

BENTON

526 S. Steptoe Street

Kennewick, WA 99336 Phone: (509) 783-1304 -- FAX: (509) 783-6562 <u>www.bentoncleanair.org</u>

Statement of Basis Horn Rapids Landfill Air Operating Permit 05-0003 Benton County, Washington

June 5, 2023

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ABBREVIATIONS AND ACRONYMS

AN	. Ammonium Nitrate
AOP	. Air Operating Permit
ASP	. Aerated Static Piles
Btu	. British Thermal Unit
BCAA	. Benton Clean Air Agency
CAA	. Clean Air Act
CFR	. Code of Federal Regulations
СО	. Carbon Monoxide
CO ₂	. Carbon Dioxide
Ecology	. Washington State Department of Ecology
EPA	. Environmental Protection Agency
F	. Federally Enforceable
FCAA	. Federal Clean Air Act
GHG	. Greenhouse Gas
LFG	. Landfill Gas
НАР	. Hazardous Air Pollutant
gr/dscf	. Grains per dry standard cubic foot (68°F, 29.92 inches Hg); unit
m ³	. Cubic Meters
MMBtu	. Million British Thermal Unit (10 ⁶ BTU = 1,055 Joules)
MNMOC	. NMOC Emission Rate
MT	. Metric Ton
NH ₃	. Ammonia
NMOC	. Non Methane organic compound
NOC	Notice of Construction
NO ₂	. Nitrogen Dioxide
NOC	. Notice of Construction
NO _x	"Nitrogen Oxides
NSPS	. New Source Performance Standard
0&M	. Operations and Maintenance Requirements
OA	. Order of Approval
PM	. Particulate Matter
PM ₁₀	. Particulate Matter, less than 10 microns diameter
PM _{2.5}	. Particulate Matter, less than 2.5 microns diameter
ppm	. Parts per million; unit
RACT	. Reasonably Available Control Technology
RCW	. Revised Code of Washington
S	. State Only Enforceable
scfm	. standard cubic feet per minute
SIP	. State Implementation Plan
SO ₂	"Sulfur Dioxide
ТРҮ	. Tons per Year; unit
TSP	. Total Suspended Solids
VOC	. Volatile Organic Compound
WAC	. Washington Administrative Code

1. FACILITY IDENTIFICATION

Company Name:	City of Richland
Source Name:	Horn Rapids Landfill
Owner:	City of Richland
Mailing Address:	840 Northgate Drive PO Box 180 Richland, WA 99352
Source Address: Contact Person:	3102 Twin Bridges Road Richland, WA 99352
Primary Process: SIC/NAICS Code:	Municipal Solid Waste Landfill 562212/4953
Responsible Official	Pete Rogalsky, P. E. Public Works Director
Source Contact	Mark Chidester, Public Works Capital Projects Manager

2. BACKGROUND

This document sets forth the legal and factual basis for the permit conditions in an Air Operating Permit (AOP) issued by the Benton Clean Air Agency for a solid waste landfill located in Richland, Washington.

This document is called a "Statement of Basis" and is required by Washington State regulations [Chapter 173-401 WAC]. A Statement of Basis does not contain enforceable permit conditions. Enforceable permit conditions are contained in the AOP itself.

Basis for Title V Applicability:

Horn Rapids Landfill is subject to Title V Air Operating Permit Regulation, by virtue of being subject to the Title 40 CFR Part 60 Subpart XXX. Standards of Performance for Municipal Solid Waste Landfills. Subpart XXX states that municipal solid waste (MSW) landfills with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters are subject to Part 70 (Title V) permitting requirements. Subpart XXX applies to MSW Landfills that have commenced construction, reconstruction or modification after July 17, 2014.

- Horn Rapids Landfill's design capacity including the expansion is approximately 15.4 million cubic meters.
- The City of Richland began construction of the expansion on September 8, 2020.

40 CFR 60, Subpart XXX Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification After July 17, 2014

§60.760 Applicability, designation of affected source, and delegation of authority.

(a)The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction, or modification after July 17, 2014. Physical or operational changes made to an MSW landfill solely to comply with subparts Cc, Cf, or WWW of this part are not considered construction, reconstruction, or modification for the purposes of this section.

(b)The following authorities are retained by the Administrator and are not transferred to the state: § 60.764(a)(5).

(c)Activities required by or conducted pursuant to a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), or state remedial action are not considered construction, reconstruction, or modification for purposes of this subpart.

The Horn Rapids Landfill is subject to 40 CFR Part 60 Subpart XXX.

Pollutant	Total, ton/yr
PM	30.91
PM ₁₀	10.1
PM _{2.5}	4.03
NO _X	7.31
СО	8.62
SO ₂	3.12
HCL	0.11
CO ₂	20.76
VOC	20.6
NMOC	49.9
НАР	1.4

Facility-wide Potential to Emit Summary

Current Permitting Action:

This Title V Air Operating Permit is being issued in response to an initial Title V permit application submitted on October 21, 2021.

Attainment Classification:

Horn Rapids Landfill is located in an area which is in attainment or unclassified for all criteria pollutants.

Document	Date	Description				
OA 2006-0012	July 12, 2007	was issued by BCAA for a flare and gas treatment system for the landfill in order to remove volatile organic compounds from the landfill.				
NSPS Subpart XXX Applicability	July 17, 2014	The provisions of the subpart apply to each municipal solid waste landfill that commenced construction, reconstruction, or modification after July 17, 2014.				
NOC 2019-0002	November 15, 2019	NOC submitted in April 2019. This project will expand the landfill and gas treatment system and will include the composting operation. Supplementary information for the revised composting operation was submitted				
Operation of Landfill Expansion begins	September 8, 2020					
AOP Application	October 21, 2021	AOP Application received by BCAA				
	December 17, 2021	Completeness Determination issued by BCAA				
Draft Permit	January 25, 2023	Draft AOP Issued				
Final Permit (Initial)	June 5, 2023	Final Permit Issued				

Timeline and Permit History

3. FACILITY DESCRIPTION AND HISTORY

The Horn Rapids Landfill is owned and operated by the City of Richland Public Works Department (Public Works). The landfill is sited within a 275-acre parcel of City property, of which 46 acres are permitted for disposal of municipal solid waste (MSW), a support facility, and a medium-risk hazardous waste receiving facility. The City property is bounded by Twin Bridges Road on the west, Horn Rapids Road on the north, and State Route 240 on the south, and the physical address is 3102 Twin Bridges Road, Richland, Washington.

The Horn Rapids Landfill receives MSW from properties within the City of Richland.

The landfill began receiving waste in 1974. The original 46-acre landfill was not designed with a bottom liner or leachate collection system, but piezometers were established in a 4-acre monitoring zone within the northeast corner of the permitted disposal area. Small amounts of organic contamination were found in water samples collected at the property boundary. Additional wells were installed closer to the active disposal area in 1998 to further define concentration levels of contaminates as part of a remediation study. Study results indicated need for an active landfill gas collection system and a flare for control of organic air pollutants.

The current expansion will include 104 acres, and the currently operating 46 acres will be closed. This expansion is anticipated to allow the landfill to operate until 2095. 2095 is the year used to calculate the Potential to Emit.

Wastes are received by truck. The projected waste acceptance rate for 2095 is 212,218 tons per year, or 582 tons per day.

Horn Rapids Landfill is located in an arid climate that typically receives 8 inches of precipitation per year. The lands surrounding the landfill are primarily industrial, and some agricultural.

The landfill gas (LFG) control system must comply with WAC 173-351, Criteria for Municipal Solid Waste Landfills; WAC 173-400, General Regulations for Air Pollution Sources; and WAC 173-460, Controls for New Sources of Toxic Air Pollutants. The Benton Clean Air Agency (BCAA) issued Order of Approval No. OA 2006-0012 on July 12, 2007, permitting installation of a system at the Horn Rapids Landfill to collect and combust landfill gases in a flare.

The spacing of wells, the number of wells, and the vacuum on each well will be modified as necessary to assure optimum capture of landfill gas and meet the landfill gas capture requirements of 40 CFR 60 Subpart XXX.

The Horn Rapids Landfill is currently operating on the municipal landfill solid waste permit BFHD 18-17MSWLF issued by the Benton-Franklin Health District (BFHD).

The existing landfill area is approaching capacity and is due to close in 2020. The Benton County Comprehensive Solid Waste Management Plan calls for an expansion of the Horn Rapids to ensure incounty disposal capacity. The proposed expansion, shown in Figure 1, will allow the facility to continue to accept MSW until 2095.

The overall design capacity of the expansion landfill is 15,393,000 cubic yards. However, the landfill will be constructed in phases. The Phase 1 Development, which is under construction, will have a design capacity of 1,114,145 cubic yards and last about 8 years.



Figure 1. Horn Rapids Site Plan



Figure 2. Surrounding Land Use

4. CURRENT PERMITTING ACTION/PROJECT DESCRIPTION

Landfill Expansion

The BFHD issued Municipal Solid Waste Expansion Permit BFHD 17-HRL EX on November 13, 2017.

The proposed landfill expansion project will include new construction of a bottom lining and leachate collection system in the approximate 104-acre area in the northeast of the facility. The proposed bottom liner system will consist of a 6-inch soil bedding layer, a geosynthetic clay liner, and a polyethylene geomembrane. The composite bottom layer system will be covered with a geotextile cushion layer overlaid with a leachate collection system. All leachate generated in the landfill waste will be collected and conveyed to the existing leachate evaporation/storage pond, which will be located just north of the of the Phase 1 Development area.

The proposed LFG collection system will typically utilize horizontal trenches and vertical wells, if needed to control LFG. The trenches will contain perforated and solid PVC pipe. The trenches and wells will be connected by a welded collection piping system, to convey the LFG to an on-site flare station or to LFG utilization project. Leachate cleanouts will be connected to the LFG collection system.

Gas probes will be installed along the inside perimeter of the landfill property boundary along the east, north, and south of the expanded landfill area.

The flare station for the proposed expansion will use the same active flare station that is currently in use, located northeast of the existing landfill. The existing flare station contains an open flare, ignitor, motor blowers, flow meter, condensate collection system and evaporation pond, as well as all necessary valves and safety mechanisms. The existing flare is a Mactronic Industries freestanding biogas flare, with 12-inch diameter and 11-foot body, topped by a 48-inch by 6-foot long wind shroud, for a 16-foot overall height, as shown in Figure 2. The flare includes a solar-powered spark ignition system and a flame arrestor. The flare has a design capacity of 32.8 MMBtu/hr, or 1,200 scfm at 50% methane, and a low heat value of 910 Btu/scf. LFG generation is estimated to peak at 1,230 cfm in 2095. Municipal Solid Waste Expansion Permit calls for Horn Rapids Landfill to operate the existing flare, and notes that future modifications to the flare that might be required by air pollution requirements should not be made until LFG from the expansion can support the new flare.

Composting

Current composting at the Horn Rapids Landfill has been operating since 2011 as an exempted, windrow composting operation. The proposed composting operation will be an ASP, with no anticipated increase in emissions due to the change in process.

Change from windrow to ASP composting: Emissions from the windrow turner will be eliminated and an electric-powered mixer will be used instead. The footprint of the entire operation will be reduced; all ASP composting activities will take place on the asphalt area, reducing dust emissions. The smaller composting area footprint should result in reduced emissions from mobile equipment.

5. PROCESS DESCRIPTION

MSW is accepted primarily from the City of Richland for disposal. Besides MSW, the landfill also accepts non friable asbestos, construction demolition and land clearing debris, industrial non-hazardous wastes, petroleum contaminated soil, sewage sludge, and wood wastes. Horn Rapids Landfill is prohibited from accepting hazardous wastes. Waste is delivered to the landfill using waste collection vehicles, including front loaders, rear loaders, and roll-off trucks. The recycling area includes drop boxes and containers for recycled aluminum, cardboard, newspapers and glass. The landfill generally operates Monday through Saturday, 5:00 a.m. to 5:00 p.m.

A process flow diagram is included as Figure 2

Process #1 - Source-Wide

Process #1 includes source-wide emissions originating from site operations which include: excavation, soil stockpiling, construction of lined disposal cells, and the construction of leachate collection systems. Emissions include fugitive dust from motor vehicle operation, and emissions related to source-wide support services such as storage tanks, maintenance, housekeeping, and miscellaneous insignificant emissions activities. Process #1 emission limits, work practice standards and permit conditions also apply to all significant emission units located at the source.

Process #2 - Solid Waste Landfill

The current site of the landfill was opened in 1974. Then about 70 tons per day of primarily residential and agricultural wastes were deposited increasing to about 160 tons per day through 2019

Waste is placed in cells, compacted, and covered on a daily basis. Waste is compacted in thin layers with an assumed compaction density of 1,100 to1,300 lb/yd³. The primary source of MSW landfill emissions is landfill gas, generated by biodegradation, of which the main components are methane, NMOC, and CO₂. Routine monitoring for the LFG is conducted on a quarterly basis to ensure that the gas is not migrating away from the landfill.

Fugitive dust from haul roads will be controlled by wet suppression or paving as necessary.

Process #3 – Landfill Gas / Flare

Landfill gas collection factors from 40 CFR 98 Subpart HH Municipal Solid Waste Landfills; Table H-3 of the Equation HH-6 HH-7 HH-8 Calculation were used, which is used for greenhouse gas calculations in Subpart HH of 40 CFR 98 to determine weighted average collection efficiency of the Horn Rapids Landfill in 2095, the year of maximum landfill gas generation.

Landfill gas collected from vertical wells and subsurface horizontal collection piping will be directed to the flares.

The 104-acre landfill area will be nearly full in 2095. It is estimated that at that time 15.38% of the landfill will be active and will have an intermediate soil cover and active gas collection, which according to Table H-3, will provide a collection efficiency of 75%. The other 84.62% of the expanded landfill will have final soil cover of 3-feet or thicker clay and/or geomembrane cover system and active gas collection, for a collection efficiency of 95%. The weighted average collection efficiency will be 91.9%.

It was assumed a value of 90% destruction of collected NMOC by the flare, because that is what is required in Subpart XXX of 40 CFR 60, Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014.

Process #4 - Composting

The City of Richland is proposing to change their method of composting but is not proposing any changes to the organic feedstocks and production rates other than an estimated annual increase of approximately 2 percent per year due to projected population increase in the Richland area. The proposed change is to switch from windrow composting to ASP composting, which would reduce costs and emissions of air pollutants

ASP composting utilizes a network of aeration pipes installed under static compost piles, with air provided by blowers and controlled by sensors and/or timers, in order to manage pile temperatures and maintain an aerobic composting process. By adequately introducing air into the compost pile, the landfill is able to:

- Maintain aerobic conditions without turning the pile.
- Reduce emissions of air pollutants and offensive odors.
- Expedite the rate of composting.
- Produce a high-quality compost in less time and with less expense.

6. EQUIPMENT/ACTIVITY IDENTIFICATION and EMISSIONS

Process #1 - Source-Wide

Fugitive Emissions from Vehicle Operations

- Bulldozers and compactors were estimated to work 2,860 hours per year, and the maximum waste acceptance rate for 2095 was used in the calculations. Dozing and compacting emissions factors from Table 11.9-1 for handling overburden materials, Section 11.9, AP-42
- Dump trucks and excavators were estimated to move 168,000 tons of soil per year. Dump truck and excavator emissions factors from Table 13.2.4-1, Section 13.2.4, AP-42
- Grading Operations were estimated to have 14,300 VMT per year. Grading emission factor from Table 11.9-1 of AP-42
- Trucks on Unpaved Roads were estimated to drive 17,750 trips at 26,625 VMT per year, with a dust control efficiency of 75%. Maximum speed of 25 mph and watering twice per day. Trucks, unpaved road use from equation 1a, Section 13.2.2, AP-42

Emissions Summary for Vehicle Operations	perations Fugitive Emissions, Tons Per Year			
	PM2.5	PM10	РМ	
Dozers and compactors operations	0.6	1.1	5.6	
Dump truck and excavator operations	0.0	0.1	0.3	
Grading operations	0.0	0.3	0.6	
Trucks, unpaved road use	0.5	5.4	20.0	
Total	1.2	6.9	26.5	

Table 1. Fugitive Emissions for Landfill Operations

Process #2 - Solid Waste Landfill

LandGEM calculated emissions of total LFG, NMOC, CH₄, CO₂, and a list of common trace constituents generated by the Horn Rapids Landfill over the years from 2020 through 2160. LFG emissions from the expansion are predicted to follow a curve such as that shown in Figure 3, assuming that the landfill expansion will begin accepting MSW in 2020 and that it will be closed in 2094. It was predicted that up to 7,633,000 Mg (8,396,000 tons) of waste will be placed in the expansion area by the closure date.



Figure 1. Landfill emissions. (The tables with details are in the NOC application.)

- 2095 Emissions, the peak year, are used as PTE for this analysis.
- Maximum Waste accepted per year 212,218 tons per year in 2093; 581 tons per day.
- The design capacity of the expansion landfill is 15,393,000 cubic yards

Landfill Gas NMOC Constituent Measurements

The landfill gas constituent concentrations provided in LandGEM are national averages. It was suspected that emission generation characteristics at landfills in Eastern Washington may vary somewhat from the national average, so It was contracted with Squak Mountain Air Quality, LLC (SMAQ) to collect source-specific emissions concentration data from the existing landfill at the Horn Rapids Landfill. The testing at Horn Rapids occurred on the main feeder pipe between the backflow valve and the flare. All three samples were collected on January 31, 2019.

Emissions for the landfill are included in the next section.

Process #3 – Landfill Gas/ Flare

<u>Flare:</u>	
Brand:	Mactronic
	Mactronic Slip Stream Ignition Chamber
Flare Stack Body:	12" x 11'
Inlet:	8" 150# FRWN Flanged inlet
Diameter:	12"
Body:	11"
Shroud:	48" x 6'
Total Height:	16'
Design Capacity:	32.8 MMBtu/hr
Ignition:	Solar Spark
Capacity:	1200 scfm

The landfill gas will be collected by a system compliant with Subpart XXX and routed to the Flare installed with NOC 2006-0012 in 2007.

3.1 Uncontrolled Landfill Gas Generated for Peak Year (PTE)

The uncontrolled quantities of major and trace constituents of LFG that are predicted to be generated by the Horn Rapids Landfill expansion are shown in Table 2 below.

3.2 Controlled Landfill Gas Emissions (Potential to Emit)

"Controlled emissions" represents landfill gas emissions that are collected by the wells, trenches, and blowers of the LFG collection system and routed to the flare for destruction of the NMOC. Overall control efficiency is a function of collection efficiency and destruction efficiency.

The weighted average collection efficiency will be 91.9%.

It was assumed a value of 90% destruction of collected NMOC by the flare. This was the BACT in the 2007 Order.

	Expanded ton/yr	Flare	Uncollected fugitive	Total emissions	Units
Total landfill gas	25,148	2,312	2,031	4,343	ton/yr
Methane	6,717	617	542	1,160	ton/yr
Carbon dioxide	18,430	1,694	1,488	3,183	ton/yr
NMOC	289	27	23	50	ton/yr
Acetone	0.1	10.6	9.3	19.9	lb/yr
Acrylonitrile - HAP/VOC	0.3	51.5	45.2	96.7	lb/yr

Table 2. Landfill Gas Emissions; 2095

Benzene - No or Unknown Co-disposal -					
HAP/VOC	0.0	6.6	5.8	12.4	lb/yr
Butane - VOC	0.2	44.7	39.3	84.1	lb/yr
Carbon disulfide - HAP/VOC	0.0	6.8	6.0	12.8	lb/yr
Carbon tetrachloride - HAP/VOC	0.0	0.1	0.1	0.2	lb/yr
Carbonyl sulfide - HAP/VOC	0.0	1.5	1.3	2.8	lb/yr
Chlorobenzene - HAP/VOC	0.0	4.3	3.8	8.1	lb/yr
Chlorodifluoromethane	0.3	54.3	47.7	102.0	lb/yr
Chloroethane (ethyl chloride) - HAP/VOC	0.1	12.9	11.3	24.3	lb/yr
Chloroform - HAP/VOC	0.0	0.6	0.5	1.0	lb/yr
Chloromethane - VOC	0.1	9.3	8.2	17.5	lb/yr
Dichlorobenzene - (HAP for para isomer/VOC)	0.0	4.6	4.1	8.7	lb/yr
Dichlorodifluoromethane	0.1	9.9	8.7	18.6	lb/yr
Dichloromethane (methylene chloride) - HAP	1.0	0.0	1.992.0	1.992.0	lb/vr
Ethylbenzene - HAP/VOC	0.3	47.4	41.6	89.1	lb/vr
Ethylene dibromide - HAP/VOC	0.0	0.0	0.0	0.1	lb/vr
Hexane - HAP/VOC	0.1	22.1	19.4	41.5	lb/yr
Hydrogen sulfide	1.8	328.5	288.6	617.1	lb/yr
Mercury (total) - HAP	0.0	0.0	0.0	0.0	lb/yr
Methyl ethyl ketone - VOC	0.1	18.5	16.2	34.7	lb/yr
Methyl isobutyl ketone - HAP/VOC	318.8	0.0	318.8	318.8	lb/yr
Methyl mercaptan - VOC	0.0	2.0	1.8	3.7	lb/yr
Pentane - VOC	0.2	36.7	32.2	68.9	lb/yr
Perchloroethylene (tetrachloroethylene) - HAP	0.0	5.7	5.0	10.6	lb/vr
Toluene - No or Unknown Co-disposal - HAP/VOC	0.3	61.7	54.2	115.9	lb/vr
Trichloroethylene (trichloroethene) - HAP/VOC	0.0	3.3	2.9	6.1	lb/yr
Vinyl chloride - HAP/VOC	0.1	19.5	17.2	36.7	lb/yr
Xylenes - HAP/VOC	0.5	96.9	85.1	182.0	lb/yr
Total				2,959.7	lb/yr
				1.4	ton/yr

3.3 Landfill Gas Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are those pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. EPA is required to control 187 hazardous air pollutants.

Potential to emit for HAP was estimated by using HAP emissions during 2095, the peak year of LFG production as predicted by LandGEM. During 2095 projected emissions of the highest single HAP, xylenes, will be 0.09 ton per year, and total HAP emissions will be 1.4 ton per year.

3.4 Landfill Gas TAPs (WAC 173-400-460) Compared to De Minimis and SQER

Potential TAP emissions for the peak year of LFG generation, 2095, were calculated by adding calculated TAPs that are collected but make it through the flare and fugitive emissions that are not collected, then dividing by appropriate values to get total emissions for the respective averaging period for each of the TAPS listed in Table 9 below

Potentials to emit (PTE) for each TAP were compared to their respective De Minimis and Small Quantity Emission Rates in WAC 173-460-150. PTE for dichlorobenzene, ethylbenzene, and perchloroethylene were greater than their respective de minimis values, but below their respective small quantity emission rates (SQER). Best Available Control Technology for toxics (tBACT) was considered in Section 7 for these TAPs, but modeling is not required per WAC 173-460-080(2)(b).

PTE increases for benzene, hydrogen sulfide, and vinyl chloride were greater than their respective de minimis and their respective SQERs, so modeling of impacts from these TAPs is required per WAC 173-460-080. Modeling of ambient impacts due to emissions increases of LFG is described below.

Source test data were used as the basis for setting emission limits. In some cases LandGEM estimates were higher, in some lower. H_2S was lower in LandGEM

Process #4 - Composting

Composting is a current operation at the landfill. This operation is being included in the permit in order to be comprehensive. It is not subject to NSR in this action.

Emission factors and calculation approach were obtained from the ARB Emissions Inventory Methodology for Composting Facilities, published by the California Air Resources Board, dated March 2, 2015. This ARB manual was used to estimate emissions from the current windrow and the proposed ASP composting processes at the Horn Rapids Landfill. The document is available at:

https://www.arb.ca.gov/ei/areasrc/composting%20emissions%20inventory%20methodology%20final%20combined.pdf.

Facility Emissions Summary

Total emissions are emissions from the expanded landfill plus composting emissions, as shown in above, which are combined below. These totals will be used to check for compliance with ambient air quality standards.

	PM	PM ₁₀	PM _{2.5}	NOx	со	SO ₂	HCL	CO ₂	voc	NMOC	НАР
Landfill (flare plus fugitive)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.76	0.00	49.9	1.4
Secondary, flare	2.81	2.81	2.81	7.31	8.62	3.12	0.11	0.00	0.00	0.00	0.00
Fugitive, vehicles	26.5	7.29	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Composting	1.59	0.43	0.04	0.00	0.00	0.00	0.00	0.00	20.6	0.00	0.00
Total, ton/yr	30.91	10.10	4.03	7.31	8.62	3.12	0.11	20.76	20.6	49.9	1.4

Table 3. Summary Emissions from Landfill Expansion and Composting, tons per year

7. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

Process #1 - Source-Wide

MSW trucks will travel approximately 1.5 miles within the boundaries of the Horn Rapids Landfill; fully loaded from the scales to the expanded active cell, then empty, on the return trip back down to the scales.

The BACT options for this haul road are either gravel surfacing with twice-daily watering or paving. Both options are technically feasible.

- Internal haul roads used by garbage trucks and other vehicles that also drive off the facility will either be graveled with 25 mph speed limit and watered twice daily, or paved, to minimize fugitive particulate emissions.
- There will be no visible emissions crossing the property line.
- The permittee must develop and comply with a fugitive dust control plan (FDCP), which shall be incorporated into the O&M plan required under Section 9.03 of the BCAA Regulation. The FDCP will cover internal haul roads and unpaved materials handing areas, and control of vehicular track-out from the facility.

Process #2 - Solid Waste Landfill

- The new landfill will have a liner system as specified in Municipal Solid Waste Expansion Permit BFHD 17-HRL EX.
- Daily cover will be placed over the entire working face at the end of each working day.
- Intermediate cover, at least 12 inches in thickness, will be placed on areas that have received waste but will be inactive for a period longer than 180 days.
- Final cover will be placed over areas that have reached full capacity and final waste grades.

Process #3 – Landfill Gas / Flare

- An active landfill gas collection system will be installed and operated in accordance with the requirements of Subpart XXX of 40 CFR 60 (*also TBACT for organic TAP constituents of NMOC*).
- The existing flare will be operated in accordance with the requirements of Subpart XXX of 40 CFR 60 (*also TBACT for organic TAP constituents of NMOC*) and 40 CFR 60.18 as referenced in Subpart XXX.
- BACT for the current flare was established at 90% destruction efficiency; cited below. This project is
 intended to be followed by a beneficial use project that will remove the landfill gas and treat it, the
 proposed thermal oxidizer will have a destruction efficiency of 98% as required in Subpart XXX of 40 CFR
 60. Should this project not come to pass after four years' time; the existing flare should be upgraded to
 an enclosed flare with 98% destruction efficiency.
- 2007 BACT to be reviewed if the Beneficial Use Project is not installed: The Benton Clean Air Agency permitted the installation of the gas collection and control system (GCCS) at the Horn Rapids Landfill on July 12, 2007. This permit was for the landfill GCCS and flare that are in use today. The Order of Approval lists BACT as:

- BACT for NO₂, CO, VOC, and PM will be the use of a flare, proper operation as described in the Operations and Maintenance Manual.
- BACT for SO₂ emissions may vary according to the sulfur content of the landfill gas and are uncontrolled by this project.
- T-BACT for Hydrogen Sulfide and other sulfur compounds shall be the use of a flare to combust landfill gas. H₂S and other sulfur compounds shall undergo 99% conversion to SO₂.
- T-BACT for organic TAPs will be the use of a flare, proper operation as described in the Operations and Maintenance Manual with a control efficiency of at least 90%.

Process #4 - Composting

Note this process is not subject to NSR.

The proposed aerated static pile composting method, as described in in the NOC and briefly in this proposal is BACT for composting at the Horn Rapids Landfill.

- Biosolids and greenwaste will be accumulated in separate, storage areas . The average time that greenwaste will be kept in stockpiles will be approximately 20 days. The average time that biosolids will be kept in stockpiles is expected to be approximately 10 days.
- Weekly accumulated biosolids and greenwaste will be ground and screened, then mixed and placed in an aerated static pole to begin the active composting phase.
- All active phase piles will be ventilated by blowers as required to maintain optimum temperatures for aerobic composting and will be always be covered within three hours of placement or other activity with one of the following: a waterproof covering; at least six (6) inches of finished compost; or at least six (6) inches of soil. The active composting phase will run for approximately 30-days.
- Materials will be moved to the finish compost area, and will be covered within three hours of placement or other activity with at least six inches of finished compost or soil, for an additional 15 days for the curing phase.
- Each windrow will be sampled and tested every 15-days, and when it's ready, the cured compost will be moved to the finish compost area for final screening.
- Finished product will be stored onsite.

8. AMBIENT IMPACT ANALYSIS

AERSCREEN is EPA's recommended screening-level air quality model based on AERMOD (U.S. EPA, 2016a). Two AERSCREEN model runs were made; one for the flare, and another for the landfill area. Model results are shown in Table 23 below, with ambient impacts in micrograms per cubic meter (μ g/m3) for a 1.0 gram per second (g/sec) emission rate.

Averaging time	1-hr	3-hr	8-hr	24-hr	1-yr	Distance from Source
Flare ambient impact for 1.0 g/sec emission rate	16.4	16.4	14.8	9.8	1.6	368.91 meters directed toward 310 degrees
Area ambient impact for 1.0 g/sec emission rate	287.5	258.8	172.5	115.0	28.8	618 meters
Composting ambient impact for 1.0 g/sec emission rate	1,354	1,354	1,218.6	812.4	135.4	316 meters

Table 4. AERSCREEN model results

Criteria Pollutants

Emissions of criteria air pollutants projected to be emitted from the landfill area and the flare in peak year 2095 were quantified in Sections 5.8 and 5.9. Criteria pollutants emitted due to combustion in the flare and due to vehicle operations were converted into g/sec units, then multiplied by the ambient impact results for the appropriate averaging time to get μ g/m3 impacts, which were then converted to the same units as the relevant national ambient air quality standard (NAAQS). Background ambient air impacts were found for the Richland area at the web site http://lar.wsu.edu/nw-airquest/lookup.html. The background and Horn Rapids impacts were added and compared to NAAQS as shown below.

Pollutant	Averaging		alcoc	ug/m ³	Converted
	Time	ib/yr	g/sec	µg/m²	Converted
NO ₂	1 hr	14,610.55	0.210	3.4	1.8 ppb
	1 yr	17,232.96	0.248	0.4	0.2 ppb
СО	8 hr	17,232.96	0.248	3.7	0.003 ppm
	1 hr	17,232.96	0.248	4.1	0.004 ppm
SO ₂	1 hr	6,247.85	0.090	1.5	0.6 ppb
	3 hr	6,247.85	0.090	1.5	0.001 ppm
Particulate matter,					
flare					
PM ₁₀	24 hr	5,619.44	0.081	0.8	
PM _{2.5}	1 yr	5,619.44	0.081	0.1	

Table 5. Ambient Impacts Due to Criteria Pollutants Emitted from Flare

PM _{2.5} Particulate matter, area PM ₁₀	24 hr 24 hr 1 yr	5,619.44 13,739.11	0.081	0.8
Particulate matter, area PM ₁₀	24 hr 1 yr	13,739.11	0.198	22.7
PM ₁₀	24 hr 1 yr	13,739.11	0.198	22.7
PM ₁₀	24 hr 1 yr	13,739.11	0.198	22.7
	1 yr	2 2/0 12		
PIVI _{2.5}		2,349.13	0.034	1.0
PM _{2.5}	24 hr	2,349.13	0.034	3.9
Particulate matter,				
area				
PM ₁₀	24 hr	850.68	0.000297	0.24
PM _{2.5}	1 yr	85.37	0.000487	0.07
PM _{2.5}	24 hr	85.37	0.000057	0.05

Particulate matter from the flare, the landfill expansion, and the composting modification were added together to obtain total particulate matter impacts, even though peak impacts occur at different receptor locations. Next, the impacts for each pollutant were added to the background level for that pollutant and were compared to the corresponding ambient air quality standard, as shown below.

Pollutant	Avg. time	Ambient standard	background	Horn Rapids expansion	Total impact
NO ₂	1 hr	100 ppb ¹	32 ppb	1.8 ppb	33.8 ppb
	1 yr	53 ppb²	3.8 ppb	0.2 ppb	4.0 ppb
СО	8 hr	9 ppm ³	0.629 ppm	0.003 ppm	0.632 ppm
	1 hr	35 ppm ³	1.081 ppm	0.004 ppm	1.085 ppm
SO ₂	1 hr	75 ppb⁴	3.8 ppb	0.6 ppb	4.4 ppb
	3 hr	0.5 ppm ³	0.003 ppm	0.001 ppm	0.004 ppm
Particulate matter, total					
PM ₁₀	24 hr	150 μg/m ³⁽⁵⁾	105 μg/m³	23.5 μg/m³	128.5 μg/m³
PM _{2.5}	1 yr	12 μg/m ³⁽⁶⁾	5.5 μg/m³	1.1 μg/m³	6.6 μg/m³
PM _{2.5}	24 hr	35 μg/m ³⁽⁶⁾	16 μg/m³	4.7 μg/m³	20.7 μg/m³

Table 6. Ambient Impacts Due to Criteria Pollutants from Horn Rapids Expansion Plus Background Comparedto Ambient Air Quality Standards

Notes:

1. 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years

2. Annual mean

3. Not to be exceeded more than once per year

4. 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

5. Not to be exceeded more than once per year on average over 3 years

6. Annual mean, averaged over 3 years

All the modeled ambient impacts plus their respective background ambient concentrations are lower than their respective ambient standards. It was believed that this result is conservative; because it was simply

applied the worst-case AERSCREEN result, instead of using the statistical evaluation procedures that are specified in the ambient standards.

Toxic Air Pollutants

As discussed in Section 5.4, TAP emissions from the landfill will consist of a combination of LFG that is collected and routed to the flare but is not combusted, and LFG that is not collected and escapes in the form of fugitive emissions. Emissions of toxic air pollutants projected to be emitted from the landfill area and the flare in peak year 2095 were quantified in Section 5.7. Potential increases in emissions for benzene, hydrogen sulfide, and vinyl chloride were greater than their respective de minimis and their respective SQERs, so emissions for each were converted into g/sec units, then multiplied by the ambient impact results in Table 23 for the appropriate averaging time to get μ g/m3 impacts. Calculated potential emission increases that are emitted from the flare were multiplied by the area model results, and potential fugitive emission increase from the landfill were multiplied by the area model results.

Table 7. Potential Toxic Air Pollutant Emissions from Flare and from Landfill Area, Shown Separately, Compared to WAC 173-460-150 ASILs

			Flare			Flare Expanded Area				a
Gas / Pollutant	ASIL (μg/m³)	avg. period	g/sec	µg/m³	% ASIL	g/sec	µg/m³	% ASIL		
Benzene	0.0345	year	9.51E-05	9.36E-04	2.71	8.35E-05	9.61E-03	27.85%		
Hydrogen sulfide	2	24-hr	4.73E-02	4.65E-03	2.32	4.15E-03	4.77E-01	23.87%		
Vinyl chloride	0.0128	year	2.81E-04	2.76E-03	21.6	2.47E-04	7.10E-03	55.45%		

Impacts from the flare and from the expanded area are less than their corresponding ASILs.

Table 8. Potential Toxic Air Pollutant Emissions from Flare and from Landfill Area, Combined, Compared toWAC 173-460-150 ASILs

			Flare + Expanded Area			
Gas / Pollutant	ASIL (µg/m³)	avg. – period	µg/m³	% ASIL		
Benzene	0.0345	year	1.05E-02	30.56%		
Hydrogen sulfide	2	24-hr	5.24E-01	26.19%		
Vinyl chloride	0.0128	year	9.86E-03	77.05%		

Impacts from the flare and the expanded area were added together, and they are all less than their corresponding ASILs, so the toxic air pollutants directly emitted by the Horn Rapids expansion will not cause any exceedances of ambient source impact levels per Chapter 173-460 WAC.

Because emissions of all toxic air pollutants are either below their respective Small Quantity Emission Rate identified in WAC 173-460 or will result in incremental ambient impacts below their respective Acceptable Source Impact Level identified in WAC 173-460, no significant adverse impact on human health or ambient air quality is anticipated.

9. COMPLIANCE ASSURANCE MONITORING (CAM)

9.1 Criteria

On October 22, 1997, EPA promulgated the Compliance Assurance Monitoring (CAM) rule (Title 40 Code of Federal Regulations Part 64). This Rule requires specialized pollutant-specific monitoring for those emission units which meet the following criteria:

- The unit is located at a Title V Air Operating Permit source
- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt.
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and - The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as an Air Operating Permit source.

9.2 Applicability

- 1. Horn Rapids is a Title V Air Operating source.
- CAM exempts post November 15, 1990, New Source Performance Standard emission limitations/standards from triggering CAM. The Horn Rapids Landfill is subject to the Landfill NSPS, Subpart XXX, the NSPS was promulgated in 2016, and thus it cannot trigger CAM
- 3. The Landfill has a landfill gas collection system which must be routed to a control device. The control device is an open flare.

Emission Units; Discussion

<u>The Municipal Waste Landfill</u> itself was considered as an emission unit considering the definition of Emission Unit in the Clean Air Act: 40 CFR 70.2 Definitions: "Emissions unit means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant, or any pollutant listed under section 112 of the Act."

The material contained in the landfill along with the operation of the landfill generate the emissions that are considered for analysis, potential to emit, and control. The operation of the entirety of the landfill; waste acceptance, waste placement and control, landfill gas management, and vehicle movement are aspects of landfill operation that are included in emissions analysis. As all these operations are defined by the landfill itself, the landfill is considered an emission unit.

The material in the landfill generates landfill gas, which is included in the emissions analysis. The LFG is required to be collected by a collection system which includes a flare. The flare is required by the NSPS is a control device for the landfill gas.

<u>The Flare</u> is considered part of the landfill and landfill operations as it is integral to the functioning of the LFG control system described in and required by NSPS Subpart XXX. The flare is also an emission unit as defined above, as its operation, independent of the material passing through it for combustion, emits criteria pollutants. Therefore, it was considered separately in the following analysis.

9.3 Applicability Evaluation

The Table below contains compliance assurance monitoring (CAM) applicability evaluations. BCAA reviewed CAM for each pollutant emitted from the respective units. Pollutants with no limits or standards are not subject to CAM (per 40 CFR 64.2(a)(1)). State-only limits or standards are not subject to CAM because they are not federally enforceable. Limits and standards may include emission rates, emission concentrations, work practices, process parameters, control device parameters, or operation and maintenance requirements. Record keeping, report submittals, and the use of good air pollution control practices are not considered limits or standards.

For these CAM evaluations, control devices are as defined in 40 CFR 64.1. Control devices do not include the use of low-polluting fuels or feedstocks, seal/lid/roof that prevent release of pollutants, or the use of combustion or other process design features or characteristics.

Exemptions from CAM are described in 40 CFR 64.2. 40 CFR 64.2(b)(1)(vi) exempts Part 70 and 71 emission limits or standards that are required to use continuous compliance determination methods to demonstrate compliance. Those methods must determine compliance with an emission limit or standard on a continuous basis, consistent with the averaging period established for the emission limit or standard and provide data either in units of the standard or correlated directly with the compliance limit. Permit-specified CEMS or COMS are eligible for this exemption if the data are used to demonstrate compliance. If the CEMS or COMS data are used as indicators of compliance, this exemption does not apply. Gap-filling requirements for continuous compliance determination may not be adequate to qualify for this exemption.

Horn Rapids Landfill, Flare and Landfill Operations											
				Use					CAM	Exemption	
Pollutant	Applicable Emission Limit or Standard ^(b)	Fede	erally ceable?	control device to comply w/ limit or std?(c)	Pre- controlled emission (tpy)	Major source threshold (tpy) ^(d)	Pre- controlled emissions ≥ Major source threshold (tpy)?	CAM Applicable?	Federal limits ^(e) proposed after 11/15/90	Permit specifies continuous compliance determination method ^(f)	CAM required?
Mactro	Mactronic Flare										
PM	BCAA NOC	Y	'ES	NO	2.8	100	NO	NO	XXX		NO
SO ₂	2006-0012	Y	ΈS	NO	3.1	100	NO	NO	XXX		NO
NOx	7/11/2007	Y	'ES	NO	7.3	100	NO	NO	XXX		NO
HCL	Emission	Y	ΈS	NO	0.11	10	NO	NO	XXX		NO
CO	limits	Y	'ES	NO	8.6	100	NO	NO	XXX		NO
Horn R	orn Rapids Landfill and Landfill Operations			s							
PM (as opacity)	EU 1.6 shall not exc 20% for any 3-minu period; Method 9	eed te	YES	YES	79	100	NO	NO			NO
	EU 2.4 Concentratio	on shall									
H ₂ S not exceed 400 ppmv YES		YES	YES	1.8	10	NO	NO			NO	
Vinyl	EU 2.3 Shall no	ot									
Chloride	exceed 12.0 p	pmv	YES	YES	0.2	10	NO	NO			NO
NMOC/V	EU 2.14 Destru DC Efficiency	uction	YES	YES	289	100	YES	YES	XXX		NO

The flare is subject to standards: it is regulated by NSPS Subpart XXX and also by 40 CFR 60.18 (general control device requirements). These requirements have been determined to be presumptively acceptable for CAM. Section 60.18 requires that flares be always operated with a pilot flame present and that the presence of the flare pilot be monitored to detect the presence of a pilot flame. Section 60.18 also states that flares shall be designed for and operated with no visible emissions except for periods not to exceed a total of 5 minutes in any 2 consecutive hours by Method 22. Subpart XXX of Part 60 requires monitoring of an indicator of diversion of gas flow from the flare.

These rules do not specifically meet all of the Part 64 criteria (specifically, neither the rules nor Part 60.18 establish QA/QC practices or a frequency of calibration). Nonetheless, because the required monitoring is limited to the continuous monitoring of the presence of a pilot flame (yes/no) and because Part 60.18 stipulates design criteria for flares, the lack of specific QA/QC practices is not considered a deficiency for this control device/monitoring combination. If the sensor fails, the lack of a pilot flame will be indicated, and corrective action will be required.

Flare emissions are calculated separately as these emissions result from the operation of the flare itself. The flare is also a control device with required operation as part of the LFG system.

None of the emissions from the operation of the flare which are calculated independently of the gas passing through the flare – PM, NO_x , SO, HCL, or CO exceed 100% their respective major source thresholds.

The flare itself does not have a downstream control device.

Discussion of CAM Applicability to the Landfill and Landfill Operations

PM emissions from landfill operations are estimated to be 79 tons per year, uncontrolled. These emissions are from vehicle and cover management operations. The control mechanisms are watering and speed control of vehicles. PM from landfill operations, uncontrolled, is less than the major source threshold and therefore not subject to CAM.

 H_2S emissions are estimated by LANDGEM to be 1.8 tons per year, uncontrolled. These emissions are contained in landfill gas. The control mechanism is the flare, which converts H_2S to SO_2 . The Major source threshold for H_2S is 10 tons per year. H_2S emissions are less than the major source threshold and therefore not subject to CAM.

Vinyl Chloride emissions are estimated by LANDGEM to be 0.11 tons per year, uncontrolled. These emissions are contained in landfill gas. The Major source threshold for Vinyl Chloride is 10 tons per year. Vinyl Chloride emissions are less than the major source threshold and therefore not subject to CAM. NMOC emissions assumed to be 100% VOC to be conservative, are 288 tons per year uncontrolled. NMOC is generated by the decomposition of landfill material. It is collected in an LFG collection system; VOC is destroyed in the Mactronic flare which is a control device.

The Horn Rapids Landfill became subject to Title V because of capacity increase when it began operation of the expansion on September 8, 2020. The provisions of Subpart XXX apply to each municipal solid waste landfill that commenced construction, reconstruction of modification after July 17, 2014. This landfill is subject to NSPS Subpart XXX.

CAM exempts post November 15, 1990, New Source Performance Standard emission limitations/standards from triggering CAM Emission units subject to an emission limitation or standard for the regulated air pollution issued after November 15, 1990, are exempt from CAM (40 CFR 64.2(a) and (b)(1)(i).

9.4 Summary:

Mactronic Flare

- The flare is at a Title V source.
- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant; the operation and management of the flare is regulated by the Landfill NSPS, Subpart XXX, the NSPS was promulgated in 2016. It is also regulated by 40 CFR 60.18.
- None of the emissions from the operation of the flare which are calculated independently of the gas passing through the flare PM, NO_X, SO, HCL, or CO exceed their respective major source thresholds.
- The flare itself does not have a downstream control device.
- Based on the above, CAM has been identified as an inapplicable requirement for the Mactronic Flare.

Landfill and Landfill Operations

- PM, H2S, and Vinyl Chloride uncontrolled emissions are below 100% their respective major source thresholds.
- VOC, if 100% of NMOC is assumed to be VOC, is above the Major Source Threshold.
- The Horn Rapids Landfill is subject to NSPS Subpart XXX, promulgated on August 29, 2016. Subpart XXX regulates NMOC emissions.
- BCAA has received delegation for NSPS Subpart XXX.
- August 29, 2016 is after November 15, 1990.
- CAM has therefore been identified as an inapplicable requirement for the Landfill and Landfill Operations.

<u>CAM Plan</u>: According to 40 CFR 64.5, only large pollutant specific emission units with post-control PTE of 100% of the major source threshold for that pollutant are required to submit CAM plans with an initial application. Therefore, no CAM plan is required at this time. If a unit becomes subject ot CAM, a plan will be required at the time of the next Title V renewal application.

10. APPLICABLE REGULATIONS

<u>State</u>

WAC 173-400-035 - Nonroad Engines

Nonroad engines are not subject to new source review (NSR) and are not subject to Chapter 173-460 WAC. Nonroad engines must use ultra-low sulfur diesel or bio diesel fuel, gasoline, propane, liquefied petroleum gas, or similar clean fuel. Projects with nonroad engines with brake horsepower rating (BHP) > 500 but \leq 2000 must notify the permitting authority prior to beginning operation. Projects with BHP > 2000 must notify the permitting authority and supply sufficient information to allow the authority to determine that operations of said engine will not cause exceedance of National Ambient Air Quality Standards.

WAC 173-400-040 – General Provisions

WAC 173-400-040(2): No person shall cause or allow the emission for more than three minutes, in any one hour, of an air contaminant from any emissions unit which at the emission point, or within a reasonable distance of the emission point, exceeds twenty percent opacity except when the owner or operator of a source supplies valid data to show that the presence of uncombined water is the only reason for the opacity to exceed twenty percent.

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(5): Odors. Any person who shall cause or allow the generation of any odor from any source or activity which may unreasonably interfere with any other property owner's use and enjoyment of his property must use recognized good practice and procedures to reduce these odors to a reasonable minimum.

WAC 173-400-040(6): Emissions detrimental to persons or property. No person shall cause or allow the emission of any air contaminant from any source if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.

WAC 173-400-040(8): Concealment and masking. No person shall cause or allow the installation or use of any means which conceals or masks an emission of an air contaminant which would otherwise violate any provisions of this chapter.

WAC 173-400-040(9): The owner or operator of a source or activity that generates fugitive dust must take reasonable precautions to prevent that fugitive dust from becoming airborne and must maintain and operate the source to minimize emissions.

WAC 173-400-110 - New Source Review (adopted by BCAA)

WAC 173-400-110 applies statewide except where a permitting authority has adopted its own NSR regulations. This section applies to new sources and stationary sources but does not include nonroad

engines¹. New source review of a modification is limited to the emission unit or units proposed to be modified and the air contaminants whose emissions would increase as a result of the modification.

WAC 173-400-113 – New Sources in Attainment or Unclassifiable Areas

The permitting authority that is reviewing an application to establish a new source or modification in an attainment or unclassifiable area shall issue an order of approval if it determines that the proposed project satisfies each of the following requirements:

- (1) The proposed new source or modification will comply with all applicable new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, emission standards adopted under chapter 70.94 RCW and, for sources regulated by an authority, the applicable emission standards of that authority.
- (2) The proposed new source or modification will employ BACT for all pollutants not previously emitted or whose emissions would increase as a result of the new source or modification.
- (3) Allowable emissions from the proposed new source or the increase in emissions from the proposed modification will not cause or contribute to a violation of any ambient air quality standard. If the modeled concentrations of allowable emissions from the proposed new source or the increase in emissions from the proposed modification are below the levels in Table 4a, the proposed source does not contribute to a violation of an ambient air quality standard.

WAC 173-400-171 – Public Notice and Opportunity for Public Comment

This requirement applies statewide. This requirement applies to numerous actions, including new source review. A permitting authority must post an announcement of the receipt of notice of construction applications and other proposed actions on the permitting authority's internet web site. The notice must include a notice of the receipt of the application, the type of proposed action, and a statement that the public may request a public comment period on the proposed action. The permitting authority must provide public notice and a public comment period before approving or denying any of the following types of applications or other actions:

- (a) Any application, order, or proposed action for which a public comment period is requested in compliance with subsection (2) of this section.
- (b) Any notice of construction application for a new or modified source, including the initial application for operation of a portable source, if there is an increase in emissions of any air pollutant at a rate above the emission threshold rate (defined in WAC 173-400-030) or any increase in emissions of a toxic air pollutant above the acceptable source impact level for that toxic air pollutant as regulated under chapter 173-460 WAC.

Chapter 173-401 WAC

Potential to emit for this facility will be below air operating permit emission thresholds, but Subpart XXX of 40 CFR 60 requires Horn Rapids Landfill to apply for and obtain an air operating permit per Chapter 173-401 WAC once design capacity of the landfill becomes equal to or greater than greater than 2.5 million megagrams and 2.5 million cubic meters. According to WAC 173-401-500(3)(a), new or modified chapter 401 sources which commence operation after EPA approval of the state operating program shall file a complete application to obtain the chapter 401 permit or permit revision within twelve months after commencing operation.

¹ "Non-road engines" are defined in WAC 173-400-030(29). This definition included bulldozers, compacters, and similar equipment used to manage waste deposition, compaction, and placement of temporary and final covers.

Chapter 173-441 WAC

The Horn Rapids Landfill is subject to Chapter 173-441 WAC, and submits an annual greenhouse gas emission report to the Department of Ecology.

Federal

40 CFR 60 Subpart A

This subpart specifies standards only for control devices used to achieve compliance with an applicable NSPS Subpart. A flare is a "Best Demonstrated Technology (BDT)" for landfill gas destruction. §60.18 specifies that no visible emissions exceed a total of 5 minutes during any two consecutive hours. For non-assisted flare, the net heating value of combusted gas shall be greater than 7.45 MJ/SCM (200 BTU/SCF) and an exit velocity less than 18.3 m/s (60 ft/s).

40 CFR 60 Subpart XXX

The requirements in new subpart XXX apply to MSW landfills for which construction, reconstruction, or modification commenced after July 17, 2014, the date of the proposed rule. The requirements in subpart WWW continue to apply to MSW landfills for which construction, reconstruction, or modification commenced on or after May 30, 1991, and on or before July 17, 2014. (Federal Register /Vol. 81, No. 167 /Monday, August 29, 2016).

Subpart XXX applies to the Horn Rapids Landfill; detailed discussion is included in the Title V Applicability statement earlier in this document.

40 CFR 60 Subpart WWW

The converse of the second sentence above is that Subpart WWW does not apply to landfills for which construction, reconstruction, or modification was not commenced on or after May 30, 1991 and on or before July 17, 2014. There is no unequivocal statement from EPA that this concept is true, however. A recent email from Mr. Andrew Sheppard of the EPA states that if the landfill fits the applicability of the NESHAP (Subpart AAAA) then it is also required to comply with the cited requirements in Subpart WWW.

40 CFR 63 Subpart AAAA

Subpart AAAA of 40 CFR 63 establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires all landfills described in §63.1935 to meet the requirements of 40 CFR part 60, subpart Cc or WWW and requires timely control of bioreactors. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of 40 CFR 63 and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.

40 CFR 63 Subpart AAAA	National Emission Standards for Hazardous Air
	Pollutants: Municipal Solid Waste Landfills

§ 63.1930 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills.

(a) Before September 28, 2021, all landfills described in § 63.1935 must meet the requirements of 40 CFR part 60, subpart WWW, or an approved state or federal plan that implements 40 CFR part 60, subpart Cc, and requires timely control of bioreactors and additional reporting requirements. Landfills must also meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions as specified in Table 1 to subpart AAAA of this part and must demonstrate compliance with the operating conditions by parameter monitoring results that are within the specified ranges. Specifically, landfills must meet the following requirements of this subpart that apply before September 28, 2021, as set out in: §§ 63.1955(a), 63.1955(b), 63.1965(a), 63.1965(c), 63.1975, 63.1981(a), 63.1981(b), and 63.1982, and the definitions of "Controlled landfill" and "Deviation" in § 63.1990.

(b) Beginning no later than September 27, 2021, all landfills described in § 63.1935 must meet the requirements of this subpart. A landfill may choose to meet the requirements of this subpart rather than the requirements identified in § 63.1930(a) at any time before September 27, 2021. The requirements of this subpart apply at all times, including during periods of SSM, and the

SSM requirements of the General Provisions of this part do not apply.

§ 63.1935 Am I subject to this subpart?

You are subject to this subpart if you meet the criteria in paragraph (a) or (b) of this section.

(a) You are subject to this subpart if you own or operate an MSW landfill that has accepted waste since November 8, 1987, or has additional capacity for waste deposition and meets any one of the three criteria in paragraphs (a)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in § 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in § 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m³) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to § 63.1959.

(b) You are subject to this subpart if you own or operate an MSW landfill that has accepted waste since November 8, 1987, or has additional capacity for waste deposition, that includes a bioreactor, as defined in § 63.1990, and that meets any one of the criteria in paragraphs (b)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in § 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in § 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3 and that is not permanently closed as of January 16, 2003.

The Horn Rapids Landfill:

- has received waste since November 8, 1987; it has been in continuous operation since it opened in 1972.
- is not a major source as defined in § 63.2 of subpart A; nor is it collocated with a major source as defined in in § 63.2 of subpart A.
- has capacity greater than 2.5 million megagrams, and uncontrolled emissions of NMOC are greater than 50 megagrams per year.

Therefore, the Horn Rapids Landfill is subject to 40 CFR 63 Subpart AAAA.

This subpart cites numerous requirements in 40 CFR 60 Subpart WWW that apply to all Subpart AAAA applicable sources, so those Subpart WWW requirements apply to the Horn Rapids Landfill in addition to the overlapping requirements in 40 CFR 60 Subpart XXX.

11. Public Notice Requirement

Public notice should not be required because the application does not ask for or require any of the actions subject to a mandatory public comment period per WAC 173-400-171(3).

12. Operating Permit and PSD

As stated above, Subpart XXX of 40 CFR 60 requires Horn Rapids Landfill to apply for and obtain an air operating permit per Chapter 173-401 WAC once design capacity of the landfill becomes equal to or greater than greater than 2.5 million megagrams and 2.5 million cubic meters. The Horn Rapids Landfill is required to file a complete Title V air operating permit application within twelve months after commencing operation in the expansion landfill.

The Horn Rapids Landfill does not meet major source criteria for the Prevention of Significant Deterioration (PSD) program under 40 CFR 52.21.

13. INSIGNIFICANT EMISSION UNITS AND ACTIVITIES

Insignificant emission units are those units which are exempt from some air operating permit (AOP) requirements. While the insignificant emission units listed below are subject to the source-wide applicable requirements specified in the AOP, the permittee is not required to perform testing, monitoring, recordkeeping, or reporting for these units and activities, unless specified by BCAA. BCAA has not required any testing, monitoring, recordkeeping, or reporting for these units and activities. The permittee may certify continuous compliance, for these units and activities, if there were no observed, documented, or known instance of noncompliance during the reporting period. The permit shield does not apply to any insignificant emission unit or activity.

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ID	Equipment/Vehicle Make/Model	Fuel	AOP Status	Reason
2437	2015 Chevy 1/2 Ton 4X4	gasoline	Exempt	WAC 173-401-530(1)(d)
3222	Volvo Roll off Truck	diesel	Exempt	WAC 173-401-530(1)(d)
3304	Chevy 1-Ton Flatbed	diesel	Exempt	WAC 173-401-530(1)(d)
3320	Volvo Roll off Truck	diesel	Exempt	WAC 173-401-530(1)(d)
3353	2020 International Water Truck	diesel	Exempt	WAC 173-401-530(1)(d)
4105	Drop Box Transfer Trailer	n/a	Exempt	WAC 173-401-530(1)(d)
6565	1445 John Deere 6' Mower	diesel	Exempt	WAC 173-401-532(10)
6572	Ag-Rainwater Reel	n/a	Exempt	WAC 173-401-530(4)
6587	2013 JD Gator XUV855D ATV	diesel	Exempt	WAC 173-401-532(10)
6588	John Deere XUV855D ATV	diesel	Exempt	WAC 173-401-532(10)
6602	2016 Silver Eagle VAST20W Dolley	n/a	Exempt	WAC 173-401-530(4)
6613	2017 KPI-JCI Radial Stacker	diesel	Exempt	WAC 173-401-533(2)(g)
7104	Caterpillar CH35 Challenger (attachment #6337)	diesel	Exempt	WAC 173-401-532(10)
7127	Hyster 135 XL Forklift	diesel	Exempt	WAC 173-401-532(10)
7138	Caterpillar 826H	diesel	Exempt	WAC 173-401-532(10)
7139	Kincaid Pro Series 1200 Trailer Mounted Hydroseeder	diesel	Exempt	WAC 173-401-533(2)(g)
7142	John Deere 724J Loader	diesel	Exempt	WAC 173-401-532(10)
7143	2009 Peterson 2700C Wood Grinder	diesel	Exempt	WAC 173-401-532(10)
7149	Komptech Primus Trommel Screen	diesel	Exempt	WAC 173-401-533(2)(g)
7150	2013 MGL Power Stacker	n/a	Exempt	WAC 173-401-533(2)(g)
7157	2017 John Deere Excavator 210G	diesel	Exempt	WAC 173-401-532(10)
7162	Caterpillar 826K Compactor	diesel	Exempt	WAC 173-401-532(10)
7163	2020 Caterpillar D6XELGP Dozer	diesel	Exempt	WAC 173-401-532(10)
7167	2020 Caterpillar 735 Articulated Truck	diesel	Exempt	WAC 173-401-532(10)
	Honda EB10000 generator	gasoline	Exempt	WAC 173-401-533(2)(f)
	Dewalt DG2900generator	gasoline	Exempt	WAC 173-401-533(2)(f)
	Power washer, Honda GX340 engine	gasoline	Exempt	WAC 173-401-533(2)(f)
	Honda EZ250 generator	gasoline	Exempt	WAC 173-401-533(2)(f)
	Briggs & Stratton GenPower 10 hp Engine	gasoline	Exempt	WAC 173-401-533(2)(f)
	NorthStar generator	gasoline	Exempt	WAC 173-401-533(2)(f)
	Stihl blowers & weed trimmers	gas/oil mix	Exempt	WAC 173-401-533(2)(f)
	Diesel (off-road) Storage tank, 5,000 gal		Exempt	WAC 173-401-533(2)(c)
	Diesel (off-road) Storage tank, 500 gal		Exempt	WAC 173-401-533(2)(c)
	Diesel (on-road) Storage tank, 500 gal		Exempt	WAC 173-401-533(2)(c)
	Gasoline storage tanks, portable cans, 20 gal. total		Exempt	WAC 173-401-533(2)(c)
	Welding activities, up to three 7018 rods per month		Exempt	WAC 173-401-533(2)(i)

Table 9 Insignificant Emission Units

14. STREAMLINING

This Air Operating Permit does not include any streamlined provisions.

15. COMPLIANCE CERTIFICATION

By virtue of the Air Operating Permit application and the issuance of this permit, the reporting frequency

for compliance certification for Horn Rapids Landfill shall be annual.

16. ENFORCEABILITY

Unless specifically designated otherwise, all terms and conditions of the Air Operating Permit, including any provisions designed to limit the Horn Rapids Landfill 's potential to emit, are enforceable by EPA,

and citizens, under the Federal Clean Air Act. Those terms and conditions which are designated as state only

enforceable, as indicated by (S), are enforceable only by BCAA. It should be noted that state-only terms and conditions will become federally enforceable upon approval of the requirement in the State Implementation Plan.

However, the enforceability of the terms and conditions of this Air Operating

Permit are not expected to change during the Permit term. All terms and conditions of the Air Operating Permit are enforceable by BCAA.

17. OPERATIONAL FLEXIBILITY

The permittee did not request or specify any alternative operating scenarios. However, in the event that an emission unit is not operated during a period equal to or greater than the monitoring period designated, no monitoring is required. For example, a monthly visible emission survey is not required if the emission unit is not operated during the month that the survey covers. A monthly visible emission survey is required if the emission unit is operated for any portion of the month that the survey covers. Recordkeeping and reporting must note the reason why, and length of time, the emission unit was not operated.

18. STATE AMBIENT AIR QUALITY STANDARDS

Chapter 173-476 WAC, Ambient Air Quality Standards contains ambient air quality standards that apply generally to all areas of the state. There are no on-going monitoring, recordkeeping, or reporting requirements specific to the source to prove compliance with the ambient air quality standards. Compliance with the ambient air quality standards is required, and the standards are triggered for any source when undergoing New Source Review for Notice of Construction or Prevention of Significant Deterioration permitting and are generally reported in the permits as findings as required, or when an actual or suspected violation of an ambient air quality standard is found locally.