Washington State Department of Ecology
Eastern Region Office
4601 North Monroe Street
Spokane, Washington 99205-1295

Statement of Basis for
Air Operating Permit Number: DRAFT
EPHRATA LANDFILL
Ephrata, Washington

DATE

List of Abbreviations

Abbreviation	Definition
AOP	Air Operating Permit
BACT	Best Available Control Technology
BTU	British Thermal Units
°C	Degrees Celsius
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMS	Continuous Opacity Monitoring System
dscf	Dry Standard Cubic Foot
dscf/m	Dry Standard Cubic Foot per minute
Ecology	Washington State Department of Ecology
E.I.T.	Engineer in Training
EPA	United States Environmental Protection Agency
°F	Degrees Fahrenheit
FCAA	Federal Clean Air Act
ft^3	Cubic foot
gr/dscf	Grains per dry standard cubic foot
hr	Hour
lb	Pound
MMBtu	Million British Thermal Units
MRRR	Monitoring, Recordkeeping, and Reporting Requirement
NOC	Notice of Construction
NO_x	Oxides of Nitrogen
NSPS	New Source Performance Standard
O_2	Oxygen
O&M	Operation & Maintenance
P.E.	Professional Engineer
PM	Particulate Matter
PM-10	Particulate Matter with aerodynamic diameter $\leq$ 10 micrometers
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
RM	EPA Reference Method from 40 CFR Part 60, Appendix A
scfm	Standard Cubic Feet per Minute
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
T	Temperature
TAP	Toxic Air Pollutant
TPD	Tons Per Day
TPY	Tons Per Year
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
w%	Percentage by Weight
Yr	year

Table 1: Annual Potential to Emit without controls in Tons Per Year (tpy) – Criteria Pollutants[1]

Emission Units	CO (tpy)	NO_X (tpy)	PM (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO_2 (tpy)	CO2 (tpy)
Source Wide	n/a	n/a	51.46	14.23	2.02	n/a	n/a
Solid Waste Landfill – Flare + Fugitives	2.58	2.19	0.84	n/a	n/a	3.56	16,023.02
Total	2.58	2.19	52.30	14.23	2.02	3.56	16,023.02

Table 2: Annual Potential to Emit with controls in Tons Per Year (tpy) – Criteria Pollutants[2]

Emission Units	CO (tpy)	NO_X (tpy)	PM (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO_2 (tpy)	CO2 (tpy)
Source Wide	n/a	n/a	33.82	9.47	1.27	n/a	n/a
Solid Waste Landfill – Flare + Fugitives	2.08	1.76	0.68	n/a	n/a	2.87	7,985.05
Total	2.08	1.76	34.50	9.47	1.27	2.87	7,985.05

Table 3: Annual Potential to Emit in Tons Per Year (tpy) – Toxic Air Pollutants[3]

Emission	w/o Control (tpy)	w/ Control (tpy)
Methane	2,335.10	440.30
Carbon Dioxide	4,892.80	3,941.72
Non-Methane Organic Compounds (NMOC)	61.14	11.53
2-Propanol (isopropyl alcohol) - VOC	0.01	0.04
Acetone	0.02	0.08
Benzene – HAP/VOC	0.01	0.03
Butane - VOC	0.01	0.07
Chlorobenzene	0.00	0.01
Chlorodifluoromethane	0.00	0.01
Dichlorobenzene – HAP/VOC	0.00	0.02
Dichlorodifluoromethane	0.00	0.01
Dichlorofluoromethane - VOC	0.00	0.01
Dimethyl Sulfide - VOC	0.00	0.01
Ethane	1.30	6.87
Ethanol - VOC	0.01	0.03
Ethyl Mercaptan (ethanethiol) - VOC	0.00	0.01
Ethylbenzene – HAP/VOC	0.05	0.25

[1] Potential to emit from Ephrata Landfill's October 2022 initial application
[2] Potential to emit from Ephrata Landfill's October 2022 initial application
[3] Potential to emit from Ephrata Landfill's October 2022 initial application

Emission	w/o Control (tpy)	w/ Control (tpy)
Hexane – HAP/VOC	0.00	0.01
Hydrogen Sulfide	0.19	2.41
Mercury (total) - HAP	0.00	0.00
Methyl Ethyl Ketone - VOC	0.03	0.15
Methyl Isobutyl Ketone – HAP/VOC	0.01	0.03
Methyl Mercaptan	0.00	0.01
Pentane - VOC	0.01	0.06
Perchloroethylene - HAP	0.00	0.02
Propane - VOC	0.02	0.12
Toluene – HAP/VOC	0.10	0.51
Trichloroethylene – HAP/VOC	0.00	0.02
Vinyl Chloride – HAP/VOC	0.00	0.00
Xylene – HAP/VOC	0.14	0.76
Hydrogen Chloride (due to Flare operation)	0.03	0.04

1. Introduction

This document sets forth the legal and factual basis for the permit conditions in the AOP No. 25AQ-E013 issued by the State of Washington Department of Ecology for a municipal Landfill facility located near Ephrata, 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.

2. Facility Identifying Information

a) Company Name Grant County Public Works Department

b) Facility Name Ephrata Landfill

c) Unified Business Identification Number 132-001-884

d) Facility Address 3808 Neva Lake Road NW, Ephrata Washington 98823

e) Responsible Official Sam Castro, Public Works Director

f) Mailing Address 124 Enterprise Street SE, Ephrata Washington 98823

g) Facility Contact Jason Collings, Solid Waste Supervisor

h) Facility Contact Phone Number (509) 754-4319, ext. 3532

3. Basis for Title V Applicability

Ephrata Landfill is subject to Title V, Air Operating Permit Regulations, due to exceeding the design capacity threshold of 2.5 million megagrams of mass (municipal solid waste). 40 CFR Part 60, SubpartWWW identifies any source that exceeds the threshold must submit a Title V application and retain the Title V permit for continued operation.

4. Attainment Classification

The facility is located in an area that is classified as in attainment for all criteria pollutants as of February 2025.

5. Permitting History

March 10, 2009: Notice of Construction (NOC) Approval Order (09AQ-E290) was issued for operation of a portion of the landfill that was opened in 2004, as well as managing the closed portion of the landfill that operated from roughly 1942 to 2004.

September 9, 2019: Order No. 19AQ-E051 was issued for the expansion of the active landfill to "phase 3 and 4" and preparing for the closure of the currently active (at that time) portion of the active landfill "phase 1 and 2" that is predicted to take place in 2021. BACT was represented by installation of a horizontal gas collection system, routed to a ground flare. Approval Order 09AQ-E290 was rescinded and replaced with 19AQ-E051.

September 9, 2019: Source became subject to Title V program due to proposed design capacity (via submitted NOC Application) that exceeds the 2.5 million megagram of mass threshold.

DATE, 2025: Air Operating Permit No. 25AQ-013 is issued.

6. Title V Timeline

September 9, 2019	Source became subject to Title V AOP Program
DATE, 2025	Original Title V AOP issued (Order No. 25AQ-E013)

7. Facility Description

The Ephrata Landfill is located about eight miles south of Ephrata, Washington, in Grant County. The City of Ephrata began operating the Ephrata Landfill in approximately 1942 and owned and operated it until 1974. The U.S. Bureau of Reclamation leased additional property for the landfill to the City. Grant County began operating the landfill in 1972 and was deeded the property in 1994. The landfill operated as an open dump prior to 1962 and as an unlined cell until 2004, accepting an estimated 1,067,177 tons of municipal solid waste (MSW). This closed section of the landfill took place in 2004, at which point the newly permitted expansion (referred to as Phase 1 and 2) was opened.

Phases 1 and 2 were designed with a bottom liner system consisting of a six inch soil bedding layer, a geosynthetic clay liner, and a HDPE 60-mil polyethylene geomembrane. The

composite bottom layer system is covered with a geotextile cushion layer overlaid with a leachate collection system. All leachate generated in the landfill waste is collected and conveyed to the existing leachate evaporation/storage pond, which is located in the southeast corner of Phase 1.

The LFG collection system utilizes a network of horizontal trenches. The trenches contain perforated and solid HDPE pipe. The trenches are connected by a buried HDPE perimeter collection piping system, which conveys the LFG to the on-site flare. Gas probes are installed along the inside perimeter of the landfill property boundary.

In 2019, the facility submitted plans for an expansion to include Phase 3 and 4. The proposed landfill expansion area for Phases 3 and 4 will connect to the systems implemented for Phases 1 and 2, and will include construction of a bottom lining, and a landfill gas and leachate collection system similar to that of Phases 1 and 2. The expansion area will be approximately 19.2 acres and will be north of the existing Phase 1 and 2 areas. The proposed LFG collection system will be extended into these areas and will be essentially the same as described above for Phases 1 and 2. Phases 3 and 4 will occupy the center portion of the landfill, as shown in Appendix 1 and 2.

Major equipment or processes include a gas collection system that routes to a passive ground flare. The system has an open flare, condensate manhole and controls, and buried and aboveground piping and valves. The flare facility was designed to handle landfill gas from both the old and new landfill (Phases 1 through 4).

Figure 1. Example of the Open Flare type used at the Ephrata MSW Landfill.

a) *Open Flare* – The open flare is designed to handle a wider range of landfill gas flows with a maximum of approximately 1,200 standard cubic feet per minute (scfm), which will be adequate for the remaining LFG flows from the closed original landfill as well as the LFG flows for Phases 1 through 4. Depending upon gas quality, flow rate, and wind velocity, the average temperature readings are approximately 900 to 1,300 degrees Fahrenheit, which will product thermal destruction efficiencies of volatile compounds equal to or greater than the 98 percent required in Section 60.762(b)(2)(iii)(B), SubpartWWW, 40 Code of Federal Regulations (CFR) 60.

The flare is constructed of plain carbon steel plate and pipe with a stainless-steel wind shroud. The flare is equipped with a solar-ignitor device, which provides spark duration of one second every 60 seconds to ensure continual ignition of landfill gas regardless of flare combustion status. The flare's inlet is equipped with a flame arrestor.

The blowers will be installed to activate the current system, which will also handle the anticipated LFG generations rates for both landfills. A flow meter will be installed as part of the construction to assist with future greenhouse gas reporting.

b) *Garbage Truck Operations* – Garbage trucks currently bring MSW to the existing landfill, but emissions of fugitive dust are expected to gradually increase due to increased operations required to process the projected increase in annual waste acceptance rates. Exhaust emissions from garbage trucks is not evaluated in this application because garbage trucks are mobile sources.

c) *Earth Moving Equipment Operations* – Earth moving equipment including bulldozers, compactors, excavators, and tractors are already in use at the existing landfill. The earth moving equipment is exempt according to WAC 173-400-035(2)(a) and WAC 173-400-110(1)(b).

d) *Fugitive dust* – Emissions from material handling are controlled through a variety of methods:

Fugitive Dust Emission Source	Method of Fugitive Dust Control
Access roads	Access roads and areas of general vehicle travel are paved
Paved areas	Water is sprayed on the surfaces by a water truck as needed.
Unpaved areas	Roads have maintained gravel surfaces and are watered daily on days with no precipitation.
General Housekeeping	Done on an as needed basis

8. Facility Emission Units/Processes

a) Source Wide (Section 2(a) in AOP)

b) Solid Waste Landfill (Section 2(b) in AOP)

c) Open Flare and gas Collection System (Section 2(c) in AOP)

9. Insignificant Emission Units and Activities

a) Categorically Insignificant Emission Units.

The permittee proposed numerous insignificant emission units as categorically insignificant based on the requirements outlined within the table. A list of these units can be found below in Table 4.

Table 4: Insignificant Emission Units

Year/Description	Make	Model	Fuel Type	AOP Status	Reason
1967 Lab truck	Ford	F-600	Gas	Exempt	Mobile source
1997 F-350 oil transfer truck	Ford	F-350	Gas	Exempt	Mobile source
1989 Leachate truck	Rosco	MARC 1	Gas	Exempt	Mobile source
2016 1500 quad cab 4x4	Ram	TRADESMAN	Gas	Exempt	Mobile source
2022 Silverado 2500 pickup 4wd	Chevrolet	2500	Gas	Exempt	Mobile source
2001 Freightliner dropbox hauler	Freightliner	FLD120SD	Diesel	Exempt	Mobile source
2002 Terrain forklift	Lift King	LK6M42	Diesel	Exempt	WAC 173-401-532(10)
2020 Vacuum (trailer 0406)	Madvac	61G	Gas	Exempt	WAC 173-401-532(10)
2021 John Deere loader	John Deere	644	Diesel	Exempt	WAC 173-401-532(10)
1999 Ford L9000 dropbox hauler	Ford	LT9000	Diesel	Exempt	WAC 173-401-532(10)
2018 John Deere xuv	John Deere	XUV865R	Diesel	Exempt	WAC 173-401-532(10)
2021 Cat landfill compactor	Caterpillar	824K	Diesel	Exempt	WAC 173-401-532(10)
2021 Cat excavator	Caterpillar	336	Diesel	Exempt	WAC 173-401-532(10)
2003 Terex TA40 rock truck	Terex	TA-40	Diesel	Exempt	Mobile source
2015 Kincaid hydroseeder	Kincaid	1200 PRO	Diesel	Exempt	WAC 173-401-532(10)
2015 Deere XUV	John Deere	XUV	Diesel	Exempt	WAC 173-401-532(10)
2019 dump truck	Volvo	A35G	Diesel	Exempt	Mobile source
2015 F350 1 ton	Ford	F350	Gas	Exempt	Mobile source
2019 Chevy Silverado 2500 4wd	Chevrolet	SILVERADO	Gas	Exempt	Mobile source
2021 Ford F250 super duty xl 4wd	Ford	F250	Gas	Exempt	Mobile source
2013 ag compactor	Bomag	BC772RB	Diesel	Exempt	WAC 173-401-532(10)
1933 D6H dozer	Caterpillar	D6H	Diesel	Exempt	WAC 173-401-532(10)
2017 Cat 973D track loader	Caterpillar	973D	Diesel	Exempt	WAC 173-401-532(10)
2002 Freightliner water truck	Freightliner	FLD120SD	Diesel	Exempt	Mobile source

Year/Description	Make	Model	Fuel Type	AOP Status	Reason
2016 CAT Generator	Caterpillar	D40-2LC	Diesel	Exempt	WAC 173-401-533(2)(g)
2007 CAT Generator	Caterpillar	D30-2	Diesel	Exempt	WAC 173-401-533(2)(g)

10. Changes to Underlying Ecology New Source Review Orders of Approval

Before this AOP was issued, the following Ephrata Landfill NOC Approval Orders have been modified:

On September 9, 2019, **Order No. 19AQ-E051** superseded and rescinded Order No. 09AQ-E290. The updated order covers the expansion of the active landfill cells for Phases 3 and 4. This expansion will continue to use the same horizontal piping to capture landfill gases and send them to the Flare.

On March 10, 2009, **Order No. 09AQ-E290** was issued to Ephrata Landfill. The new order included identification of the closure of the one cell (closed in 2004), and the approval to begin the active landfill for Phases 1 and 2. These new cells are required to install and utilize horizontal piping to capture landfill gases and route them to an open Flare for destruction.

11. Changes to Underlying State Requirements

Since this is the first issuance of the Title V permit for Ephrata Landfill, there have been no changes to state requirements yet. This will remain as a place holder for future updates.

Regulatory Citation	Name of Chapter or Section	State	Federal (SIP)
WAC 173-XXX-XXX	TBD	TBD	TBD

12. Federal Regulation Applicability Discussion

a) National Emission Standards for Hazardous Air Pollutants (NESHAPs)

The following subparts to 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories) were promulgated or revised within the term of the current AOP have not been previously addressed or are included here for clarification of non-applicability purposes.

i) Title 40 CFR Part 61, Subpart M, the “Asbestos NESHAP”

On April 5, 1984, EPA promulgated the National Emission Standard for Asbestos. The NESHAP applies to a variety of asbestos related activities. One of these activities is waste disposal. Ephrata Landfill is a waste disposal facility that receives asbestos containing waste material from manufacturing, fabricating, demolition, renovation, or spraying operation wastes. Ephrata Landfill is subject to this NESHAP. AOP condition 1(dd), 3.d.vi.4, and 3.d.vii detail the requirements for compliance with Subpart M.

ii) **Title 40 CFR Part 63, Subpart AAAA, the "Landfill NESHAP"**

On January 16, 2003, EPA promulgated the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The NESHAP applies to municipal solid waste landfills that have accepted waste since November 8, 1987, or have additional capacity for waste deposition, may include a bioreactor, and meets any one of three other criteria.

The applicability criteria define a subject landfill as one that is a major source or collocated with a major source as defined in 40 CFR §63.2 of subpart A. Specifically, major source is defined as, "a stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants". As indicated in Table 1, Ephrata Landfill has the potential to emit less than 10 tons per year each individual hazardous air pollutant and less than 25 tons per year in combination of hazardous air pollutants.

The applicability criteria also define a subject landfill as one that has a design capacity greater than, or equal to, 2.5 million megagrams and 2.5 million cubic meters and has estimated uncontrolled emissions greater than, or equal to, 50 megagrams per year NMOC. Once each of those thresholds are exceeded, 40 CFR §63.1945(f) states that Ephrata Landfill will need to comply with Subpart AAAA by the date the source is required to install a collection and control system by 40 CFR §60.752(b)(2) of subpartWWW.

As discussed in Section 3(d)(v)(2) of the AOP, Ephrata Landfill's estimated uncontrolled annual emissions of NMOC are not forecasted to exceed 50 megagrams per year. If subsequent estimates indicate the threshold will be exceeded with three or more years remaining in AOP No. 25AQ-E016 term, or revisions thereof, the AOP may be reopened for cause to include the requirements of Subpart AAAA.

b) New Source Performance Standards (NSPS)

The following subparts to 40 CFR 60 (Standards of Performance for New Stationary Sources) were promulgated within the term of the current AOP and have not been previously addressed or are included here for clarification of non-applicability purposes.

i) **Title 40 CFR Part 60, Subpart WWW, the "Landfill NSPS"**

On March 12, 1996, EPA promulgated Title 40 CFR Part 60 SubpartWWW, Standards of Performance for Municipal Solid Waste Landfills. The NSPS applies to each municipal solid waste landfill that commenced construction, reconstruction} or modification, or began accepting waste, on or after May 30, 1991. The NSPS requires landfills with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters to submit non-methane organic compound (NMOC)

emission reports. When the pre- controlled NMOC emissions are calculated at or above 50 megagrams per year additional requirements are triggered.

Ephrata Landfill is considered a "new" landfill under the NSPS because it began construction on a landfill expansion after May 31, 1991. As such, Ephrata Landfill is subject to SubpartWWW. Ecology received a copy of the permittee's initial Design Capacity Report and NMOC Report on June 19, 2019. The initial NMOC emission rate report listed the NMOC emission rate as 4.4 Mg/yr starting in 2022 and reaching its peak in2035 at 61.3 MG/yr using the default variable values listed in 40 CFR §60.754(a)(l)(i).

The most recent New Source Performance Standards Tier 2 Sampling, Analysis, and Landfill NMOC Emissions Estimates, received June 19, 2019, listed total landfill NMOCs as 53.1 Mg/yr, 57.6 Mg/yr, and 61.3 Mg/yr for calendar years 2033 through 2035, then declining to 49.2 Mg/yr from calendar years 2036 through 2046. Because NMOC emissions are not less than 50 Mg/year during those years, annual NMOC reporting is required.

AOP Applicable Requirement 2.2.14 details the current requirements for compliance with SubpartWWW. If the calculated NMOC emissions are not less than 50 Mg/year by 2046, after issuance of the AOP 25AQ-E016, the AOP, or revisions thereof, will be reopened to incorporate additional requirements specified by SubpartWWW.

13. Compliance Assurance Monitoring (CAM) Applicability Analysis

a) On October 22, 1997, EPA promulgated the Compliance Assurance Monitoring 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:

i) The unit is located at a Title V Air Operating Permit source.

ii) 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.

iii) The unit uses a control device to achieve compliance with any such emission limitation or standard.

iv) 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.

b) Applicability

The emission unit considered for CAM applicability was the landfill itself. Following is a summary of how the landfill compares to the above listed criteria:

i) Ephrata Landfill is a Title V Air Operating source (see Basis for Title V Applicability, Section 3).

ii) CAM exempts post November 15, 1990, New Source Performance Standard emission limitations/standards from triggering CAM. While Ephrata Landfill is subject to the Landfill NSPS, SubpartWWW, the NSPS was promulgated in 1996, and thus it cannot trigger CAM.

However, the Notice of Construction application, submitted in June 2019 (for Order No. 19AQ-E051), proposes a destruction efficiency of 98 percent for NMOC and organic TAPs. The NMOC standard is specified as an alternative to a volatile organic compound (VOC) emission limitation or standard. VOC is a surrogate for ozone. Therefore, Ephrata Landfill is subject to an emission standard for an applicable regulated surrogate air pollutant.

iii) Ephrata Landfill has a landfill gas collection system which must be routed to a control device. The control device tied to the emission standard discussed above is an open flare.

iv) While landfills can produce a significant quantity of NMOC emissions, only a portion of the NMOC emissions are collected and made available for control. Ephrata Landfill has estimated, with a weighted average distributed over the initial landfill and expanded sections, that they collect 91.9 percent of the landfill gas produced. Based upon the June 19, 2019 NOC Application, and the associated NMOC content in the landfill gas, when the flare is operated at full capacity (1200 scfm), potential pre-control NMOC emissions are approximately 61.14 tons per year.

Therefore, CAM has been identified as an inapplicable requirement for the landfill, based upon the NMOC emission standard on the flare.

14. Applicable/Inapplicable Requirements Determinations/Explanations

a) Initial or one-time NOC requirements that have not been included in the AOP as ongoing applicable requirements:

i) Order No. 19AQ-E051, Approval Condition 6(a), states visible emission from the landfill operations shall be measured by EPA Method 9 of Title 40, Code of Federal Regulations, Part 60, Appendix A.

1) This requirement is ongoing.

ii) Order No. 19AQ-E051, Approval Condition 6(b), states visible emissions from the flare shall be measured by EPA Method 22 of Title 40, Code of Federal Regulations, Part 60, Appendix A.

1) This requirement is ongoing.

iii) Order No. 19AQ-E051, Approval Condition 6(c), states periodic testing of flare emissions is not required in this Approval Order and that Ecology may require flare emission testing in the future in accordance with WAC 173-400-105(4).

1) Periodic or one-time testing has not yet been requested, but if it were, the permittee shall install a stack on the open flare that satisfies the criteria in 40 CFR 60, Appendix A, Method 2.

iv) Order No. 19AQ-E051, Approval Condition 6(d), within 30 days of conducting any testing or monitoring required under Condition 4(e) of the Approval Order, the permittee shall submit a written report of the results to Ecology.

1) Most recent correspondence from Parametrix received on February 22, 2022, states the facility performed surface emission surveys as required by Approval Condition 7(b). Correspondence has been received for previous testing as well. This correspondence is located in the facility Report file at Ecology's Eastern Regional Office in Spokane, WA or within Ecology's Source Management System (SMS) database.

v) Order No. 19AQ-E051, Approval Condition 7(a), states that a device to record flow to the Flare, as well as periods and volumes of bypassing the Flare.

1) Compliance with this condition has not been verified at this time, proof of this installation will be verified during the next scheduled inspection.

vi) Order No. 19AQ-E051, Approval Condition 7(b), states that the Permittee shall retain an independent testing firm to conduct surface monitoring, as well as the what is to be monitored, how to monitor, and calibration procedures for the monitoring equipment.

1) Most recent correspondence from Parametrix received on February 22, 2022, states the facility performed surface emission surveys as required by Approval Condition 7(b). Correspondence has been received for previous testing as well. This correspondence is located in the facility Report file at Ecology's Eastern Regional Office in Spokane, WA or within Ecology's Source Management System (SMS) database.

vii) Order No. 19AQ-E051, Approval Condition 7(c), states surface monitoring is required in accordance with Section 8.3.1 of Method 21 of Title 40 Part 60 Code of Federal Regulations, Appendix A-7, except that the probe inlet shall be placed within five to ten centimeters (two to four inches) off the ground.

1) A facility inspection by Ecology air quality personnel on August 29, 2012, indicated surface monitoring with probe placement within five to ten centimeters off the ground as required by Approval Condition 7(c) was considered complete and satisfactory. This correspondence is located in the facility Report file at Ecology's Eastern Regional Office in Spokane, WA or within Ecology's Source Management System (SMS) database.

viii) Order No. 19AQ-E051, Approval Condition 7(d), states that records shall be kept of each instrument calibration and monitoring events that take place.

1) Compliance with this condition has not been verified at this time, it will be verified during the next scheduled inspection.

ix) Order No. 19AQ-E051, Approval Condition 7(e), states that Ecology must be notified if surface monitoring reads an exceedance of methane above 1,250 ppm.

1) Ecology does not have any records or reports of exceedances at this time.

x) Order No. 19AQ-E051, Approval Condition 7(f), states the facility shall make all required records available for five years for inspection.

1) Compliance with this condition has not been verified at this time, it will be verified during the next scheduled inspection.

xi) Order No. 19AQ-E051, Approval Condition 7(i), states that records shall be kept of complaints received from the public, Ecology, or any other entity. It also states that complaints shall be investigated within 24 hours and record corrective actions taken in response to the complaint.

1) Compliance with this condition has not been verified at this time, it will be verified during the next scheduled inspection.

xii) Order No. 19AQ-E051, Approval Condition 10(a), states the facility is required to develop and maintain an Operations and Maintenance (O&M) Manual. This condition also outlines some of the required information that must be placed in the O&M Manual.

1) Compliance with this condition was confirmed during the inspection performed in 2012.

xiii) Order No. 19AQ-E051, Approval Condition 11(a), states the facility prepare a Fugitive Dust Control Plan (FDCP) and keep it on site along with its location known to employees.

1) A facility inspection by Ecology air quality personnel on August 29, 2012, indicated the facility had a FDCP required by Approval Condition 11(a) was considered complete and satisfactory. This correspondence is located in the facility Report file at Ecology's Eastern Regional Office in Spokane, WA or within Ecology's Source Management System (SMS) database.

xiv) Order No. 19AQ-E051, Approval Condition 11(b), states the FDCP shall be completed within 60 days of issuance of the Approval Order, and reviewed annually.

1) Compliance with this condition has not been verified at this time, it will be verified during the next scheduled inspection.

xv) Order No. 19AQ-E051, Approval Condition 11(c), states the required information that shall be included in the FDCP.

1) Compliance with this condition has not been verified at this time, it will be verified during the next scheduled inspection.

b) The following NOC requirements clarified miscellaneous issues with regard to the applicable emission unit and were not, in actuality, approval conditions. These requirements; therefore, have not been included in the AOP as ongoing applicable requirements.

i) Order No. 19AQ-E051, Approval Condition 1(a).

1) This approval condition states that Order No. 19AQ-E051 supersedes the previous Order applying to the landfill facility, Order No. 09AQ-E290.

15. Monitoring, Recordkeeping, and Reporting Requirement (MRRR) Sufficiency Explanations

This section provides brief discussions regarding the reasoning behind the MRRR's included as part of the AOP. The criterion is that each MRRR must be sufficient to assure compliance with the associated condition, emission standard or work practice.

Gapfilling: if an applicable requirement does not include monitoring, recordkeeping and reporting requirements sufficient to assure compliance, the AOP will establish additional requirements. This action is known as gapfilling. Monitoring, Recordkeeping and Reporting Requirements that include gapfilling are identified by a note following the MRRR description.

a) **MRRR 3(a)** – The nature of this requirement is to cover the minimum requirements necessary to cover the monitoring and maintenance needed at the facility.

i) MRRR 3(a)(i) Facility Wide Inspections

The permittee shall conduct a facility-wide inspection at least once per calendar month. These inspections shall include checking for prohibited activities and new activities that require additional approval under Chapter 173-400 WAC. The inspections shall also examine the general state of compliance with the general applicable requirements and the general effectiveness of the O&M Plan.

The facility-wide inspection shall include an inspection of the facility for odor-bearing contaminants and emissions of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interfere with enjoyment of life and property. The permittee shall also conduct quarterly inspections for fugitive dust and track-out if there are any activities underway, such as construction, which are likely to generate fugitive dust or track-out.
The permittee shall correct any problems identified by these inspections as soon as possible, but no later than 24 hours after identification or shut down the unit or

activity until the problem can be corrected or report the problem as a deviation under Section 1(m) of the AOP.
[WAC 173-401-615(1)]

ii) MRRR 3(a)(ii) Visible Emissions

The permittee shall conduct monthly visible emissions surveys of all emission units during daylight hours as follows:

The survey shall be conducted from a location with a clear view of the emission unit and where the sun is not directly in the observer's eyes. The survey location shall be at least 15 feet but not more than 0.25 miles from the source. The survey shall be conducted when the facility is in operation. The observer will be educated in the general procedures for determining the presence of visible emissions (i.e., effects on the visibility of emissions caused by background contrast, position of the sun and amount of ambient lighting, and observer position relative to source and sun). The survey shall consist of a minimum 15-second visual observation of each emission unit to identify those emission units which exhibit visible emissions. The observer shall record the wind direction, sky condition, sun location with respect to the source and the survey location, and the time duration of the survey. If, during the scheduled inspection, or at any other time, visible emissions other than uncombined water are observed, the permittee shall, as soon as possible, but no later than within 24 hours of the initial observation, take corrective actions until there are no visible emissions, or alternatively, measure and record the opacity using Ecology Method 9A or Reference Method 9 or shut down the unit or activity until it can be repaired.

[WAC 173-401-615(1)]

iii) MRRR 3(a)(iii) Fugitive Dust

Fugitive dust will be controlled in accordance with a Fugitive Dust Control Plan (FDCP), to be prepared by the permittee and kept on-site in a location known and accessible to employees. The FDCP shall be prepared using the guidelines in the document EPA-450/3-88-008 and may be incorporated into the O&M Manual required in Section 15.1.1.

[Cond. 11(a), AO 19AQ-E051 9/19/2019]

The FDCP shall be complete no later than 11/18/2019 and shall be reviewed and updated (if necessary) annually.

[Cond. 11(b), AO 19AQ-E051 9/19/2019]

The FDCP shall include, but not be limited to, the following:

1) Fugitive dust control strategies for paved and unpaved surfaces on which travel by rubber-tired vehicles occurs.

2) Management of the active area to control fugitive dust by dust suppressing substances, covering, compacting, and windbreak construction.

3) Control of vehicle track-out onto offsite paved roads. This shall be accomplished by tire washing or rumble bars for rubber-tired vehicles as they leave the site or by alternative methods proposed by the permittee and approved in writing by Ecology.

[Cond. 11(c), AO 19AQ-E051 9/19/2019]

iv) MRRR 3(a)(iv) Odor

If odor from the project is detected beyond the property boundary corrective action shall be taken or commenced by the permittee as soon as possible but no later than within three working days. Permittee shall keep records and notify Ecology as required by Cond. 7(i), AO 19AQ-E051. If odor is detected beyond the property boundary following corrective action, Ecology may order the permittee to take specific measures to control odor. These measures may include, but are not limited to, restrictions on the size of the active face, enclosure of the active face, modifications to gas or leachate collection or control systems and limitations on the amount of solid waste received by the landfill.

[Cond. 2(d), AO 19AQ-E051 9/19/2019]

v) MRRR 3(a)(v) Complaint Response

The permittee shall record and investigate air pollution complaints as soon as possible, but no later than three business days after receipt. Upon receiving a complaint, the permittee shall record:

1) The date and time of the complaint,
2) The name of the person complaining, if known,
3) The nature of the complaint, and
4) The date, time and nature of any corrective action taken.

The permittee shall also identify complaints regarding these emissions as follows:

1) Any emissions that are, or are likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interfere with enjoyment of life and property, or
2) Any emissions from fallout, or
3) Any track-out onto paved roads open to the public, or
4) Any emissions of odor-bearing air contaminants, or
5) Other emissions.

The permittee shall correct any problems identified by these inspections or complaint investigations as soon as possible, but no later than 24 hours after identification or shut down the unit or activity until it can be repaired or corrected or report the problem as a deviation under Section 15.4.5.10.
[WAC 173-401-615(1)]

The permittee shall keep records of complaints as received from the public, Ecology, or any other entity. Complaints shall be promptly addressed (within 24 hours). Records shall be maintained of the permittee's action to investigate the complaint, and what, if any, corrective action was taken in response to the complaint. Ecology shall be notified within three business days of receipt of any complaint.
[Cond. 7(i), AO 19AQ-E051]

vi) MRRR 3(a)(vi) Maintenance and Repair of Insignificant Emission Units

The permittee shall use good industrial practices to maintain insignificant emission units. For such equipment, the permittee shall also promptly repair defective equipment or shut down the unit until defective equipment can be repaired. Records under Section 1(aa) of the AOP are not required for such equipment except when such equipment is inspected under Section 15.1.1 and a problem requiring prompt repair is discovered during the inspection.
[WAC 173-401-615(1)(b)]

vii) MRRR 3(a)(vii) Ecology-specific Monitoring, Reporting, and Recordkeeping

1) Landfill Monitoring Requirements

Surface monitoring described in the requirement from AOP Order 25AQ-E016, Condition 2.2.1, shall be performed quarterly to assess the performance of the gas collection system in the active portion of the landfill until such time as the passive flare is disposing of the gas generated in the active sections. If a reading above 1,250 parts per million (ppm) methane is obtained, retesting shall be conducted within ten working days. If the retesting obtains a result above 1,250 ppm methane, the permittee shall expand or alter the landfill gas collection system to provide additional collection (e.g., by adding additional collection equipment or control device(s)), and / or shall improve the condition of the landfill cover [Cond. 4(e), AO 19AQ-E051 9/19/2019].

After the active landfill gases are being disposed of by the flare, a composite sample of the gas entering the system from the active landfill shall be collected in a summa canister and analyzed for non-methane organic compounds (NMOC) and by Method TO-15A, or other methods agreed to in advance by Ecology. If the results of these analyses demonstrate that total NMOC concentrations from the active side of the system are less than 600 ppmv, and WAC 173-460 TAPs are less than the Small Quantity Emission Rates (SQERs), the surface surveys required in AOP Order 25AQ-E016, Condition 2.2.1 may be discontinued. Sampling and analysis for NMOC and TO-15A targets shall be repeated at each increase of 100 cfm above initial flow of landfill gas to the flare [Cond. 4(f), AO 19AQ-E051 9/19/2019].

In the event that passive collection results in landfill gas flow of 1,000 scfm or greater, the landfill gas collection system shall be converted to an active system within one year of the date on which the flow first read 1,000 scfm or

greater, or additional or improved flaring capacity shall be installed. Modifications to the flaring and proposed collection system require an NOC application and modified Approval Order for this project [Cond. 4(g), AO 19AQ-E051 9/19/2019].

2) Landfill Cover Operational Requirements

(a) Daily Covering of Active Face Monitoring

The permittee shall submit to Ecology, by letter or by email, a description of materials proposed for working face daily cover. Only those materials that have been approved by Ecology, in writing or by email, may be used to cover the working face at the end of each working day.

At the end of each working day, the permittee shall inspect the working face of the landfill to ensure that the approved daily cover has been applied. The permittee shall record the results of this daily inspection.

[Cond. 5(b), AO 19AQ-E051 9/19/2019]

(b) Intermediate Cover Monitoring

Permittee shall inspect areas that have received waste but will be inactive for a period longer than 180-days for placement of intermediate cover monthly and shall record the results of this monthly inspection. [Cond. 5(c), AO 19AQ-E051 9/19/2019]

3) Testing Method Requirements

(a) Visible Emissions Testing

Visible emissions from the landfill operations shall be measured by EPA Method 9 of Title 40, Code of Federal Regulations, Part 60, Appendix A-4 [Cond. 6(a), AO 19AQ-E051 9/19/2019].

Visible emissions from the Flare shall be measured by EPA Method 22 of Title 40, Code of Federal Regulations, Part 60, Appendix A-7 [Cond. 6(b), AO 19AQ-E051 9/19/2019].

(b) Periodic Testing of Flare Emissions

Periodic testing of flare emissions is not required in this Approval Order. Ecology may require flare emission testing in the future in accordance with WAC 173-400-105(4). For future flare emission testing the permittee shall install a stack on the open flare that satisfies the criteria in 40 CFR 60, Appendix A-1, Method 2 [Cond. 6(c), AO 19AQ-E051 9/19/2019].

(c) Surface Methane Concentration Monitoring

The permittee shall retain an independent testing firm to monitor surface concentrations of methane along the entire perimeter of the final cover

area and along a pattern that traverses the landfill cover at 30-meter intervals (or a site-specific spacing proposed by the permittee in writing and approved by Ecology in writing in advance of testing) on a quarterly basis. If monitoring for four consecutive quarters do not result in any reading greater than 1,250 ppmv methane, the test frequency may be reduced to once per year. If any annual monitoring result exceeds 1,250 ppmv methane, the monitoring schedule shall return to once per quarter until four consecutive quarters results do not result in any reading greater than 1,250 ppmv methane [Cond. 7(b)(i), AO 19AQ-E051 9/19/2019].

Surface monitoring shall be conducted using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the following specifications:

The portable analyzer shall meet the instrument specifications provided in Section 6 of Method 21 of Appendix A-7, Title 40 Part 60 Code of Federal Regulations, except that "methane" shall replace all references to VOC.

The calibration gas shall be methane, diluted to a nominal concentration of 1,250 parts per million in air.

To meet the performance evaluation requirements of section 6 of Method 21 of Appendix A-7, Title 40 Part 60 Code of Federal Regulations, the instrument evaluation procedures of section 8 of Method 21 of Appendix A-7, Title 40 Part 60 Code of Federal Regulations shall be used.

[Cond. 7(b)(ii), AO 19AQ-E051 9/19/2019]

The calibration procedures provided in Section 10 of Method 21 of Appendix A-7, Title 40 Part 60 Code of Federal Regulations shall be followed immediately before commencing a surface monitoring survey [Cond. 7(b)(iii), AO 19AQ-E051 9/19/2019].

Surface emission monitoring shall be performed in accordance with section 8.3.1 of Method 21 of Title 40 Part 60 Code of Federal Regulations, Appendix A-7, except that the probe inlet shall be placed within five to ten centimeters (two to four inches) off the ground [Cond. 7(c), AO 19AQ-E051 9/19/2019].

b) MRRR 3(b) Operational and Maintenance (O&M) Manual Requirements

Operational and maintenance plan. Owners or operators of registered sources within ecology's jurisdiction must maintain an operation and maintenance plan for process and control equipment. The plan must reflect good industrial practice and must include a record of performance and periodic inspections of process and control equipment. In most instances, a manufacturer's operations manual or an equipment operation schedule may be considered a sufficient operation and maintenance plan. The source

owner or operator must review and update the plan at least annually. The source owner or operator must make a copy of the plan available to ecology upon request. [WAC 173-400-101(4)]

A source specific Operations and Maintenance (O&M) manual shall be developed and followed. Manufacturer's instructions may be referenced. O&M manual development shall be completed no later than 11/18/2019. The O&M manual shall be reviewed no less than annually and updated as necessary. The O&M Manual shall be kept on-site in a location readily accessible to employees. The O&M manual shall at a minimum include:

i) Normal operating parameters for the gas collection and control system(s).

ii) Specifications for calibration and operation and quality assurance protocols for monitoring equipment required in this approval. This includes but is not limited to the required landfill gas flow meter.

iii) A maintenance schedule for the emission units.

iv) Monitoring and recordkeeping requirements.

v) A description of the monitoring procedures.

Actions to be taken in the event of abnormal landfill gas flaring system operation, including but not limited to requirements for reporting to Ecology any breakdown or malfunction which results in the emission of untreated landfill gas to the environment. Remedial measures to be taken to eliminate uncontrolled release of landfill gas and prevent further emissions into the atmosphere.

[Cond. 10(a), AO 19AQ-E051 9/19/2019]

c) MRRR 3(c) New Source Performance Standard (NSPS) 40 CFR 60 Subpart A

The permittee shall furnish the EPA Administrator written notification of activities listed in 40 CFR 60.7(a) and (b). The permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the affected source; any malfunction in the air pollution control equipment; or any periods during which a monitoring device is inoperative. Each summary report form shall contain this information and be in the format described in 40 CFR 60.7(d). For the purposes of this requirement, the EPA Administrator shall be Ecology at:

Washington Department of Ecology
Air Quality Program
4601 N. Monroe Street
Spokane, Washington 99205-1295

[40 CFR 60.7]

d) MRRR 3(d) NSPS 40 CFR 60 Subpart XXX

i) Operational Standards for Collection and Control Systems
Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of §60.762(b)(2) must:

1) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

(a) Five years or more if active; or

(b) Two years or more if closed or at final grade.

2) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(a) A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in §60.767(g)(1);

(b) Use of a geomembrane or synthetic cover. The owner or operator must develop acceptable pressure limits in the design plan;

(c) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes must be approved by Ecology as specified in §60.767(c).

3) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit). The owner or operator may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to Ecology for approval and must include supporting data demonstrating that the elevated parameter neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved (i.e., neither causing fires nor killing methanogens is acceptable).

4) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator must conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in §60.765(d). The owner or operator must conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. Thus, the owner or operator must monitor any openings that are within an area of the landfill where

waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan must be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

5) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60.762(b)(2)(iii). In the event the collection or control system is not operating, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating; and

6) Operate the control system at all times when the collected gas is routed to the system.

7) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action must be taken as specified in §60.765(a)(3) and (5) or (c). If corrective actions are taken as specified in §60.765, the monitored exceedance is not a violation of the operational requirements in this section.

[40 CFR 60.763]

ii) Test Methods and Procedures

1) NMOC Emission Rate Before Collection and Control System Installation

(a) The permittee must calculate the NMOC emission rate using either LandGEM[1], or Equations 1 and 2 may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i)(A) and (B) of §60.764. The values to be used in both LandGEM and Equations 1 and 2 are 0.05 per year for k, 170 cubic meters per megagram for Lo, and 4,000 parts per million by volume as hexane for the CNMOC. For landfills located in geographical areas with a 30-year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

[40 CFR 60.764(a)]

[1] The Landfill Gas Emissions Model (LandGEM) is an automated estimation tool with a Microsoft Excel interface that can be used to estimate emissions rates for total landfill gas, methane, carbon dioxide, nonmethane organic compounds, and individual air pollutants from municipal solid waste landfills. It is available from Clean Air Technology Center Products | US EPA.

2) NMOC Emission Rate After Collection and Control System Installation

(a) After the installation and startup of a collection and control system in compliance with this subpart, the permittee must calculate the NMOC emission rate for purposes of determining when the system can be capped, removed or decommissioned as provided in §60.762(b)(2)(v), using Equation 3:

$$\boldsymbol{M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}}$$

Where:

M_{NMOC} = Mass emission rate of NMOC, megagrams per year.

Q_{LFG} = Flow rate of landfill gas, cubic meters per minute.

C_{NMOC} = NMOC concentration, parts per million by volume as hexane.

(i) The flow rate of landfill gas, Q_{LFG}, must be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control system using a gas flow measuring device calibrated according to the provisions of section 10 of Method 2E of appendix A of this part.

(ii) The average NMOC concentration, C_{NMOC}, must be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25 or Method 25C. The sample location on the common header pipe must be before any condensate removal or other gas refining units. The landfill owner or operator must divide the NMOC concentration from Method 25 or Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(iii) The permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by Ecology.

A. Within 60 days after the date of completing each performance test (as defined in §60.8), the owner or operator must submit the results of the performance test, including any associated fuel analyses, according to §60.767(i)(1).

[40 CFR 60.764(b)]

3) NMOC Emission Rate for PSD Applicability

(a) When calculating emissions for Prevention of Significant Deterioration purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart must estimate the NMOC emission rate for comparison to the Prevention of Significant Deterioration major source and significance levels in §§51.166 or 52.21 of this chapter using Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42) or other approved measurement procedures.

NOTE: The permittee has already complied with this requirement during the NOC application process and the MSW landfill was found to not be a PSD source.

[40 CFR 60.764(c)]

4) Performance Test for Enclosed Flare

(a) For the performance test required in §60.762(b)(2)(iii)(B), Method 25 or 25C (Method 25C may be used at the inlet only) of appendix A of this part must be used to determine compliance with the 98 weight-percent efficiency or the 20 parts per million by volume outlet concentration level, unless another method to demonstrate compliance has been approved by Ecology as provided by §60.767(c)(2). Method 3, 3A, or 3C must be used to determine oxygen for correcting the NMOC concentration as hexane to three percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. Method 18 may be used in conjunction with Method 25A on a limited basis (compound specific, e.g., methane) or Method 3C may be used to determine methane. The methane as carbon should be subtracted from the Method 25A total hydrocarbon value as carbon to give NMOC concentration as carbon. The landowner or operator must divide the NMOC concentration as carbon by six to convert from the CNMOC as carbon to CNMOC as hexane. Equation 4 must be used to calculate efficiency:

$$\text{Control Efficiency} = \frac{NMOCin - NMOCout}{NMOCin}$$

Where:

$NMOC_{in}$ = Mass of NMOC entering control device.

$NMOC_{out}$ = Mass of NMOC exiting control device.

[40 CFR 60.764(d)]

5) Performance Test for Non-enclosed (Open) Flare

(a) For the performance test required in §60.762(b)(2)(iii)(A), the net heating value of the combusted landfill gas as determined in §60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under §60.18(f)(4).

(i) Within 60 days after the date of completing each performance test (as defined in §60.8), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, required by §60.764(b) or (d) according to §60.767(i)(1).

[40 CFR 60.764(e)]

iii) Compliance Provisions

1) Collection System Compliance Determination

(a) Except as provided in §60.767(c)(2), the specified methods in paragraphs (a)(1) through (6) of this section must be used to determine whether the gas collection system is in compliance with §60.762(b)(2)(ii).

(i) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.762(b)(2)(ii)(C)(1), LandGEM or either Equation 5 or Equation 6 of §60.765 must be used. The methane generation rate constant (k) and methane generation potential (Lo) kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by Ecology. If k has been determined as specified in §60.764(a)(4), the value of k determined from the test must be used. A value of no more than 15 years must be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

A. For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R(e^{-kc} - e^{-kt})$$

Where:

Q_m = Maximum expected gas generation flow rate, cubic meters per year.

L_o = Methane generation potential, cubic meters per megagram solid waste.

R = Average annual acceptance rate, megagrams per year.

k = Methane generation rate constant, year−1.

t = Age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.

c = Time since closure, years (for an active landfill c = 0 and e−kc = 1).

B. For sites with known year-to-year solid waste acceptance rate:

$$Q_m = \sum_{i=1}^{n} 2kL_oM_i(e^{-kt_i})$$

Where:

Q_M = Maximum expected gas generation flow rate, cubic meters per year.

k = Methane generation rate constant, year−1.

Lo = Methane generation potential, cubic meters per megagram solid waste.

Mi = Mass of solid waste in the i^{th} section, megagrams.

t_i = Age of the i^{th} section, years.

C. If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, Equation 5 or Equation 6 in paragraphs (a)(1)(i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using Equation 5 or Equation 6 in paragraphs (a)(1)(i)

or (ii) of this section or other methods must be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(ii) For the purposes of determining sufficient density of gas collectors for compliance with §60.762(b)(2)(ii)(C)(2), the owner or operator must design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to Ecology, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(iii) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with §60.762(b)(2)(ii)(C)(3), the owner or operator must measure gauge pressure in the gas collection header applied to each individual well, monthly. If a positive pressure exists, action must be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under §60.763(b). Any attempted corrective measure must not cause exceedances of other operational or performance standards.

A. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured. The owner or operator must keep records according to §60.768(e)(3).

B. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the positive pressure measurement. The owner or operator must submit the items listed in §60.767(g)(7) as part of the next annual report. The owner or operator must keep records according to §60.768(e)(4).

C. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to Ecology, according to

§60.767(g)(7) and §60.767(j). The owner or operator must keep records according to §60.768(e)(5).

(iv) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator must monitor each well monthly for temperature as provided in §60.763(c). If a well exceeds the operating parameter for temperature, action must be initiated to correct the exceedance within five calendar days. Any attempted corrective measure must not cause exceedances of other operational or performance standards.

A. If a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit), the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) was first measured. The owner or operator must keep records according to §60.768(e)(3).

B. If corrective actions cannot be fully implemented within 60 days following the positive pressure or elevated temperature measurement for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) or positive pressure. The owner or operator must submit the items listed in §60.767(g)(7) as part of the next annual report. The owner or operator must keep records according to §60.768(e)(4).

C. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to Ecology, according to §60.767(g)(7) and §60.767(j). The owner or operator must keep records according to §60.768(e)(5).

(v) An owner or operator seeking to demonstrate compliance with §60.762(b)(2)(ii)(C)(4) using a collection system not conforming to the specifications provided in §60.769 must provide information satisfactory to Ecology as specified in §60.767(c)(3) demonstrating that off-site migration is being controlled.

[40 CFR 60.765(a)]

2) Collection System Compliance Timing

(a) For purposes of compliance with §60.763(a), each owner or operator of a controlled landfill must place each well or design component as specified in the approved design plan as provided in §60.767(c). Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

(i) Five years or more if active; or

(ii) Two years or more if closed or at final grade.

[40 CFR 60.765(b)]

3) Methane Concentration Compliance Determination

(a) The following procedures must be used for compliance with the surface methane operational standard as provided in §60.763(d) (Requirement EU-2.7 and EU-2.26).

(i) After installation and startup of the gas collection system, the permittee must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of §60.765, according to the following schedule:

First Quarter	December 15 to January 15
Second Quarter	March 15 to April 15
Third Quarter	June 15 to July 15
Fourth Quarter	September 15 to October 15

(ii) The background concentration must be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

(iii) Surface emission monitoring must be performed in accordance with section 8.3.1 of Method 21 of 40 CFR 60, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.

(iv) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4)(i) through (v) of this section must be taken. As long as the specified actions are taken, the

exceedance is not a violation of the operational requirements of §60.763(d).

A. The location of each monitored exceedance must be marked, and the location and concentration recorded.

B. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance.

C. If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken, and the location must be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (c)(4)(v) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) of this section has been taken.

D. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4)(ii) or (iii) of this section must be re-monitored one month from the initial exceedance. If the one-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one-month re-monitoring shows an exceedance, the actions specified in paragraph (c)(4)(iii) or (v) of this section must be taken.

E. For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device must be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to Ecology for approval.

(v) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

[40 CFR 60.765(c)]

4) Monitoring System Compliance Determination

(a) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section or §60.764(a)(6) must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(i) The portable analyzer must meet the instrument specifications provided in section 6 of Method 21 of appendix A of this part, except that "methane" replaces all references to "VOC".

(ii) The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.

(iii) To meet the performance evaluation requirements in section 8.1 of Method 21 of Appendix A of this part, the instrument evaluation procedures of section 8.1 of Method 21 of Appendix A of this part must be used.

(iv) The calibration procedures provided in sections 8 and 10 of Method 21 of Appendix A of this part must be followed immediately before commencing a surface monitoring survey.

[40 CFR 60.765(d)]

5) Compliance Required at All Times

(a) The provisions of Subpart XXX of 40 CFR 60 apply at all times, including periods of startup, shutdown or malfunction. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in §60.763(e) in lieu of the compliance provisions in §60.765.

[40 CFR 60.765(e)]

iv) Monitoring of Operations

1) LFG Collection System Monitoring

(a) For each active gas collection system, the permittee must install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

(i) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60.765(a)(3); and

(ii) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:

A. The nitrogen level must be determined using Method 3C.

B. Determine the oxygen level by an oxygen meter using Method 3A, 3C, or ASTM D6522-11 (if sample location is prior to combustion) except that:

i. The span must be set between 10 and 12 percent oxygen.

ii. A data recorder is not required.

iii. Only two calibration gases are required, a zero and span.

iv. A calibration error check is not required.

v. The allowable sample bias, zero drift, and calibration drift are ±10 percent.

C. A portable gas composition analyzer may be used to monitor the oxygen levels provided:

i. The analyzer is calibrated; and

ii. The analyzer meets all quality assurance and quality control requirements for Method 3A or ASTM D6522-11.

(iii) Monitor temperature of the landfill gas on a monthly basis as provided in 60.765(a)(5). The temperature measuring device must be calibrated annually using the procedure in 40 CFR part 60, appendix A-1, Method 2, section 10.3 such that a minimum of two temperature points, bracket within 10 percent of all landfill absolute temperature measurements or two fixed points of ice bath and boiling water, corrected for barometric pressure, are used.

[40 CFR 60.766(a)]

2) Enclosed Flare Monitoring

(a) For each enclosed combustor, the permittee must calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

(i) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.

(ii) A device that records flow to the control device and bypass of the control device (if applicable). The owner or operator must:

A. Install, calibrate, and maintain a gas flow rate measuring device that must record the flow to the control device at least every 15 minutes; and

B. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

[40 CFR 60.766(b)]

3) Non-enclosed (Open) Flare Monitoring

(a) If the permittee is seeking to comply with §60.762(b)(2)(iii) using a non-enclosed flare, the permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(i) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(ii) A device that records flow to the flare and bypass of the flare (if applicable). The permittee must:

A. Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and

B. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

[40 CFR 60.766(c); Cond. 7(a), AO 19AQ-E051 9/19/2019]

4) Surface Methane Monitoring Intervals

(a) The permittee must monitor surface concentrations of methane according to the procedures in §60.765(c) and the instrument specifications in §60.765(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading

of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

[40 CFR 60.766(f)]

5) Gas Treatment System Monitoring

(a) If the permittee is seeking to demonstrate compliance with §60.762(b)(2)(iii) by using a landfill gas treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process, the permittee must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in §60.768(b)(5)(ii) and must calibrate, maintain, and operate according to the manufacturer's specifications a device that records flow to the treatment system and bypass of the treatment system (if applicable). The permittee must:

(i) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

[40 CFR 60.766(g)]

6) Control Equipment Monitoring

(a) The monitoring requirements of paragraphs (b), (c) (d) and (g) of §60.766 apply at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The permittee is required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

[40 CFR 60.766(h)]

v) Reporting Requirements

All reports required under this section shall be submitted to Ecology at:

Washington Department of Ecology
Air Quality Program
4601 N. Monroe Street
Spokane, Washington 99205-1295

1) Design Capacity Report

(a) Design capacity report. Each owner or operator subject to the requirements of this subpart must submit an initial design capacity report to Ecology.

(i) Submission. The initial design capacity report fulfills the requirements of the notification of the date construction is commenced as required by §60.7(a)(1) and must be submitted no later than:

A. November 28, 2016, for landfills that commenced construction, modification, or reconstruction after July 17, 2014 but before August 29, 2016; or

B. 90 days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction after August 29, 2016.

(ii) Initial design capacity report. The initial design capacity report must contain the following information:

A. A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the state, local, or tribal agency responsible for regulating the landfill.

B. The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the state, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity must be calculated using good engineering practices. The calculations must be provided, along with the relevant parameters as part of the report. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to

volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site-specific density, which must be recalculated annually. Any density conversions must be documented and submitted with the design capacity report. The state, tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(iii) Amended design capacity report. An amended design capacity report must be submitted to Ecology providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to meet or exceed 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in §60.768(f).

Note: This requirement has been completed.

[40 CFR 60.767(a)]

2) NMOC Emission Rate Report

(a) NMOC emission rate report. Each owner or operator subject to the requirements of this subpart must submit an NMOC emission rate report following the procedure specified in paragraph (i)(2) of §60.767 to Ecology initially and annually thereafter, except as provided for in paragraph (b)(1)(ii) of §60.767. Ecology may request such additional information as may be necessary to verify the reported NMOC emission rate.

(i) The NMOC emission rate report must contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in §60.764(a) or (b), as applicable.

A. The initial NMOC emission rate report may be combined with the initial design capacity report required in paragraph (a) of §60.767 and must be submitted no later than indicated in paragraphs (b)(1)(i)(A) and (B) of §60.767. Subsequent NMOC emission rate reports must be submitted annually thereafter, except as provided for in paragraph (b)(1)(ii) of §60.767.

i. November 28, 2016, for landfills that commenced construction, modification, or reconstruction after July 17, 2014, but before August 29, 2016, or

ii. Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction after August 29, 2016.

B. If the estimated NMOC emission rate as reported in the annual report to Ecology is less than 34 megagrams per year in each of the next five consecutive years, the owner or operator may elect to submit, following the procedure specified in paragraph (i)(2) of §60.767, an estimate of the NMOC emission rate for the next five-year period in lieu of the annual report. This estimate must include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided to Ecology. This estimate must be revised at least once every five years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five-year estimate, a revised five-year estimate must be submitted to Ecology. The revised estimate must cover the five-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

(ii) The NMOC emission rate report must include all the data, calculations, sample reports and measurements used to estimate the annual or five-year emissions.

(iii) Each owner or operator subject to the requirements of this subpart is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with §60.762(b)(2), during such time as the collection and control system is in operation and in compliance with §§60.763 and 60.765.

[40 CFR 60.767(b)]

3) Collection and Control System Design Plan

(a) Collection and control system design plan. Each owner or operator subject to the provisions of §60.762(b)(2) must submit a collection and control system design plan to Ecology for approval according to the schedule in paragraph (c)(4) of §60.767. The collection and control system design plan must be prepared and approved by a professional engineer and must meet the following requirements:

(i) The collection and control system as described in the design plan must meet the design requirements in §60.762(b)(2).

(ii) The collection and control system design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.763 through 60.768 proposed by the owner or operator.

(iii) The collection and control system design plan must either conform with specifications for active collection systems in §60.769 or include a demonstration to Ecology's satisfaction of the sufficiency of the alternative provisions to §60.769.

(iv) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must submit a collection and control system design plan to Ecology for approval within 1 year of the first NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year.

(v) The landfill owner or operator must notify Ecology that the design plan is completed and submit a copy of the plan's signature page. Ecology has 90 days to decide whether the design plan should be submitted for review. If Ecology chooses to review the plan, the approval process continues as described in paragraph (c)(6) of §60.767. However, if Ecology indicates that submission is not required or does not respond within 90 days, the landfill owner or operator can continue to implement the plan with the recognition that the owner or operator is proceeding at their own risk. In the event that the design plan is required to be modified to obtain approval, the owner or operator must take any steps necessary to conform any prior actions to the approved design plan and any failure to do so could result in an enforcement action.

(vi) Upon receipt of an initial or revised design plan, Ecology must review the information submitted under paragraphs (c)(1) through (3) of §60.767 and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems. If Ecology does not approve or disapprove the design plan, or does not request that additional information be submitted within 90 days of receipt, then the owner or operator may continue with implementation of the design plan, recognizing they would be proceeding at their own risk.

(vii) If the owner or operator chooses to demonstrate compliance with the emission control requirements of this subpart using a treatment system as defined in this subpart, then the owner or operator must prepare a site-specific treatment system monitoring plan as specified in §60.768(b)(5).

Note: This requirement has been completed.

[40 CFR 60.767(c)]

4) Revised Design Plan

(a) Revised design plan. The owner or operator who has already been required to submit a design plan under paragraph (c) of §60.767 must submit a revised design plan to Ecology for approval as follows:

(i) At least 90 days before expanding operations to an area not covered by the previously approved design plan.

(ii) Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted to Ecology according to paragraph (c) of §60.767.

[40 CFR 60.767(d)]

5) Closure Report

(a) The permittee must submit a closure report to Ecology within 30 days of waste acceptance cessation. Ecology may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to Ecology, no additional wastes may be placed into the landfill without filing a notification of modification as described under §60.7(a)(4).

[40 CFR 60.767(e)]

6) Equipment Removal Report

(a) The permittee must submit an equipment removal report to Ecology 30 days prior to removal or cessation of operation of the control equipment.

(i) The equipment removal report must contain all of the following items:

A. A copy of the closure report submitted in accordance with paragraph (e) of §60.767;

B. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired, unless the report of the results of the performance test has been submitted

to the EPA via the EPA's Central Data Exchange (CDX), or information that demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flows. In the equipment removal report, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX; and

C. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year, unless the NMOC emission rate reports have been submitted to the EPA via the EPA's CDX. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports.

(ii) Ecology may request such additional information as may be necessary to verify that all of the conditions for removal in §60.762(b)(2)(v) have been met.

[40 CFR 60.767(f)]

7) Annual Report

(a) The permittee must submit to Ecology, following the procedure specified in paragraph (i)(2) of §60.767, annual reports of the recorded information in paragraphs (g)(1) through (7) of §60.767. The initial annual report must be submitted within 180 days of installation and startup of the collection and control system and must include the initial performance test report required under §60.8, as applicable, unless the report of the results of the performance test has been submitted to the EPA via the EPA's CDX. In the initial annual report, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX. For enclosed combustion devices and flares, reportable exceedances are defined under §60.768(c) (Section 3.4.6.3).

(i) Value and length of time for exceedance of applicable parameters monitored under §60.766(a), (b), (c), (d), and (g).

(ii) Description and duration of all periods when the gas stream was diverted from the control device or treatment system through a bypass line or the indication of bypass flow as specified under §60.766.

(iii) Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating.

(iv) All periods when the collection system was not operating.

(v) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.763(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least four meters. The coordinates must be in decimal degrees with at least five decimal places.

(vi) The date of installation and the location of each well or collection system expansion added pursuant to §60.765(a)(3), (a)(5), (b), and (c)(4).

(vii) For any corrective action analysis for which corrective actions are required in §60.765(a)(3) or (5) and that take more than 60 days to correct the exceedance, the root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure or elevated temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

[40 CFR 60.767(g)]

8) Initial Performance Test Report

This report has been submitted, so this requirement is fulfilled.

[40 CFR 60.767(h)]

9) Electronic Reporting

(a) The permittee must submit reports electronically according to paragraphs (i)(1) and (2) of §60.767.

(i) Within 60 days after the date of completing each performance test (as defined in §60.8), the permittee must submit the results of each performance test according to the following procedures:

A. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert____info.html) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's CDX (https://cdx.epa.gov/). Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternative file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site, once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

B. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to Ecology at the address listed in Section 3.3.

(b) Each owner or operator required to submit reports following the procedure specified in this paragraph must submit reports to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) The owner or operator must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI Web site (https://www3.epa.gov/ttn/chief/cedri/index.html). If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the owner or operator must submit the report to Ecology at the address listed in Section 3.3. Once the form has been available in CEDRI for 90 calendar days, the owner or operator must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted.

[40 CFR 60.767(i)]

10) Corrective Action and the Corresponding Timeline

(a) The permittee must submit according to paragraphs (j)(1) and (2) of §60.767.

(i) For corrective action that is required according to §60.765(a)(3)(iii) or (a)(5)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to Ecology as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit). Ecology must approve the plan for corrective action and the corresponding timeline.

(ii) For corrective action that is required according to §60.765(a)(3)(iii) or (a)(5)(iii) and is not completed within 60 days after the initial exceedance, the permittee must submit a notification to Ecology as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance.

[40 CFR 60.767(j)]

11) Liquids Addition Report

This report is not applicable because no leachate is recirculated, or liquid added.

[40 CFR 60.767(k)]

12) Tier 4 Notification

This report is not applicable.

[40 CFR 60.767(l)]

13) 24-Hour High Temperature Report

This report is not applicable because Ephrata Landfill is not choosing to comply with §§63.1958, 63.1960, and 63.1961, as allowed at §60.762(b)(2)(iv).

[40 CFR 60.767(l)]

vi) Recordkeeping Requirements

1) Design Capacity Records

(a) The permittee shall keep for at least five years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.762(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Offsite records may be maintained if

they are retrievable within four hours. Either paper copy or electronic formats are acceptable.

[40 CFR 60.768(a)]

2) Control Device Records

(a) The permittee must keep up-to-date, readily accessible records for the life of the control system equipment of the data listed in paragraphs (b)(1) through (5) of §60.768 as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring must be maintained for a minimum of 5 years. Records of the control device vendor specifications must be maintained until removal.

(i) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.762(b)(2)(ii):

A. The maximum expected gas generation flow rate as calculated in §60.765(a)(1).

B. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.769(a)(1).

(ii) Where the permittee seeks to demonstrate compliance with §60.762(b)(2)(iii) through use of an enclosed flare:

A. The average temperature measured at least every 15 minutes and averaged over the same time period of the performance test.

B. The percent reduction of NMOC determined as specified in §60.762(b)(2)(iii)(B) achieved by the control device.

(iii) Not applicable.

(iv) Where the permittee seeks to demonstrate compliance with §60.762(b)(2)(iii)(A) through use of a non-enclosed flare, the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in §60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(v) Where the permittee seeks to demonstrate compliance with §60.762(b)(2)(iii) through use of a landfill gas treatment system:

A. Bypass records. Records of the flow of landfill gas to, and bypass of, the treatment system.

B. Site-specific treatment monitoring plan, to include:

i. Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.

ii. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.

iii. Documentation of the monitoring methods and ranges, along with justification for their use.

iv. Identify who is responsible (by job title) for data collection.

v. Processes and methods used to collect the necessary data.

vi. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

[40 CFR 60.768(b)]

3) Control Equipment Operating Records

(a) The permittee must keep for five years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in §60.766 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(i) The permittee, if seeking to comply with the provisions of this subpart by use of an enclosed combustor, all three-hour periods of operation during which the average temperature was more than 28 degrees Celsius (82 degrees Fahrenheit) below the average combustion temperature during the most recent performance test at which compliance with §60.762(b)(2)(iii) was determined.

(ii) The permittee must keep up-to-date, readily accessible continuous records of the indication of flow to the control system and the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under §60.766.

(iii) Not applicable

(iv) The permittee, if seeking to comply with the provisions of this subpart by use of a non-enclosed flare, must keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under §60.766(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(v) The permittee, if seeking to comply with the provisions of this subpart by using an active collection system designed in accordance with §60.762(b)(2)(ii) must keep records of periods when the collection system or control device is not operating.

[40 CFR 60.768(c)]

4) Collection System Records

(a) The permittee must keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(i) The permittee must keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under §60.765(b).

(ii) The permittee must keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in §60.769(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in §60.769(a)(3)(ii).

[40 CFR 60.768(d)]

5) Exceedances and Corrective Actions Records

(a) The permittee must keep for at least five years up-to-date, readily accessible records of the items in paragraphs (e)(1) through (5) of §60.768.

(i) All collection and control system exceedances of the operational standards in §60.763, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(ii) The permittee must also keep records of each wellhead temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above five percent.

(iii) For any root cause analysis for which corrective actions are required in §60.765(a)(3)(i) or (a)(5)(i), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed.

(iv) For any root cause analysis for which corrective actions are required in §60.765(a)(3)(ii) or (a)(5)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

(v) For any root cause analysis for which corrective actions are required in §60.765(a)(3)(iii) or (a)(5)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the regulatory agency.

[40 CFR 60.768(e)]

6) Design Capacity Volume/Mass Conversion

(a) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of “design capacity”, must keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable.

[40 CFR 60.768(f)]

vii) Specifications for Active Collection Systems

1) The permittee seeking to comply with §60.762(b)(2)(i) must site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures:

(a) The collection devices within the interior must be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues must be addressed in the design: Depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, resistance to the refuse decomposition heat, and ability to isolate individual components or sections for repair or troubleshooting without shutting down entire collection system.

(b) The sufficient density of gas collection devices determined in paragraph (a)(1) of §60.769 must address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

(c) The placement of gas collection devices determined in paragraph (a)(1) of §60.769 must control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (ii) of §60.768.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under §60.768(d). The documentation must provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area and must be provided to Ecology upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material must be documented and provided to Ecology upon request. A separate NMOC emissions estimate must be made for each section proposed for exclusion, and the sum of all such sections must be compared to the NMOC emissions estimate for the entire landfill.

A. The NMOC emissions from each section proposed for exclusion must be computed using the following equation:

$$Q_i = 2kL_oM_i(e^{-kt_i})(C_{NMOC})(3.6 \times 10^{-9})$$

Where:

Q_i = NMOC emission rate from the i[th] section, megagrams per year.

k = Methane generation rate constant, year^{-1}.

L_O = Methane generation potential, cubic meters per megagram solid waste.

M_i = Mass of the degradable solid waste in the i[th] section, megagram.

t_i = Age of the solid waste in the i[th] section, years.

C_{NMOC} = Concentration of nonmethane organic compounds, parts per million by volume.

3.6×10^{-9} = Conversion factor.

B. If the permittee is proposing to exclude, or cease gas collection and control from, nonproductive physically separated (e.g., separately lined) closed areas that already have gas collection systems, NMOC emissions from each physically separated closed area must be computed using either Equation 3 in §60.764(b) or Equation 7 in paragraph (a)(3)(ii)(A) of §60.768.

(iii) The values for k and CNMOC determined in field testing must be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k, Lo and CNMOC provided in §60.764(a)(1). The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of §60.768.

2) Each owner or operator seeking to comply with §60.762(b)(2)(ii)(A) construct the gas collection devices using the following equipment or procedures:

(a) The landfill gas extraction components must be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass,

stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: Convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system must extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors must be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations must be situated with regard to the need to prevent excessive air infiltration.

(b) Vertical wells must be placed so as not to endanger underlying liners and must address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors must be of sufficient cross-section to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices must be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

(c) Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly must include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices must be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

3) Each owner or operator seeking to comply with §60.762(b)(2)(iii) must convey the landfill gas to a control system in compliance with §60.762(b)(2)(iii) through the collection header pipe(s). The gas mover equipment must be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

(a) For existing collection systems, the flow data must be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (c)(2) of §60.769 must be used.

(b) For new collection systems, the maximum flow rate must be in accordance with §60.765(a)(1).

[40 CFR 60.769]

16. Streamlining Explanations

a) WAC 173-400-040(2) – No source shall exceed 20 percent opacity for an emission. In NOC Order 19AQ-E051, Condition 3(a) – Ephrata Landfill is limited to Zero percent opacity at the property boundary for landfill operations. Since the condition included in the NOC order is clearly more stringent and expressed in the same units as WAC 173-400-040(2), it is appropriate to apply streamlining to this requirement.

b) WAC 173-400-040(2) – No source shall exceed 20 percent opacity for an emission. In NOC Order 19AQ-E051, Condition 3(b) – Ephrata Landfill operations is limited to ten percent opacity. Since the condition included in the NOC order is clearly more stringent and expressed in the same units as WAC 173-400-040(2), it is appropriate to apply streamlining to this requirement.

c) WAC 173-400-040(2) – No source shall exceed 20 percent opacity for an emission. In NOC Order 19AQ-E051, Condition 3(c) – Ephrata Landfill's Flare emissions is limited to Five percent opacity. Since the condition included in the NOC order is clearly more stringent and expressed in the same units as WAC 173-400-040(2), it is appropriate to apply streamlining to this requirement.

17. Clarifications and Interpretations

a) Recordkeeping retention time – The current permit that applies to the permittee (Order No. 19AQ-E051, Condition 7(f)) includes a condition which require applicable recordkeeping/reporting to be maintained for a period of time of five years. However, Standard Condition 1(aa)(iii) of the AOP requires that the permittee retain all records or information of this type for a period of at least five years. Due to the fact that the five-year requirement included in the standard condition is more stringent, this is the requirement that has been included in the appropriate MRRR's. However, the conditions included in the NOC permit still applies to the permittee and therefore have been included in the AOP under the column labeled Condition, Emission Standard, or Work Practice. The specific conditions that this applies to are listed below.

b) WAC 173-401-620(1) – Acid Rain Provisions. The permittee is not an affected party as specified in the referenced section of the WAC. Due to this, no permit conditions relating to the acid rain provisions of the FCAA have been included in the AOP.

c) AC 173-401-510(2)(h)(i) – Compliance Plan. At the time of permit issuance, no ongoing applicable requirements have been identified with which the permittee is not currently in compliance. However, this does not preclude Ecology from taking future action on past non-compliance.

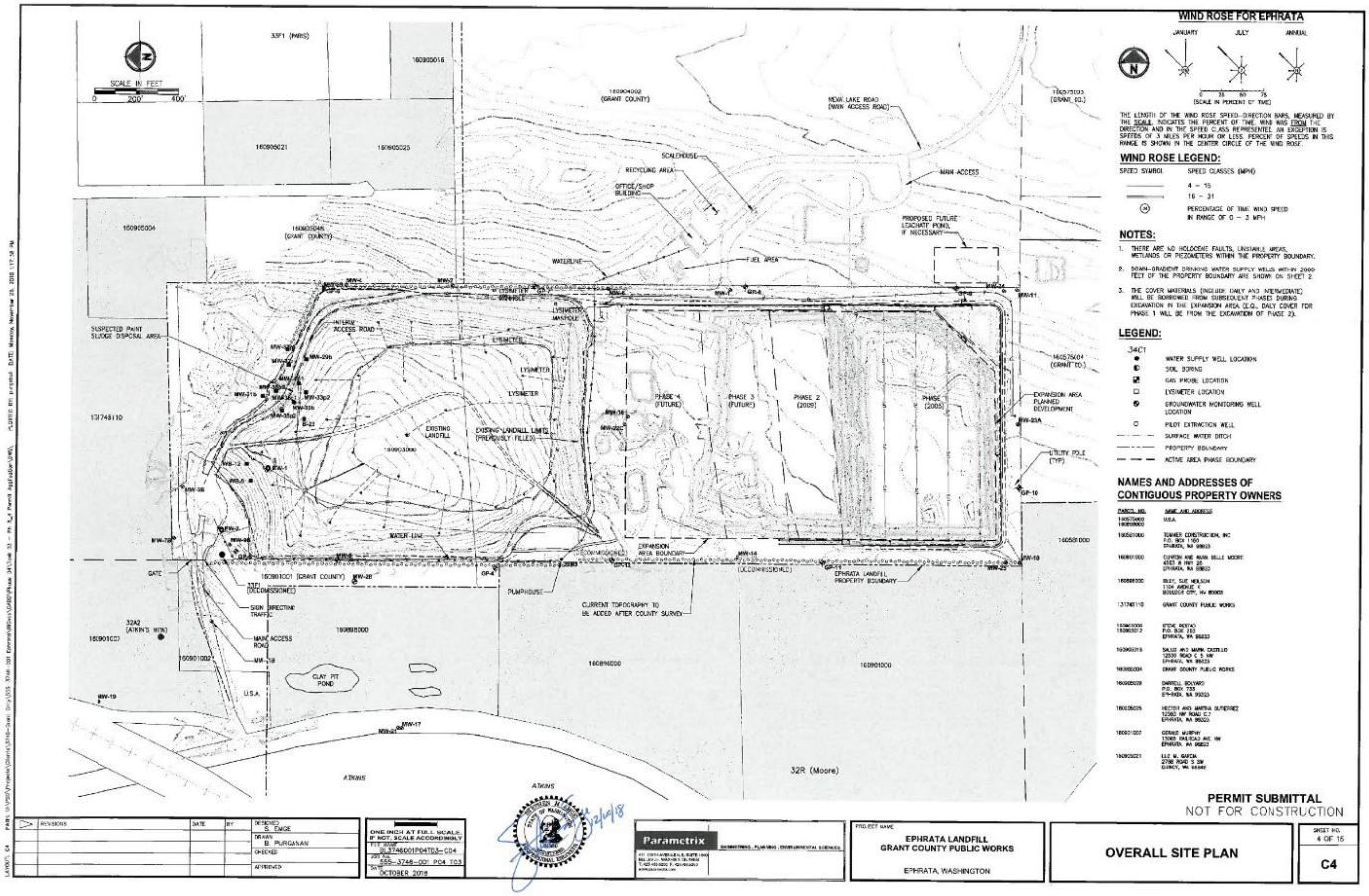
d) Chapter 173-425 WAC, Open Burning – The requirements restricting open burning in the State of Washington apply to the source, and therefore Chapter 173-425 has been included as an applicable requirement under Section 2(a) Facility Wide Requirements.

e) 3(a)(ii) Visual Emissions – These surveys are to be performed as the monitoring method by which a reasonable assurance of compliance is obtained. In some cases, as in Condition 2.1.3 and 2.1.4 of the AOP, the "Testing" column of the AOP includes a reference to the EPA reference test method. The testing column is not intended to imply that personnel must be certified in those test methods in order to be eligible to perform the visual survey described in 3(a)(ii). The purpose of the testing column is simply to clarify the reference test method which would be used were certified testing deemed necessary. As a specific example, plant personnel are not required to be RM 9 or RM 9A certified in order to perform the visual survey required by 3(a)(ii).

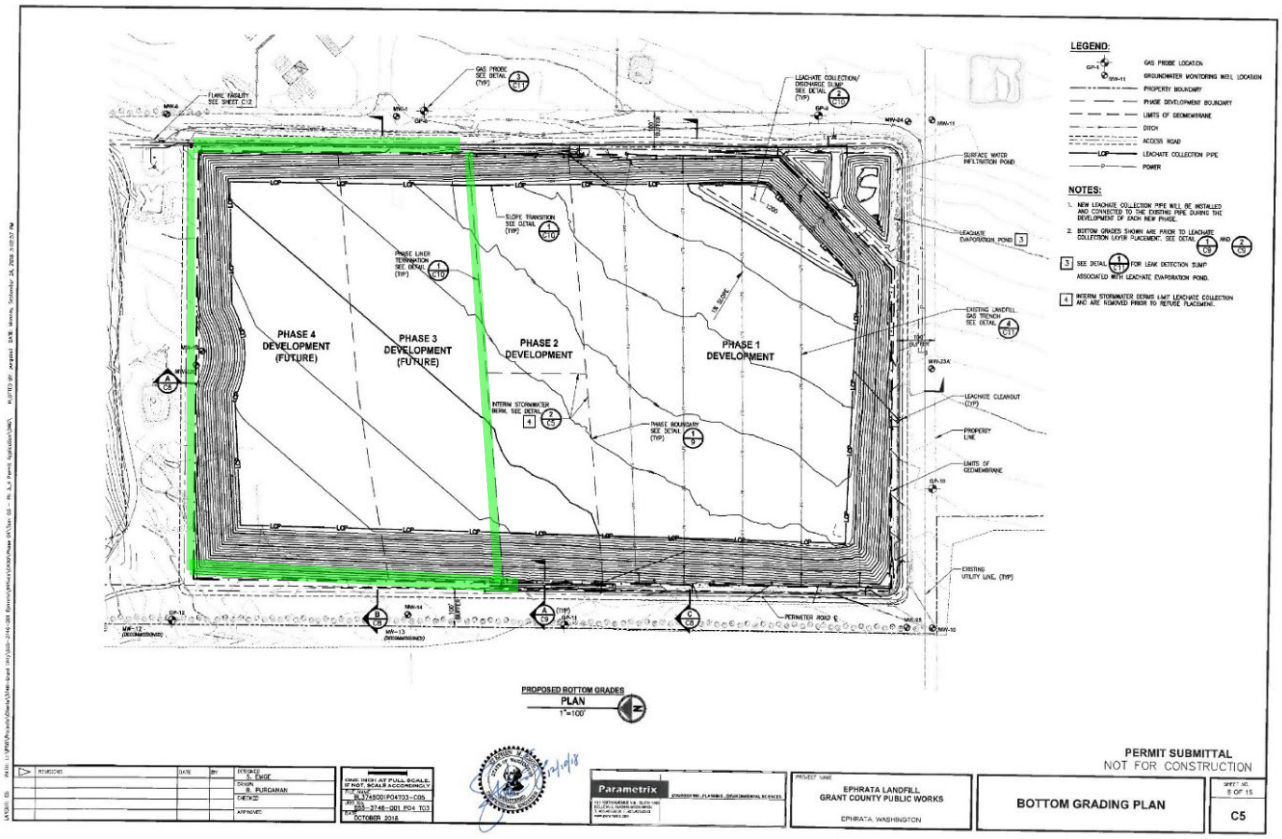
18. Comments and Corresponding Responses

Any Comments received during the public comment period and EPA review period are on file at Ecology's Eastern Region Office in Spokane, along with Ecology's response to the comments.

19. Appendix A – Site Plan



20. Appendix B – Proposed Landfill Expansion Areas, Phases 1 through 4



Appendix B is a closer view of the Phases 1 and 2 and the Phases 3 and 4 expansion areas. Phase 3 and 4 expansion area is outlined in green.