

State of Washington Department of Ecology
Notice of Construction Approval Order

In the matter of approving a new air) **Proposed Order No. 18AQ-E___**
contaminant source at OB-3 Resources)
Management)

To: OB-3 Resources Management
1201 Basin St
Warden, WA, 98857

Project Summary

OB-3 Resources Management, herein referred to as the Permittee, operates the existing Warden Industrial Wastewater Treatment Facility located at 1201 Basin St, Warden, Washington.

The project consists of the installation and operation of: an anaerobic digester, gas collection equipment, hydrogen sulfide scrubber tanks, and a biogas flare. The anaerobic digester will be constructed from two joined, covered, and repurposed existing ponds. The project will also repurpose a third existing pond to serve as a final lagoon for effluent from the digester; the lagoon will be aerated to eliminate sulfides. The feedstock for the digester is process-water and rinse-water waste from food-processing plants in the surrounding area.

Legal Authority:

- The anaerobic digester qualifies as a new source of air contaminants under WAC 173-400-110, filed May 31, 2016 and as a new source of toxic air pollutants under WAC 173-460-040, filed May 20, 2009.
- The anaerobic digester and the associated control equipment have been reviewed under the legal authority of RCW 70.94.152 and the applicable rules and regulations adopted thereunder.

It is Ordered that the Permittee is subject to the following conditions:

Approval Conditions

1.0 Emission Units

The following emissions units and controls are approved in this Order:

- 1.1 One anaerobic digester, constructed onsite, capable of generating 652 standard cubic feet per minute (scfm) of biogas. Emissions from the digester will be controlled by:

- 1.1.1 One 30.7-MMBtu/hr medium-temperature enclosed waste-gas flare, manufactured by Abutec, model MTF 9.0 MW.
- 1.1.2 Multiple reactor tanks (scrubbers) containing iron impregnated wood (iron sponge) for biogas hydrogen sulfide removal. Installed capacity shall be expanded, as necessary, for compliance with Condition 3.2.2.

2.0 Potential Emissions

The project may produce up to the following emissions:

Criteria Air Pollutants	Flare	Unit^a
Carbon monoxide (CO)	39.9	tpy
Nitrogen oxides (NO _x)	8.50	tpy
Particulate matter (TSP = PM ₁₀ = PM _{2.5}) ^b	5.58	tpy
Sulfur dioxide (SO ₂)	19.14	tpy
Toxic Air Pollutants (TAPs)^c		
7,12-Dimethylbenz[a]anthracene	0.0044	lb/yr
Cadmium & compounds	0.30	lb/yr
Hydrogen sulfide (H ₂ S)	410	lb/yr

^a tpy = tons per year, lb/yr = pounds per year

^b Since the flare is a combustion source, it is assumed the total suspended particulate (TSP), PM₁₀, and PM_{2.5} concentrations are equivalent.

^c TAPs with potential-to-emit in excess of their respective Small Quantity Emission Rate, as listed in WAC 173-460-150, May 20, 2009. Nitrogen dioxide and sulfur dioxide TAPs listed with criteria air pollutants

3.0 Operational Limitations

3.1 Production Limits

- 3.1.1 The cumulative feedstock processed through the digester shall not exceed 2.88 million gallons per day (MGD) of feedstock.
- 3.1.2 The annual average of the cumulative feedstock processed through the digester shall not exceed 2.0 MGD, on rolling 12-month basis.
- 3.1.3 Processing of a feedstock with a 5-day carbonaceous biochemical oxygen demand (BOD₅) greater than 5,000 milligrams per liter may require revision of this Order.
- 3.1.4 Production of biogas with H₂S concentration exceeding 2,500 parts per million by volume (ppm_v) may require revision of this Order.
- 3.1.5 The project is limited, at all times, to a biogas production rate of no more than 700 scfm.

3.2 **Equipment Restrictions**

- 3.2.1 Digester gas shall not be discharged to the ambient air:
 - 3.2.1.1 Without combustion through the flare, when such discharges are preventable by reasonable methods.
 - 3.2.1.2 Without H₂S removal, when such discharges are preventable by reasonable methods.
 - 3.2.1.3 Reasonable methods include, but are not limited to, the payment of overtime pay and other additional costs (such as expedited shipping to complete repairs in a timely manner, or replacement of iron sponge media at a frequency exceeding expectations).
- 3.2.2 The scrubbers shall be operated, at all times, to assure:
 - 3.2.2.1 A reduction in biogas H₂S concentration of at least 75%, on a volumetric basis.
 - 3.2.2.2 The H₂S concentration of biogas to be combusted does not exceed 625 ppm_v.
- 3.2.3 The flare shall be operated to assure:
 - 3.2.3.1 An operating temperature at all times of at least 1,400 degrees Fahrenheit (°F).
 - 3.2.3.2 A residence time of at least 0.30 seconds.
 - 3.2.3.3 No flame is visible above the top of the flare bonnet.
 - 3.2.3.4 Only propane shall be used as supplemental fuel.
- 3.2.4 The organic content in the process water originates entirely from the foods processed in the contributing plants, where:
 - 3.2.4.1 The contributing plants do not use any organic solvents or organic chemical intermediates in the production process.
 - 3.2.4.2 Each of the contributing plants operates in accordance with State Waste Discharge Permits issued by Ecology.
- 3.2.5 Odors emanating from the project shall be minimized through the use of recognized good practice and procedures.

3.3 **Emission Limits**

- 3.3.1 Flare carbon monoxide emissions shall not exceed 0.301 pounds per million British thermal units (lb/MMBtu), as determined by EPA Reference Method (RM) 10, Title 40 Code of Federal Regulations (CFR) Part 60, Appendix A.
- 3.3.2 Flare nitrogen oxides emissions shall not exceed 0.064 lb/MMBtu, as determined by EPA RM 7E, Title 40 CFR Part 60, Appendix A.

- 3.3.3 Flare sulfur dioxide emissions shall not exceed 0.144 lb/MMBtu, as determined by EPA RM 6, Title 40 CFR Part 60, Appendix A.
- 3.3.4 Flare total particulate (PM₁₀ + PM_{2.5}) emissions shall not exceed 0.042 lb/MMBtu, as determined by EPA RM 5, Title 40 CFR Part 60, Appendix A and EPA RM 202, Title 40 CFR Part 51, Appendix M.
- 3.3.5 Visible emissions from the flare shall not exceed 5% opacity, as determined by EPA RM 9, Title 40 CFR Part 60, Appendix A.
- 3.3.6 There shall be no visible emissions from the flare at the property boundary, as measured by EPA RM 9, Title 40, CFR Part 60, Appendix A.
- 3.3.7 There shall be no visible emissions generated by the source beyond the property line.

4.0 **Operation & Maintenance**

- 4.1 The Permittee shall follow all recommended installation, configuration, operation, and maintenance provisions supplied by the emission unit manufacturers.
- 4.2 Emission unit specific operations and maintenance (O&M) manuals shall be developed by the Permittee; manufacturer's instructions may be referenced.
 - 4.2.1 The O&M manuals shall at a minimum include:
 - 4.2.1.1 Normal operating parameters for the emissions units.
 - 4.2.1.2 A maintenance schedule for the emissions units.
 - 4.2.1.3 Monitoring and record keeping requirements.
 - 4.2.1.4 A description of the monitoring procedures.
 - 4.2.1.5 Actions for abnormal control system operation.
 - 4.2.2 O&M manual development shall be completed within 30 days of issuance of this Order.
 - 4.2.3 The O&M manuals shall be updated to reflect any modifications to the emission units or operating procedures.
- 4.3 Emission units shall be operated and maintained in accordance with the O&M manuals. Failure to follow the requirements of the O&M manuals, and the adequacy of the O&M manuals, will be two of the factors considered by Ecology in determining whether the source is properly operated and maintained.
- 4.4 The Permittee shall prevent off-site odors. Any odor complaints shall be promptly assessed by the Permittee for validity.
 - 4.4.1 Ecology shall be notified of all odor complaints, no later than the close of the business day following receipt of a complaint.
 - 4.4.2 It will be a violation of the conditions of this Order if necessary corrective action is not taken or commenced by the Permittee, or the Permittee has

not responded to a complaint, within three days of receipt of an odor complaint by the Permittee.

5.0 Monitoring & Recordkeeping

To enable Ecology and the Permittee to observe that the equipment is operating properly, monitoring and recordkeeping requirements shall include, but not be limited to, the following:

- 5.1 The Permittee shall monitor and record the flow rate of each feedstock received using Discharge Monitoring Reports (DMRs) as provided by each wastewater supplier; DMRs shall be obtained by the Permittee within 30 days after the reports are generated.
- 5.2 The Permittee shall sample, or arrange sampling by contributing sources, each feedstock at least once per calendar month to determine incoming BOD₅. Sampling shall be coordinated to assure representative concentrations and flow conditions for each feedstock.
- 5.3 H₂S concentrations of gas routed to the flare shall be tested on a daily basis until a base line is established, then no less than once per week thereafter.
 - 5.3.1 Gas sample ports shall be installed on the pressure side of the blower.
 - 5.3.2 Samples shall be collected in Tedlar bags.
 - 5.3.3 Collected gas shall be sampled using colorimetric gas detector tubes, specifically made to test for H₂S concentrations within the 12 to 800 ppm_v range, using a hand held sample pump.
 - 5.3.4 If measured concentrations of H₂S exceed 600 ppm_v, the Permittee shall resume testing on a daily basis until the iron sponge media is replaced and sampled H₂S concentrations are below 500 ppm_v.
- 5.4 A differential pressure gauge shall be installed for each scrubber to measure the pressure drop across the unit.
 - 5.4.1 Each gauge shall be installed at a height which allows visual observation of displayed information when standing at ground level.
 - 5.4.2 The Permittee shall monitor the gauges weekly and keep a record of each pressure drop.
- 5.5 The digester gas flow rate to the flare shall be monitored by a flow meter and recorder, which must operate continuously.
 - 5.5.1 Continuously, as used here, shall mean 95% of the time each month that digester gas is being produced, except for successfully demonstrated periods of monitoring system down-time via Condition 5.5.2.
 - 5.5.2 To discount a period of down-time, the Permittee shall demonstrate that the event was not a result of inadequate design, operation, or maintenance, or any other reasonably preventable condition. The Permittee shall also

demonstrate that any necessary repairs to the monitoring system were conducted in a timely manner.

- 5.6 The flare shall be equipped with a self-checking ultraviolet flame sensor and a pilot-light flame monitor to measure temperature at the pilot.
 - 5.6.1 These devices shall be connected to the flare control system.
 - 5.6.2 The temperature of the pilot light shall be recorded with the most current measured value displayed on the pilot light control box.
 - 5.6.3 The display shall be installed at a height which allows visual observation of displayed information when standing at ground level.
 - 5.6.4 An alarm shall trigger if the devices detect the pilot is not lit.
- 5.7 The flare shall be equipped with a temperature monitoring device with an accuracy of $\pm 1\%$ of the temperature being measured.
 - 5.7.1 The device shall be equipped with a continuous recorder. 'Continuous' shall carry the same meaning as noted in Condition 5.5.1.
 - 5.7.2 The temperature indicator shall be located above the flame zone, at least 3 feet below the top of the flare shroud and at least 0.6 seconds downstream of the burner.
 - 5.7.3 An alarm shall trigger if the flare temperature drops below 1,400 °F during biogas combustion.
- 5.8 The flare shall be equipped with a failure alarm with a digester gas-supply valve shut-off system to isolate the flare from the digester gas supply line, and to notify a responsible party of the shut-down.
- 5.9 The date, time, duration, and cause of any periods where the gas flow system, scrubbers, or the flare are out of service shall be documented and maintained.
- 5.10 Regular O&M records shall be kept at the source. These O&M records shall be available for inspection by Ecology, organized in a readily accessible manner, and retained for at least five years.
- 5.11 A written record of air quality related complaints received by the Permittee, or forwarded to the Permittee, shall be kept at the source. The record shall include:
 - 5.11.1 The Permittee's action to investigate the validity of a complaint.
 - 5.11.2 Any corrective action taken in response to a complaint.
 - 5.11.3 The effectiveness of remedial actions.

6.0 Testing

- 6.1 Regular periodic performance testing of the flare is not required.
- 6.2 In the event that testing of the flare is required, sampling ports and platforms must be provided by the Permittee. The ports must meet the requirements of 40 CFR,

Part 60, Appendix A, Method 1. Adequate permanent and safe access to the test ports must be provided.

7.0 General Conditions

- 7.1 **Availability of Order** - Legible copies of this Order and the O&M Manual shall be on-site in a location known by and available to employees in direct operation of the described equipment and available to Ecology upon request.
- 7.2 **Equipment Operation** - Operation of the facility shall be conducted in compliance with all data and specifications submitted as part of the NOC application process and in accordance with the O&M manuals, unless otherwise approved in writing by Ecology.
- 7.3 **Activities Inconsistent with this Order** - Any activity undertaken by the Permittee, or others, in a manner which is inconsistent with the data and specifications submitted as part of the NOC application or this Order, shall be subject to Ecology enforcement under applicable regulations.
- 7.4 **Compliance Assurance Access** - Access to the source by the United States Environmental Protection Agency or the Department of Ecology shall be permitted upon request for the purposes of compliance assurance inspections. Failure to allow access is grounds for revocation of this Order.
- 7.5 **Recordkeeping** - Records of all data shall be maintained in a readily retrievable manner for a period of five years and be made available at the plant site to authorized representatives of Ecology upon request.
- 7.6 **Discontinuing Construction** - This Order shall become invalid if construction is not commenced within 18 months after the receipt of final approval, if construction is discontinued for a period of 18 months or more, or if construction is not complete within a reasonable time. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.
- 7.7 **Discontinuing Operation** - It shall be grounds for rescission of this approval if physical operation is discontinued for a period of 18 months or more. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.
- 7.8 **Registration** - Periodic emissions inventory and other information may be requested by Ecology. Information will be submitted within 30 days of receiving the request, unless otherwise specified. All fees will be paid by the date specified.
- 7.9 **Testing** - When complaint investigation, visible emissions observations or other information obtained by Ecology indicates the need to measure emissions, Ecology may require the Permittee to conduct material analysis or air emission testing. This testing requirement is in addition to any testing required by Ecology under WAC 173-400-105.
- 7.10 **Odor** - Odor from the project shall not be detectable beyond the facility property line. Such violations shall be subject to any or all of the remedies provided in

RCW 70.94 for violations of an Ecology Order. In the event odor from the project is detected beyond the property line more than one time, Ecology may order the Permittee to take specific additional measures to control odor.

- 7.11 **Outdoor Burning** - No outdoor burning shall be performed on-site.
- 7.12 **Obligations Under Other Laws or Regulations** - Nothing in this Order shall be construed so as to relieve the Permittee of its obligations under any state, local, or federal laws or regulations.
- 7.13 **Maintaining Compliance** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

Authorization may be modified, suspended or revoked in whole or part for cause, including, but not limited to, the following:

- I. Violation of any terms or conditions of this authorization.
- II. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization or application of any provision to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this authorization, shall not be affected thereby.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
<p>Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503</p> <p>Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501</p>	<p>Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608</p> <p>Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903</p>

DATED at Union Gap, Washington, this ____th Day of ____, 2018.

Prepared by:

PROPOSED
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Approved by:

PROPOSED
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