



IN THE MATTER OF THE COMPLIANCE BY
 Horn Rapids RNG, LLC with Chapter 70A.15 RCW
 and the Rules and Regulations of the Benton
 Clean Air Agency

ORDER of APPROVAL No. 2022-0007

DRAFT

TO: Horn Rapids RNG, LLC
 1624 Market Street
 Denver, CO 80202

Issue Date: XX XXX 2022

Permittee: The permittee is Horn Rapids RNG, LLC. The permittee is required to comply with the provisions contained within this Order.

Responsible Official: Mark Hooyer, Horn Rapids RNG, LLC

Source Location: Horn Rapids RNG, LLC is located at the Lamb Weston Facility at 2013 Saint Street, Richland in Benton County, Washington.

1. JURISDICTION AND LEGAL AUTHORITY: This order is issued under the authority of Revised Code of Washington (RCW) 70A.2040, Washington Administrative Code (WAC) 173-400-110, WAC 173-400-091, WAC 173-460, and Benton Clean Air Agency (BCAA) Regulation 1.

2. PROJECT DESCRIPTION

- 2.1. Horn Rapids RNG, LLC is constructing a pressure-swing adsorption (PSA) biogas upgrading facility at the Lamb Weston potato processing wastewater treatment plant (WWTP). The current combustion of Lamb Weston’s biogas at the existing candlestick flare will largely cease.
- 2.2. The PSA process will capture the methane biogas for injection as renewable natural gas (RNG) into a nearby natural gas transmission pipeline. Moisture, carbon dioxide, nitrogen, oxygen, volatile organic compounds (VOCs) and hydrogen sulfide (H₂S) will be removed from the gas prior to injection.
- 2.3. All gas that is not injected into the pipeline will pass through a thermal oxidizer to control VOCs prior to exiting the process. The facility will also have a candlestick flare which will operate at startup or during maintenance periods. If needed the gas can be combusted in Lamb-Weston’s currently permitted flare (BCAA Order 2017-0001).

2.4. This project recovers methane from the biogas generated at the Lamb WWTP for beneficial use by the community as renewable natural gas (RNG).

2.5. Equipment:

Process Equipment:		
1	Guild Associates, Inc. Molecular Gate TM Pressure Swing Adsorption (PSA) System	2 systems 647 scfm
Control Equipment:		
2	ZBRID Hybrid Thermal Oxidizer	2.4 (1.5+1.9) MMBtu/hr; 449 scfm (409+35) (p4)
3	ZBRID Elevated Flare	48.2 MMBtu/hr; 910 scfm (p 8)

3. FINDINGS:

3.1. Based on increased emissions of SO₂, arsenic, cadmium, carbon monoxide, 7,12-dimethylbenz(a)anthracene, and nickel this project is defined as a new source of air contaminants and is required to undergo New Source Review in accordance with WAC 173-400-110 or WAC 173-460-150.

3.2. Criteria Air Pollutant (CAP) Emissions: Criteria air pollutant emissions from the facility include Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), particulate matter (PM) and fine particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) and Volatile Organic Compounds (VOCs).

3.3. Toxic air pollutant (TAP) emissions from the facility include Hydrogen Sulfide (H₂S), arsenic, cadmium, nickel, 7,12-dimethylbenz(a)anthracene, and other products of combustion.

3.4. Horn Rapids RNG, LLC has requested that BCAA impose a federally enforceable limit on the potential to emit Sulfur Dioxide to a level agreed on between the facility and BCAA and included in this order.

3.5. APPLICABLE LAWS AND REGULATIONS

3.5.1 Unless otherwise stated, the applicable dates for referenced Code of Federal Regulations (CFRs), RCWs, and WACs are those applicable at the time of issuance of this Order.

3.5.2 The facility shall comply with RCW 70A.15, Washington (State) Clean Air Act and RCW 43.21C, (Washington) State Environmental Policy Act

3.5.3 The facility shall comply with WAC 173-400 General Regulations for Air Pollution Sources; WAC 173-460, Controls for New Sources of Toxic Air Pollutants; WAC 197-11; SEPA.

3.5.4 The facility shall comply with BCAA Regulation 1.

3.6. AMBIENT AIR QUALITY

3.6.1 The facility is within an area that is unclassifiable with respect to the national ambient air quality standards for NO_x, CO, SO₂, PM₁₀, PM_{2.5} and ozone.

- 3.6.2 Impacts to the Wallula PM₁₀ maintenance area have been modeled using an EPA-approved screening model. The facility meets the applicable requirements of WAC 173-400-113(2).
 - 3.6.3 Impacts to ambient air quality have been modeled using an EPA-approved screening model. The facility will not cause or contribute to a violation of the National or State ambient air quality standard.
 - 3.6.4 Except for Sulfur Dioxide (SO₂) all toxic air pollutants identified in WAC 173-460-150 that are emitted by this facility have been determined below the Small Quantity Emission Rates (SQER). SO₂ has been modeled using an EPA-approved screening model and is below the Acceptable Source Impact Level (ASIL) identified in WAC 173-460-150.
 - 3.6.5 The proposed project, if constructed and operated as herein required, will not result in the exceedance of any ambient air quality standards
- 3.7. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) AND BEST AVAILABLE CONTROL TECHNOLOGY FOR TOXICS (T-BACT): As required by WAC 173-400-113(2) and 173-460-040(4)(b), the proposed emission unit(s) shall use BACT and T-BACT to control emissions of criteria pollutants and toxic air pollutants. The BCAA considers the following to be BACT and T-BACT:
- 3.7.1 BACT and T-BACT for the biogas upgrading facility for VOCs is the use of a thermal oxidizer with 99% Destruction Removal Efficiency (DRE). An open candlestick flare designed with 90% DRE will serve as backup during facility startup and for the destruction of any off-specification gas.
 - 3.7.2 BACT and T-BACT for the biogas upgrading facility for NO_x, PM and SO_x is the use of a pipeline quality natural gas for supplemental fuel for the TOX and pilot fuel for the flare.
4. FINAL DETERMINATION: A final determination has been made, based upon review of the Notice of Construction (NOC) and Application for Approval, submitted on June 13, 2022.
- 4.1. The proposed project, if constructed and operated as described in this order, will be in accordance with applicable rules and regulations set for the Chapter 173-400 WAC and 173-460 WAC, and the operation of this facility at the proposed location will not result in ambient air quality standards being exceeded.
 - 4.2. The proposed project, if constructed and operated as described in this order, will provide all known, available, and reasonable methods of emission control.
 - 4.3. It is Ordered that the proposed project as described in the NOC Application, this Order, and more specifically detailed in plans, specifications, and other information submitted to the BCAA, is approved for construction, installation, and operation, provided that the conditions outlined in this Order are met.
 - 4.4. This Order shall become effective upon receipt by the permittee or by the effective date, unless appealed within thirty (30) days of receipt in accordance with Condition 6.8.

5. SPECIFIC APPROVAL CONDITIONS

5.1. EMISSION LIMITS

		Emission Limit (ton/yr)
CRITERIA POLLUTANTS		
1	Particulate Matter (PM ₁₀)	0.5
2	Sulfur dioxide (SO ₂)	88.9
3	Nitrogen Oxides (NO _x)	2.0
4	Carbon Monoxide (CO)	4.5
5	VOCs	1.0
6	Visible Emissions	10% opacity
TOXIC AIR POLLUTANTS (TAPs)		
7	Total TAPs	0.02
⁽¹⁾ Emissions calculations based on site-specific gas analysis, process and tail gas quality data from the facility process flow diagram, and use of EPA AP-42 emission factors ⁽²⁾ Emissions calculations based H ₂ S concentration submitted with Notice of Construction and total gas flow of 931,680 cubic feet per day. ⁽³⁾ Thermal Oxidizer DRE is 98%; candlestick flare 90%.		

5.2. OPERATING LIMITS AND REQUIREMENTS

- 5.2.1 Each pollution control device must be operated whenever the processing equipment served is in operation. Control devices must be operated and maintained in accordance with the manufacturer's specifications.
- 5.2.2 Source biogas will come only from the Lamb Weston WWTP facility.
- 5.2.3 Biogas flow will not exceed 931,680 cubic feet per day averaged over a 12-month period; averaged monthly on a rolling 12-month basis.
- 5.2.4 An in-line monitor for H₂S shall be installed and operated whenever the processing equipment is in operation.
- 5.2.5 H₂S concentration in the biogas shall not exceed 3,100 ppm_v averaged over a 12-month period; averaged monthly on a rolling 12-month basis.

Note: the idea here is to use a monthly average to monitor emissions/concentrations/gas flow and have compliance be determined on an annual basis using the rolling 12-month averages. If there is a better way to word this, please suggest.

- 5.2.6 The thermal oxidizer will be used during normal operations with the candlestick flare operating at startup, commissioning, or during maintenance periods.
- 5.2.7 Natural gas used to supplement the thermal oxidizer and candlestick flare shall be pipeline quality and will not exceed 25 MMscf in a 12-month period.
- 5.2.8 Reasonable precautions must be taken at all times to prevent and minimize fugitive emissions from facility operations.
- 5.2.9 Operations that cause or contribute to a nuisance odor must use recognized good practice and procedures to reduce these odors to a reasonable minimum.

5.3. TESTING

- 5.3.1 Emissions testing shall be required, at the discretion of BCAA, at other times should the potential for exceeding the emission limits in Condition 5.1 is indicated.
- 5.3.2 When complaint investigation, visible emission observations, or other information obtained by BCAA indicates the need to measure emissions, BCAA may require the permittee to conduct source testing

5.4. MONITORING AND RECORDKEEPING REQUIREMENTS

- 5.4.1 Emission calculations and compliance with emission limits in Paragraph 5.1 shall be evaluated monthly. Emission compliance will be determined on a 12-month basis using a 12-month rolling sum.
- 5.4.2 Recordkeeping:
 - 5.4.2.1 Emission compliance evaluation (Condition 5.4.1)
 - 5.4.2.2 Biogas flow in cubic feet per day (Condition 5.2.3)
 - 5.4.2.3 In line monitor H₂S concentration. (Condition 5.2.4)
 - 5.4.2.4 Consumption of natural gas each month in MMscf, summed on a rolling 12-month basis. (Condition 5.2.7)
 - 5.4.2.5 Operating hours of the thermal oxidizer each month, summed on a rolling 12-month basis.
 - 5.4.2.6 Operating hours of the candlestick flare each month, summed on a rolling 12-month basis.
 - 5.4.2.7 Hours during which biogas is diverted to the Lamb Weston WWTP facility flare each month, summed on a rolling 12-month basis.
 - 5.4.2.8 Qualitative Visual Emission Assessment (Condition 5.4.7).
- 5.4.3 Records of in-line monitor operation, including records generated as part of operations and maintenance. (Condition 5.2.4)
- 5.4.4 Records of emission unit operation, including records generated as part of operations and maintenance.
- 5.4.5 Records of any occurrence of excess emissions and the resulting action taken per condition 5.5.2.
- 5.4.6 Records of startups, shutdowns, upset conditions.
- 5.4.7 Monthly Qualitative Visual Emissions Assessment: A qualitative assessment of the visual emissions of each operating emission unit shall be conducted monthly by the permittee and recorded. Personnel may be certified, previously certified, or non-certified but thoroughly knowledgeable of the "Visible Emissions Field Manual: Methods 9 and 22". If, at any time, visible emission occurs that has the potential to exceed the applicable standard, the permittee shall take the following action(s);
 - 5.4.7.1 Verify that the emission unit causing the visible emission and its associated control devices are operating according to manufacturer's specifications or other site-specific acceptable operating conditions. If the unit or control

devices are not operating properly, the permittee shall take corrective action immediately bring the unit into compliance.

- 5.4.7.2 If the corrective action does not bring the unit into compliance within four (4) hours, the permittee shall report a process upset under condition 0 "Excess Emissions". The permittee shall continue to take corrective action to bring the unit into compliance.
- 5.4.7.3 If the corrective action taken does not bring the unit into compliance within twelve (12) hours, the permittee shall discontinue operation of the unit until such time that compliance can be achieved. The permittee shall verify compliance by conducting visible emissions testing per 40 CFR 60 Appendix A, Method 9. A test report shall be prepared and submitted to BCAA within five (5) working days of the test
- 5.4.7.4 Results of the monthly assessment along with any records generated if corrective actions are taken shall be kept at the facility for five (5) years.

5.5. REPORTING REQUIREMENTS

- 5.5.1 A Monthly report of records described in
- 5.5.2 Notify BCAA within thirty (30) days of facility start up.
- 5.5.3 All air quality related complaints received by the Permittee must be reported to BCAA within three (3) calendar days of receipt. Complaint reports must include the date and time of the complaint, the name and contact information (if available) for the complainant, the nature of the complaint, and nay actions taken to investigate and address the complaint.
- 5.5.4 Excess Emissions.
 - 5.5.4.1 Excess emissions which represent a potential threat to human health or safety that the facility believes to be unavoidable shall be reported to the BCAA as soon as possible after the deviation is discovered.
 - 5.5.4.2 Excess shall be reported to BCAA according to WAC 173-400-107 and the report shall provide sufficient documentation as per WAC 173-400-107(4), 173-400-107(5), or 173-400-107(6), respectively.

5.6. OPERATIONS AND MAINTENANCE

- 5.6.1 The in-line monitor for H₂S will be operated and calibrated according to manufacturer's recommendations.
- 5.6.2 An operation and maintenance plan for process and control equipment must be maintained. The plan must reflect good industrial practice and must include a record of performance and periodic inspections of process and control equipment.
- 5.6.3 A manufacturer's operations manual or an equipment operation schedule may be considered a sufficient operation and maintenance plan.
- 5.6.4 The source owner or operator must review and update if needed the plan at least once per calendar year.

5.6.5 The source owner or operator must make a copy of the plan available upon request

5.6.6 Regular maintenance records shall be kept at the facility. These operating and maintenance records shall be available for inspection by BCAA.

6. GENERAL APPROVAL CONDITIONS

- 6.1. This permittee will be registered with the BCAA as an air pollution source and must comply with the source registration program according to BCAA Regulation 1.
- 6.2. Access to the facility by BCAA staff shall be allowed upon request for conducting compliance inspections. Denial of entry to BCAA staff by the permittee is grounds for revocation of this Order.
- 6.3. Records of all data shall be kept on-site in a readily retrievable manner for a period of five (5) years and be made available to authorized representatives of the BCAA, the Department of Ecology, or the EPA, within 48 hours of request.
- 6.4. This Order shall be non-transferable and shall only apply to the facility and equipment specified.
- 6.5. This Order shall become invalid if construction is not commenced within eighteen (18) months after receipt of final approval or if construction is discontinued for a period of eighteen (18) months or more. The BCAA may extend this period upon a satisfactory demonstration that an extension is justified.
- 6.6. If the owner or operator at this site changes, notification shall be given to the BCAA in writing within thirty (30) days of the change.
- 6.7. Air quality violations, including failure to meet the conditions of this permit, shall be subject to any of the remedies provided in RCW 70A.15. Such remedies include notice of violation, order, and civil penalty of up to \$10,000 per day per violation
- 6.8. Orders, permits, determinations, and notices may be appealed within 30 days of receipt or as specified in RCW 43.21B, to the Washington State Pollution Control Hearings Board (PCHB), PO Box 40903, Olympia, WA 98504-0903. Copies of correspondence to the PCHB shall also be sent to the Benton Clean Air Agency, 526 South Steptoe Street, Kennewick, WA 99336.

PREPARED BY:

APPROVED BY:

Robin Bresley Priddy, PE

Date

Rob Rodger, Control Officer

Date