 40 CFR 60.482-2a(g), and all connectors subject to 40 CFR 60.482-11a(e) shall be recorded in a log that is kept in a readily accessible location:  1. A list of identification numbers for valves, pumps, and connectors that are designated as unsafe to monitor, an explanation for each valve, pump, and connector stating why it is unsafe to monitor, and the plan for monitoring each valve, pump, or connector;  A list of identification numbers for valves that are designated as difficult to monitor, an explanation of why the valve is difficult to monitor, and the schedule for monitoring each valve. |
|  | NSPS Subpart NNN - |
|  | The permittee must keep an up-to-date, readily accessible record of the following data measured during each performance test and also include the following data in the report of the initial performance test required under 40 CFR 60.8: flare design, all visible emission readings, heat content determinations, flow rate measurements, exit velocity determinations made during the performance test, continuous records of the flare pilot flame monitoring, and records of all periods of operations during which the pilot flame is absent. [40 CFRR 60.665(b)] |
|  | The permittee must keep up-to-date, readily accessible continuous records of the flow indication specified in Condition 2.4.b.ii, as well as up-to-date, readily accessible records of all periods when the vent stream is diverted from the flare or has no flow rate. [40 CFR 60.665(d)] |
|  | The permittee must keep up-to-date, readily accessible continuous records of the flare pilot flame monitoring specified in Condition 2.4.b.i, as well as up-to-date, readily accessible records of all periods when the pilot flame is absent. [40 CFR 60.665(f)] |
|  | NSPS Subpart RRR - |
|  | The permittee must keep an up-to-date, readily accessible record of the following data measured during each performance test and also include the following data in the report of the initial performance test required under 40 CFR 60.8: flare design, all visible emission readings, heat content determinations, flow rate measurements, exit velocity determinations made during the performance test, continuous records of the flare pilot flame monitoring, and records of all periods of operations during which the pilot flame is absent. [40 CFRR 60.705(b)] |
|  | The permittee must keep up-to-date, readily accessible continuous records of the flow indication specified in Condition 2.5.b.ii, as well as up-to-date, readily accessible records of all periods when the vent stream is diverted from the flare. [40 CFR 60.705(d)] |
|  | The permittee must keep up-to-date, readily accessible continuous records of the flare pilot flame monitoring specified in Condition 2.5.b.i, as well as up-to-date, readily accessible records of all periods when the pilot flame is absent. [40 CFR 60.705(f)] |
| Excess Emissions | The permittee must maintain records of excess emissions as defined in OAR 340-214-0300 through 340-214-0340 (recorded on occurrence). Typically, excess emissions are caused by process upsets, startups, shutdowns, or scheduled maintenance. In many cases, excess emissions are evident when visible emissions are greater than 20% opacity for 3 minutes or more in any 60-minute period. If there is an ongoing excess emission caused by an upset or breakdown, the permittee must cease operation of the equipment or facility no later than 48 hours after the beginning of the excess emissions, unless continued operation is approved by the Department in accordance with OAR 340-214-0330(4). |
| Complaint Log | The permittee must maintain a log of all written complaints and complaints received via telephone that specifically refer to air pollution concerns associated to the permitted facility. The log must include a record of the permittee’s actions to investigate the validity of each complaint and a record of actions taken for complaint resolution. |
| Retention of Records | Unless otherwise specified, all records must be maintained on site for a period of two (2) years and made available to the Department upon request. |

# reporting requirements

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| Excess Emissions | The permittee must notify the Department of excess emissions events if the excess emission is of a nature that could endanger public health. |
|  | Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the regional office identified in Condition 7.4 by e-mail, telephone, facsimile, or in person. |
|  | If the excess emissions occur during non-business hours, the permittee must notify the Department by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311. |
|  | The permittee must also submit follow-up reports when required by the Department. |
| NSPS Subpart A | The permittee must submit the notifications/reports required by Condition 2.1.a to the EPA administrator and DEQ Eastern Regional Office in Bend. |
| NSPS Subpart Dc | The permittee must submit the notifications/reports required by Condition 2.2.a to the EPA administrator and DEQ Eastern Regional Office in Bend.  The permittee must submit boiler fuel reports semi-annually to the Department in accordance with 40 CFR 60.48c(j). All reports must be submitted within 30 calendar days following the end of the applicable reporting period. |
| NSPS Subpart VVa | The permittee must submit semi-annual reports to the Department beginning 6 months after the initial startup date. |
|  | The initial semi-annual report must contain the following information: [40 CFR 60.487a(b)] |
|  | Process unit identification;Number of valves subject to the requirements of Condition 2.3.e, excluding those valves designated for no detectable emissions under the provisions of 40 CFR 60. 482-7a(f);Number of pumps subject to the requirements of Condition 2.3.a, excluding those pumps designated for no detectable emissions under the provisions of 40 CFR 60.482-2a(e) and those pumps complying with 40 CFR 60.482-2a(f);Number of connectors subject to the requirements of Condition 2.3.h. |
|  | All semi-annual reports must include the following information: [40 CFR 60.487a(c)] |
|  | Process unit identification;For each month of the reporting period:Number of valves for which leaks were detected as described in Condition 2.3.e;Number of valves for which leaks were not repaired as required in Condition 2.3.e.v;Number of pumps for which leaks were detected as described in Condition 2.3.a;Number of pumps for which leaks were not repaired as required in Condition 2.3.a.v;Number of connectors for which leaks were detected as described in Condition 2.3.h;Number of connectors for which leaks were not repaired as required in Condition 2.3.h.viii; andThe facts that explain each delay of repair and where appropriate, why a process unit shutdown was technically infeasible;Dates of process unit shutdowns during the reporting period; andRevisions to items reported in the initial semiannual report if changes have occurred since the initial report or subsequent revisions to the initial report. |
|  | The permittee must report the results of all performance tests in accordance with 40 CFR 60.8. |
| NSPS Subpart NNN | The permittee must submit the notifications/reports required by Condition 2.4.d to the EPA administrator and DEQ Eastern Regional Office in Bend. |
|  | The permittee must submit semi-annual reports to the Department with the following information. The initial report must be submitted within 6 months after the initial startup date. [40 CFR 60.665(l)] |
|  | All periods recorded under Condition 5.1.f.ii when the vent stream is diverted from the flare or has no flow rate;All periods recorded under Condition 5.1.f.iii when the pilot flame of the flare was absent. |
| NSPS Subpart RRR | The permittee must submit the notifications/reports required by Condition 2.5.d to the EPA administrator and DEQ Eastern Regional Office in Bend. |
|  | The permittee must submit semiannual reports to the Department with the following information. The initial report must be submitted within 6 months after the initial startup date. [40 CFR 60.705(1)] |
|  | All periods recorded under Condition 5.1.g.ii when the vent stream is diverted from the flare;All periods recorded under Condition 5.1.g.iii when the pilot flame of the flare was absent. |
| Annual Report | For each year this permit is in effect, the permittee must submit to the Department by **February 15** two (2) copies of the following information for the previous calendar year: |
|  | All process and production records as required in Condition 11.0; |
|  | Throughput and fuel usage data as required in Condition 11.0; |
|  | Submit the calculations used to calculate emissions from the storage tanks and the equipment leak fugitives as required in Conditions 4.4 and 4.5. |
|  | Submit the results of the rolling 12-month PSEL compliance calculations from Conditions 4.2, 4.4, and 4.5 for each month of the previous calendar year. |
|  | Records of all planned and unplanned excess emissions events. |
|  | Summary of complaints relating to air quality received by permittee during the year. |
|  | List permanent changes made in plant process, production levels, and pollution control equipment which affected air contaminant emissions. |
|  | List major maintenance performed on pollution control equipment. |
| Initial Startup Notice | The permittee must notify the Department in writing of the date a new facility is started up. The notification must be submitted no later than seven (7) days after startup. |
| Notice of Change of Ownership or Company Name | The permittee must notify the Department in writing using a Departmental “Permit Application Form” within 60 days after the following: |
| Legal change of the name of the company as registered with the Corporations Division of the State of Oregon; or |
| Sale or exchange of the activity or facility. |
| Construction or Modification Notices | The permittee must notify the Department in writing using a Departmental “Notice of Construction Form,” or “Permit Application Form,” and obtain approval in accordance with OAR 340-210-0205 through 340-210-0250 before: |
| Constructing, installing, or establishing a new stationary source that will cause an increase in any regulated pollutant emissions; |
| Making any physical change or change in operation of an existing stationary source that will cause an increase, on an hourly basis at full production, in any regulated pollutant emissions; or |
| Constructing or modifying any air pollution control equipment. |
| Where to Send Reports and Notices | The reports, with the permit number prominently displayed, must be sent to the Permit Coordinator for the region where the source is located as identified in condition 7.3. |

# Administrative requirements

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| Permit Renewal Application | The completed application package for renewal of this permit is due on **January 1, 2015**. Two (2) copies of the application must be submitted to the DEQ Permit Coordinator listed in condition 7.3 |
| Permit Modifications | Application for a modification of this permit must be submitted not less than **60** days prior to the source modification. A special activity fee must be submitted with an application for the permit modification. The fees and two (2) copies of the application must be submitted to the Business Office of the Department. |
| Permit Coordinator Addresses | All reports, notices, and applications should be directed to the Permit Coordinator for the area where the source is located. The Permit Coordinator address is  Department of Environmental Quality  Eastern Region  475 NE Bellevue Dr., Suite 110  Bend, OR 97701  Telephone: (541) 388-6146 |
| Department Contacts | Information about air quality permits and the Department’s regulations may be obtained from the DEQ web page at www.oregon.gov/DEQ. All inquiries about this permit should be directed to the regional office for the area where the source is located. The Department’s regional office is:  Department of Environmental Quality  Pendleton Office  700 SE Emigrant Avenue, Suite 330  Pendleton, OR 97801-2597  Telephone: (541) 276-4063 |
| EPA Administrator | US Environmental Protection Agency  Director, Air and Waste Management Division  1200 Sixth Avenue, Suite 900  Seattle, WA 98101 |

# fees

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| Annual Compliance Fee | The Annual Fee specified in OAR 340-216-0020, Table 2, Part 2 for a Simple ACDP is due on **December 1** of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date. **Late fees in accordance with Part 4 of the table will be assessed as appropriate.** |
| Change of Ownership or Company Name Fee | The non-technical permit modification fee specified in OAR 340-216-0020, Table 2, Part 3(a) is due with an application for changing the ownership or the name of the company. |
| Special Activity Fees | The special activity fees specified in OAR 340-216-0020, Table 2, Part 3 (b through i) are due with an application to modify the permit. |
| Where to Submit Fees | Fees must be submitted to:  Department of Environmental Quality  Business Office  811 SW Sixth Avenue  Portland, OR 97204-1390 |

# general conditions and disclaimers

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| Permitted Activities | This permit allows the permittee to discharge air contaminants from processes and activities related to the air contaminant source(s) listed on the first page of this permit until this permit expires, is modified, or is revoked. |
| Other Regulations | In addition to the specific requirements listed in this permit, the permittee must comply with all other legal requirements enforceable by the Department. |
| Conflicting Conditions | In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply. |
| Masking of Emissions | The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety, or welfare of any person or otherwise violate any other regulation or requirement. |
| Department Access | The permittee must allow the Department’s representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468-095. |
| Permit Availability | The permittee must have a copy of the permit available at the facility at all times. |
| Open Burning | The permittee may not conduct any open burning except as allowed by OAR 340 Division 264. |
| Asbestos | The permittee must comply with the asbestos abatement requirements in OAR 340, Division 248 for all activities involving asbestos-containing materials, including, but not limited to, demolition, renovation, repair, construction, and maintenance. |
| Property Rights | The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. |
| Permit Expiration | A source may not be operated after the expiration date of the permit, unless any of the following occur prior to the expiration date of the permit:A timely and complete application for renewal or for an Oregon Title V Operating Permit has been submitted, orAnother type of permit (ACDP or Oregon Title V Operating Permit) has been issued authorizing operation of the source.For a source operating under an ACDP or Oregon Title V Operating Permit, a requirement established in an earlier ACDP remains in effect notwithstanding expiration of the ACDP, unless the provision expires by its terms or unless the provision is modified or terminated according to the procedures used to establish the requirement initially. |
| Permit Termination, Revocation, or Modification | The Department may modify or revoke this permit pursuant to OAR 340-216-0082 and 340-216-0084. |

# Emission Factors

| **Emissions Device or Activity** | **Pollutant** | **Emission Factor (EF)** | **EF Units** | | **EF Reference** | |
| --- | --- | --- | --- | --- | --- | --- |
| Live Bottom Bin – T1010 | VOC | 1.74 | lb/BDT | | Source Estimate | |
| Lignin Dryer – Y2010 | NOx | 100 | lb/MMcf | | AP-42 Table 1.4-1 | |
| CO | 84 |
| CO2 Vent | VOC | 0.26 | lb/hr | | Source Estimate | |
| Gypsum Filter – F4010 | VOC | 1.66 | lb/Mgal dilute acetic acid | | Source Estimate | |
| Acidification Polishing Filter – F4020 | VOC | 0.07 | lb/Mgal dilute acetic acid | | Source Estimate | |
| Cooling Tower – E9010 | PM | 0.035 | lb/Mgal | | AP-42 table 13.4-1, 2 | |
| PM10 | 0.019 |
| Boiler – B9110 | PM/PM10 | 7.6 | lb/MMcf | | AP-42 Table 1.4-1, 2 | |
| NOx | 100 |
| CO | 84 |
| VOC | 5.5 |
| Combined Hydrolyzate Tank – T1040, Dilute Acetic Acid Day Tank – T4010, Gasoline Storage Tank – T9960 | VOC | Use EPA TANKS software or AP-42 algorithms for 12-month emission rate calculation | | | | |
| Wastewater Treatment Facility – X9510 | VOC | Use EPA WATER9 software for 12-month emission rate calculation | | | | |
| Equipment leak fugitives | | | | | | |
| Valve – gas | VOC | 0.0132 | | lb/hr/source | | EPA-453/R-95-017 Table 2-1 |
| Valve – light liquid | 0.0089 | |
| Pump seal – light liquid | 0.044 | |
| Pressure relief valves | 0.229 | |
| Connectors | 0.004 | |
| Open ended lines | 0.0037 | |
| Sampling connections | 0.033 | |

# Process/Production Records

| **Emissions Device or Activity** | **Process or Production Parameter** | **Frequency** |
| --- | --- | --- |
| Live Bottom Bin – T1010 | Bone dry tons of wood chips | Monthly |
| Lignin Dryer – Y2010 | Million cubic feet of natural gas | Monthly |
| CO2 Vent | Hours of operation | Monthly |
| Gypsum Filter – F4010 | Gallons of dilute acetic acid | Monthly |
| Acidification Polishing Filter – F4020 | Gallons of dilute acetic acid | Monthly |
| Cooling Tower – E9010 | Average water circulation flowrate (gallons/minute) | Monthly |
| Boiler – B9110 | Million cubic feet of natural gas | Monthly |
| Combined Hydrolyzate Tank – T1040 | Throughput gallons | Monthly |
| Dilute Acetic Acid Day Tank – T4010 | Throughput gallons | Monthly |
| Gasoline Storage Tank – T9960 | Throughput gallons | Monthly |
| Wastewater Treatment Facility – X9510 | Throughput gallons | Monthly |
| Equipment Leak Fugitives | Number of pieces of applicable equipment in the stream | Monthly |

# Abbreviations, acronyms, and definitions

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| ACDP | Air Contaminant Discharge Permit |
| ASTM | American Society for Testing and Materials |
| AQMA | Air Quality Maintenance Area |
| calendar year | The 12-month period beginning January 1st and ending December 31st |
| CFR | Code of Federal Regulations |
| CO | Carbon Monoxide |
| DEQ | Oregon Department of Environmental Quality |
| dscf | dry standard cubic foot |
| EPA | US Environmental Protection Agency |
| FCAA | Federal Clean Air Act |
| gal | gallon(s) |
| gr/dscf | grains per dry standard cubic foot |
| HAP | Hazardous Air Pollutant as defined by OAR 340-244-0040 |
| I&M | Inspection and Maintenance |
| lb | Pound(s) |
| MMBtu | Million British thermal units |
| NA | Not Applicable |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NOX | Nitrogen Oxides |
| NSPS | New Source Performance Standard |
| NSR | New Source Review |
| O2 | Oxygen |
| OAR | Oregon Administrative Rules |
| ORS | Oregon Revised Statutes |
| O&M | Operation and Maintenance |
| Pb | Lead |
| PCD | Pollution Control Device |
| PM | Particulate Matter |
| PM10 | Particulate Matter less than 10 microns in size |
| ppm | part per million |
| PSD | Prevention of Significant Deterioration |
| PSEL | Plant Site Emission Limit |
| PTE | Potential to Emit |
| RACT | Reasonably Available Control Technology |
| scf | standard cubic foot |
| SER | Significant Emission Rate |
| SIC | Standard Industrial Code |
| SIP | State Implementation Plan |
| SO2 | Sulfur Dioxide |
| Special Control Area | as defined in OAR 340-204-0070 |
| VE | Visible Emissions |
| VOC | Volatile Organic Compound |
| year | A period consisting of any 12- consecutive calendar months |