



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

**WASHINGTON STATE DEPARTMENT OF ECOLOGY  
CENTRAL REGIONAL OFFICE  
15 W YAKIMA AVE, SUITE 200  
YAKIMA, WASHINGTON 98902**

**STATEMENT OF BASIS  
FOR  
FINAL AIR OPERATING PERMIT NO. 14AQ-C182  
ROOSEVELT REGIONAL LANDFILL  
REGIONAL DISPOSAL COMPANY  
ROOSEVELT, WASHINGTON**

**PREPARED BY  
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## LIST OF ABBREVIATIONS

AOP	Air Operating Permit
Btu	British Thermal Unit
°C	Degrees Celsius
CAM	Compliance Assurance Monitoring
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
CI	Compression ignition
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
dscfm	Dry standard cubic feet per minute
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
°F	Degrees Farenhight
FCE	Full Compliance Evaluation
H <sub>2</sub> S	Hydrogen sulfide
HAP	Hazardous Air Pollutant
HPV	High Priority Violation
hp	Horse power
hr	Hour
ICE	Internal combustion engine
lbs	Pounds
LFG	Landfill gas
MRR	Monitoring, recordkeeping, and reporting
MSW	Municipal solid waste
MT	Metric ton
NESHAP	National Emission Standard for Hazardous Air Pollutants
NMOC	Non-methane organic compounds
NOC	Notice of Construction
NO <sub>x</sub>	Oxides of nitrogen
NOV	Notice of Violation
NSPS	New Source Performance Standard
PCS	Petroleum contaminated soil
Permittee	Roosevelt Regional Landfill
PM	Particulate matter
PM <sub>2.5</sub>	Particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter of 10 micrometers or less
ppm <sub>v</sub>	Parts per million by volume
PSD	Prevention of Significant Deterioration
PUD	Public Utility District No. 1 of Klickitat County's H.W. Hill Landfill Gas Power Plant
RICE	Recipricating internal combustion engine
S	State-only enforceable
scfm	Standard cubic feet per minute
SO <sub>2</sub>	Sulfur dioxide
TAP	Toxic Air Pollutant
tpy	Tons per year
TSP	Total suspended particulate
VOC	Volatile organic compound
WAC	Washington Administrative Code
%	Percent

## 1.0 GENERAL INFORMATION

Company Name:	Regional Disposal Company
Source Name:	Roosevelt Regional Landfill
Parent Company:	Republic Services Inc.
Unified Business Identification Number:	601357343
Standard Industrial Classification Code:	4950
Mailing Address:	PO Box 338 Roosevelt, Washington 99356
Source Address:	500 Roosevelt Grade Road Roosevelt, Washington 99356 (800) 275-5641
Responsible Official:	Don Tibbets, General Manager Roosevelt Regional Landfill PO Box 338 Roosevelt, Washington 99356 (800) 275-5641
Site Contact:	Art Mains, Environmental Manager Roosevelt Regional Landfill PO Box 338 Roosevelt, Washington 99356 (800) 275-5641

## 2.0 BACKGROUND

This document sets forth the legal and factual basis for the permit conditions in an Air Operating Permit (AOP) issued by the State of Washington Department of Ecology (Ecology) for a Municipal Solid Waste Landfill located near Roosevelt, Washington. This document is called a “Statement of Basis” and is required by Washington State regulations [Chapter 173-401 Washington Administrative Code (WAC)]. A Statement of Basis does not contain enforceable permit conditions. Enforceable permit conditions are contained in the AOP itself.

### 2.1 Basis for Title V Applicability:

This source has the potential-to-emit greater than: 100 tons per year (tpy) of the individual criteria pollutants carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM), and sulfur dioxide (SO<sub>2</sub>); 25 tpy of total Hazardous Air Pollutants (HAP); and 100,000 tpy of carbon dioxide equivalent (CO<sub>2</sub>e) emissions (see Table 1).

Additionally, this source is subject to the Landfill New Source Performance Standard (NSPS), see Section 6.1.1, and the Landfill National Emission Standard for Hazardous Air Pollutants (NESHAP), see Section 6.2.1.

### 2.2 Attainment Classification:

Roosevelt Regional Landfill is located in an area which is unclassified for all criteria pollutants.

### 2.3 Timeline:

- June 29, 2012 – Ecology received Roosevelt Regional Landfill’s AOP renewal application.
- August 6, 2012 – Ecology deemed AOP renewal application incomplete.
- November 26, 2012 – Ecology received additional information from the Permittee.
- December 19, 2012 – Ecology received additional information from the Permittee.
- December 20, 2007 – Ecology deemed AOP renewal application complete.
- March 26, 2014 – Ecology issued Draft AOP renewal and began public comment period. Published in “Permit Register” on March 25, 2014. Published in the Goldendale Sentinel on March 26, 2014. The comment period ended April 25, 2014 with no comments having been received.
- April 28, 2014 – Ecology issued Proposed AOP renewal. Forty-five days elapsed without comment by the EPA.

## 3.0 SOURCE DESCRIPTION

### 3.1 Physical Description

Roosevelt Regional Landfill (Permittee) is a 915-acre municipal solid waste landfill that began operation in December 1990. The landfill is located in an arid climate which typically receives less than ten (10) inches of annual precipitation. The site life for the landfill is through 2029 at a waste acceptance rate of five million tons per year for 40 years. Those lands not currently being used for fill are used for agriculture and open space. A plot plan of Roosevelt Regional Landfill is included as Figure 1.

### 3.2 Description of Processes

Municipal solid waste (MSW) has been shipped from Alaska, California, Hawaii, Idaho, Montana, Oregon, or Washington for disposal. Besides MSW, the landfill also accepts asbestos, construction demolition and land clearing debris, industrial non-hazardous wastes, MSW incinerator ash, petroleum contaminated soil, sewage sludge, and wood wastes. Roosevelt Regional Landfill is prohibited from accepting hazardous wastes. Figure 2 displays a process flow diagram for Roosevelt Regional Landfill. Table 1 lists the landfill’s combined process and fugitive potential emissions.

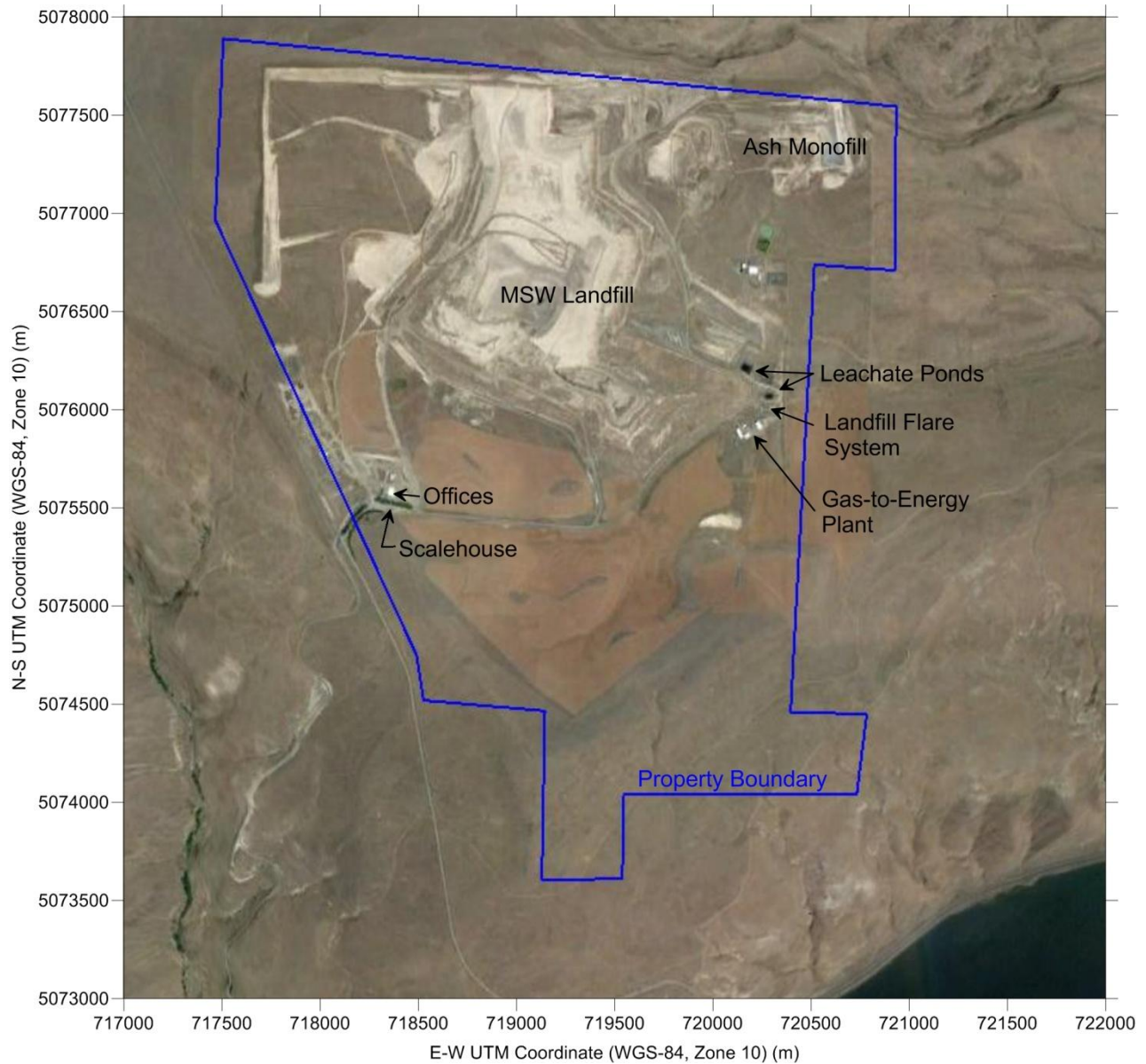
#### 3.2.1 Process 1: Source-wide

Process #1 includes source-wide emissions, such as fugitive dust from motor vehicle operation, and emissions related to plant-wide support services such as the heater, the emergency generator, storage tanks, and other maintenance, housekeeping, and miscellaneous, insignificant emissions activities. Minor welding operations are performed on-site and multiple diesel-fired mobile light plants are used to provide light to the active face. Waste is placed at the landfill using large tippers. During periods when tipping is not possible due to frozen MSW, three enclosures with a total of 39 propane-fired heaters are used to loosen the waste for disposal. Process #1 emission limits, work practice standards and Permit conditions also apply to all significant emission units located at the source.

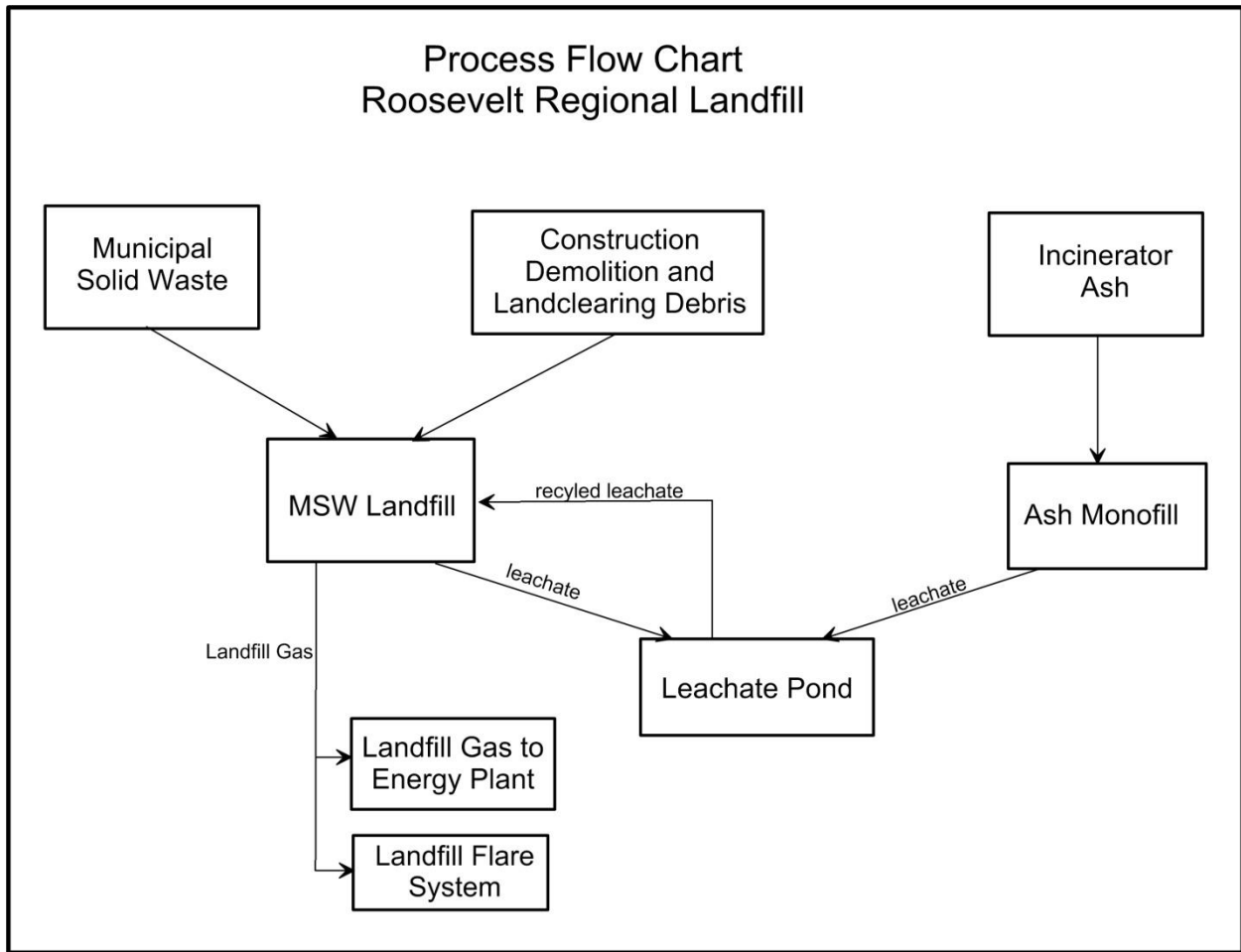
#### 3.2.2 Process 2: Solid Waste Landfill

As of January 31, 2014, active cells of the MSW landfill covered 360 acres of bottom liner which are receiving waste. The permitted capacity of the MSW landfill is 120 million tons. The primary source of MSW landfill emissions is biodegradation of which the main products are methane, non-methane organic compounds (NMOC), and carbon dioxide (CO<sub>2</sub>). Volatilization of the petroleum from petroleum contaminated soil (PCS) used as daily cover also generates emissions. Soils from rock and clay quarry areas are also used as daily cover. Active waste cells have a minimum of six (6)-inches daily cover. Waste density is assumed to be 1,200 pounds per cubic yard. The rate of waste acceptance varies seasonally, with lower volume in the winter and higher volume in the summer. The landfill is permitted to accept up to 5,000,000 tons per year of solid waste. The landfill is permitted by Notice of Construction (NOC) Order No. DE 90-C153 Fifth Revision.

The landfill gas collection system consists of vertical extraction wells and horizontal trenches, a gas condensate knockout, motor blowers, and a flare system. The landfill gas control system provides active collection and destruction of methane. Gas extraction must be controlled to prevent pulling so much air into the landfill that it becomes aerobic and catches fire. Active gas collection uses a vacuum pump and a large number of well points to extract landfill gas from the fill. The landfill gas is controlled by routing the gas collection system to either of two enclosed flares, or to the Public Utility District No. 1 of Klickitat County’s H.W. Hill Landfill Gas Power Plant (regulated by a separate AOP).



**Figure 1.** Site map of Roosevelt Regional Landfill (Source: AOP application supplement submitted by Roosevelt Regional Landfill, 1/31/14).



**Figure 2.** Roosevelt Regional Landfill process flow chart (Source: AOP application supplement submitted by Roosevelt Regional Landfill, 1/31/14).



**Table 1: Summary of potential emissions (tons per year) from Roosevelt Regional Landfill<sup>1</sup>**

Pollutant	CAS No.	Fugitive (landfill & ash monofill)	LFG Flare #1 (Callidus Flare)	LFG Flare #2 (John Zinc Flare)	PCS	Other <sup>2</sup>
TSP	—	513.3	21.5	26.5		0.04
PM <sub>10</sub>	—	280.2	21.5	26.5		0.04
PM <sub>2.5</sub>	—	20.7	21.5	26.5		0.04
SO <sub>2</sub>	7446-09-05		168.0	70.7		0.02
CO	630-08-0		72.4	70.7		0.26
NO <sub>x</sub>	—		57.9	53.0		0.55
VOC / NMOC	—	93.6	55.2	17.7	115.79	0.04
Total GHGs (as CO <sub>2</sub> e)	—	954,311	156,711	170,957		21.25
1,1,1-Trichloroethane <sup>HAP</sup> (Methyl chloroform)	71-55-6		0.0256	0.0031		
1,1,2,2-Tetrachloroethane <sup>HAP</sup>	79-34-5			0.0039		
1,1,2-Trichloroethane <sup>HAP</sup>	79-00-5			0.0050		
1,2-Dichloropropane <sup>HAP</sup> (Propylene dichloride)	78-87-5			0.0095		
1,2,4-Trichlorobenzene <sup>HAP</sup>	120-82-1			0.0055		
1,2-Dichloroethane <sup>HAP</sup> (Ethylene dichloride)	107-06-2	0.0288	0.0330	0.0046		
1,3 Butadiene <sup>HAP</sup>	106-99-0	0.0096		0.0013		
1,4-Dioxane <sup>HAP</sup> (1,4-Diethyleneoxide)	123-91-1	0.0372	0.0001	0.0100		
1,4-Dichlorobenzene <sup>HAP</sup> [1,4-Dichlorobenzene(p)]	106-46-7	0.0116	0.0001	0.0085		0.0001
2,2,4-Trimethylpentane <sup>HAP</sup>	540-84-1				1.1035	
Acetaldehyde <sup>HAP</sup>	75-07-0					
Acrylonitrile <sup>HAP</sup>	107-13-1	0.0112		0.0012		
Allyl chloride <sup>HAP</sup>	107-05-1			0.0179		
Antimony compounds <sup>HAP</sup>	—	0.00083				
Arsenic compounds <sup>HAP</sup>	—	0.00012				
Benzene <sup>HAP</sup>	71-43-2	0.3292	0.1229	0.0050	0.9553	
Benzyl chloride <sup>HAP</sup>	100-44-7			0.0058		
Beryllium compounds <sup>HAP</sup>	—	0.00001				
Bromoform <sup>HAP</sup>	75-25-2	0.0447		0.0058		
Methyl bromide <sup>HAP</sup> (Bromomethane)	74-83-9			0.0022		
Cadmium <sup>HAP</sup>	7440-43-9	0.00022				
Carbon disulfide <sup>HAP</sup>	75-15-0			0.0294		
Carbon tetrachloride <sup>HAP</sup>	56-23-5	0.0291		0.0050		
Chlorobenzene <sup>HAP</sup>	108-90-7			0.0026		
Chlorodifluoromethane	75-45-6			0.0040		
Chloroform <sup>HAP</sup>	67-66-3	0.0238	0.0240	0.0040		
Methyl chloride <sup>HAP</sup> (Chloromethane)	74-87-3			0.0012		
Chromium <sup>HAP</sup>	—	0.00327				
1,3-Dichloropropene <sup>HAP</sup>	542-75-6			0.0100		
Cresols <sup>HAP</sup>	1319-77-3				0.0008	
Cumene <sup>HAP</sup>	98-82-8	0.0169	0.0002	0.0010	0.0185	
Cyclohexane	110-82-7	0.0364	0.2125	0.0020		
Ethylbenzene <sup>HAP</sup> (Ethyl benzene)	100-41-4	0.1927	0.5033	0.0250	0.0731	0.0001
Ethyl chloride <sup>HAP</sup> (Chloroethane)	75-00-3		0.0208	0.0015		0.0005
1,1-Dichloroethane (Ethylidene chloride, or Ethylidene dichloride) <sup>HAP</sup>	75-34-3		0.0589	0.050		0.0008

Pollutant	CAS No.	Fugitive (landfill & ash monofil)	LFG Flare #1 (Callidus Flare)	LFG Flare #2 (John Zinc Flare)	PCS	Other <sup>2</sup>
Hexachlorobutadiene <sup>HAP</sup>	87-68-3	0.0872		0.0095		
n-Hexane <sup>HAP</sup> (Hexane)	110-54-3	0.0453	0.3095	0.0463	5.1261	
Hydrogen chloride <sup>HAP</sup> (Hydrochloric acid)	7647-01-0		19.9	20.14		
Hydrogen sulfide <sup>HAP</sup>	7783-06-4	0.5477	0.88	0.0354		
Isopropyl alcohol (2-Propanol)	67-63-0	0.2355	0.4458	0.0028		
Methyl isobutyl ketone <sup>HAP</sup> (Hexone, or 4-Methyl-2- pentanone)	108-10-1	0.0412	0.0003	0.0023		0.0008
Lead <sup>HAP</sup>	7647-01-0	0.0800				
m,p-Xylenes <sup>HAP</sup>	108-38-3   106-42-3	0.4785	1.1242	0.0025	0.1361	0.0002
Mercury, elemental <sup>HAP</sup>	—	0.00004				
Methyl alcohol <sup>HAP</sup> (Methanol)	67-56-1			0.0294		
Methyl ethyl ketone <sup>HAP</sup> (2-Butanone, or MEK)	78-93-3	2.62	0.6584	0.0033		0.0006
Methyl tertiary butyl ether <sup>HAP</sup> (MTBE, or Methyl tert butyl ether)	1634-04-4			0.2500	4.1801	
Dichloromethane <sup>HAP</sup> (Methylene chloride)	75-09-2	0.9732	0.9990	0.0750		0.0002
Naphthalene <sup>HAP</sup>	91-20-3	0.0408	0.0018	0.0010	0.0006	
Nickel compounds <sup>HAP</sup>	—	0.00433				
o-Xylene <sup>HAP</sup>	95-47-6	0.1259	0.3636	0.0025	0.1361	0.0002
Phenol <sup>HAP</sup>	108-95-2				0.0001	
Propylene	115-07-1	0.1599	0.0006	0.0002		
Selenium compounds <sup>HAP</sup>	—	0.00011				
Styrene <sup>HAP</sup>	100-42-5	0.0170	0.0431	0.0024	0.1021	
Perchloroethylene <sup>HAP</sup> (Tetrachloroethylene, or Tetrachloroethene)	127-18-4	0.3256	0.0888	0.0150		
Toluene <sup>HAP</sup>	108-88-3	0.5465	1.2464	0.0050	0.9750	
trans-1,2-Dichloroethene	156-60-5		0.0292	0.0022		
1,3-Dichloropropene <sup>HAP</sup>	542-75-6			0.0050		
Trichloroethylene <sup>HAP</sup> (Trichloroethene)	79-01-6	0.1340	0.0403	0.0400		
Vinyl Acetate <sup>HAP</sup>	108-05-4			0.0020		
Vinyl Bromide <sup>HAP</sup>	593-60-2			0.0025		
Vinyl Chloride <sup>HAP</sup>	75-01-4	0.0715	0.0267	0.0050		0.0001

<sup>1</sup> Source: NOC Order DE 90-C153 Fifth Revision, 12/23/08; NOC Order No. DE 93AQ-C163 Third Revision, 11/16/05; NOC Order No. DE 98AQ-C131 First Revision, 4/13/04; NOC Order No. 08AQ-C087, 6/3/13; and supplemental information to the 6/29/12 Roosevelt Regional Landfill Air Operating Permit Renewal Application, received 2/26/14. Italicized values are not directly reflected by the underlying NOC orders; therefore, the values may not be enforceable as permitted emission limits. An emission inventory is completed by the source annually and may be requested from Ecology.

<sup>2</sup> Includes space heaters, Quonset huts, leachate storage ponds, and light pole generators.

<sup>HAP</sup> Hazardous Air Pollutant listed in or pursuant to section 112(b) of the Federal Clean Air Act.

**3.2.3 Process 3: Ash Monofill**

Municipal solid waste incinerator ash is shipped to Roosevelt Regional Landfill where it is placed in the ash monofill. The ash monofill will cover approximately 33 acres and will be constructed in stages over a projected 25-year life. No more than one cell may be in operation at any one time and the size of each cell is limited to 10 acres. The ash monofill is permitted by NOC Order No. DE 93AQ-C163 Third Revision.

**3.2.4 Process 4: LFG Flare #1**

Landfill gas (LFG) Flare #1 is a Callidus enclosed flare with a capacity of up to 5,500 standard cubic feet per minute (scfm) of LFG. The flare is permitted by NOC Order No. DE 98AQ-C131 First Revision.

**3.2.5 Process 5: LFG Flare #2**

LFG Flare #2 is a John Zinc enclosed flare with a capacity of up to 6,000 scfm of LFG. The flare is permitted by NOC Order No. 08AQ-C087 Second Revision.

**3.2.6 Process 6: Rock Crushing**

Crushing of rock to be used on-site is allowed within the boundary of the source. Crushing is permitted within NOC Order No. 90-C153 Fifth Revision.

**3.2.7 Process 7: Emergency Generators**

Process 7 consists of four emergency generators at the landfill. The generators support the office, the leachate ponds, the leachate pumphouse, and the warming huts. The generators are not included in existing NOC permits, but they are included in the AOP because they are subject to Title 40 Code of Federal Regulations (CFR) 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

**3.2.8 Process 8: Non-Emergency Operations Engines**

Process 8 consists of two non-emergency engines at the landfill. The engines are not included in existing NOC permits, but they are included in the AOP because they are subject to Title 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

#### **4.0 NEW SOURCE REVIEW HISTORY**

In Washington State, new sources of air pollutant are potentially subject to four types of new source review (air quality permitting). Federal new source review includes Prevention of Significant Deterioration (Title 40 Code of Federal Regulations Part 52.21) and Nonattainment New Source Review (Title 40 Code of Federal Regulations Part 52.24). These Federal programs apply to large sources with potential emissions equal or greater than specified thresholds. Additionally, State new source review, referred to as Notice of Construction permitting, applies to smaller sources, and the lesser emissions at the larger sources. Notice of Construction permitting may be required for criteria pollutants (WAC 173-400-110) and/or toxic air pollutants (WAC 173-460-030).

**4.1 Municipal Solid Waste Landfill**

Installation and operation of the municipal solid waste landfill was originally approved under Notice of Construction Order No. DE 90-C153, issued April 5, 1990. Under this Order, waste acceptance was contingent upon prior approval of landfill gas collection and treatment and leachate treatment systems. Notice of Construction applications for these systems were received, by Ecology, on August 29, 1990.

The Permittee then requested approval to accept waste prior to approval of the landfill gas collection and treatment and leachate treatment systems. This approval was temporarily granted on November 20, 1990, by Notice of Construction Order No. DE 90-C153, First Amendment.

As the temporary approval expired on March 1, 1991, it was extended through September 1, 1991, by Notice of Construction Order No. DE 90-C153, Second Amendment, issued February 15, 1991.

While drafting the initial Air Operating Permit, the Permittee requested revisions to this Order, for the purpose of clarifying the permit language and assuring that original assumptions were achievable. While reviewing the requested revisions, a review of the solid waste disposal rate revealed that more waste was being disposed of than had been reviewed for compliance with air quality permitting requirements. In response to this finding, Ecology issued Notice of Violation No. DE 97AQ-C178, for accepting more waste per year than was permitted. On April 27, 1998, Notice of Construction Order No. DE 90-C153, Third Revision, was issued, incorporating a higher waste acceptance rate and some of the revisions requested by the Permittee.

Pursuant to Settlement Agreement and Agreed Order No. 1467 (see Section 16.2), the Permittee requested that Notice of Construction Order No. DE 90-C153, Third Revision, be revised to allow a PM10 monitor data capture rate of 75%, consistent with 40 Code of Federal Regulations Part 50 Appendix K section 2.3. Ecology granted this request in Notice of Construction Order No. DE 90-C153, Fourth Revision, on November 16, 2005.

On July 22, 2008, the Permittee requested revisions to Order No. DE 90-C153, Fourth Revision, to increase the annual tonnage acceptance rate from three to five million tons per year. Ecology granted this request through Notice of Construction Order No. DE 90-C153, Fifth Revision, issued December 23, 2008.

#### 4.2 **Ash Monofill**

Installation and operation of the ash monofill was originally approved under Notice of Construction Order No. DE 93AQ-C163, issued March 17, 1993. While drafting the initial Air Operating Permit, the Permittee requested revisions to this order, for the purpose of clarifying the permit language and assuring that original assumptions were achievable. The result was the issuance of Notice of Construction Order No. DE 93AQ-C163, First Revision, issued April 27, 1998.

At the end of 1998, Ecology realized that the quantity of ash being disposed of, at the ash monofill, was greater than the quantity that had been reviewed for compliance with air quality permitting requirements. A review of the ash disposal rate revealed that while more ash was being disposed of, the resulting air quality emissions were below the estimated emissions that had been reviewed for compliance with air quality permitting requirements. On June 22, 1999, Ecology issued Notice of Construction Order No. DE 93AQ-C163, First Revision, which clarified state ash disposal limits.

Pursuant to Settlement Agreement and Agreed Order No. 1467 (see Section 16.2), the Permittee requested that Notice of Construction Order No. DE 93AQ-C163, Second Revision, be revised to allow a PM10 monitor data capture rate of 75%, consistent with 40 Code of Federal Regulations Part 50 Appendix K section 2.3. Additionally, the Permittee requested a revision to the “E-factor,” relating to ash particulate matter emissions. Ecology granted these requests in Notice of Construction Order No. DE 93AQ-C163, Third Revision, on November 16, 2005.

(NOTE: Previously, incinerator ash, mainly from the Spokane Waste-to-Energy Facility, was disposed of in the ash monofill (Process #3). In 2008, the Spokane Facility reclassified their ash so that it no longer requires a special monofill. The Spokane Facility ash can now be disposed of in the MSW portion of the landfill. In anticipation of this, Ecology has imposed restrictions on the minimum moisture content of ash placed in the landfill. Specifically, NOC Order No. DE 90-C153, Fifth Revision, Condition 3.1.8, requires that incinerator ash, for disposal in the Landfill, shall contain at least 10% moisture.

The ash monofill may still accept special incinerator ash. However, there is not currently a regular source of such ash. As such, time between ash monofill deliveries may exceed 18 months. The Permittee has notified Ecology of their desire to retain permission to operate the ash monofill even if time between deliveries exceeds 18 months. Ecology grants an extension of the 18 months period, cited in AOP Condition 6.3.9, contingent upon the Permittee’s continuing record keeping of the dates of installation. All monitoring, during a non-operational period, is subject to the operational flexibility discussed within Section 14.0. This extension is valid through the term of this the AOP.)

#### 4.3 Landfill Gas Flare #1

Installation and operation of an LFG collection and a 1,850 dry standard cubic feet per minute (dscfm) enclosed flare system was originally approved under Notice of Construction Order No. DE 93AQ-C417, issued August 13, 1993.

In 1997, the Permittee requested that Order No. DE 93AQ-C417 be revised to allow use of a 2,500 scfm open flare. Ecology found that an open flare would not constitute Best Available Control Technology. During the time that this request was being processed, the Permittee employed the use of an open flare, approved by a Temporary Air Quality Permit for operation from June 18, 1997, through January 30, 1998. Ultimately, the Permittee proposed the use of a 5,500 scfm enclosed flare system. The 5,500 scfm enclosed flare (LFG Flare #1) was approved for installation and operation under Notice of Construction Order No. DE 98AQ-C131, issued September 15, 1998, which superseded Notice of Construction Order No. DE 93AQ-C417.

Order No. DE 98AQ-C131 required 99% destruction efficiency of nonmethane organic compounds, by the flare. Flare source tests on February 6, 2003, and June 26, 2003, of the installed Callidus flare demonstrated that the flare was not meeting the required destruction efficiency. On November 3, 2003, Ecology received a request to revise the Ordered requirement. Additional information was received on January 20, 2004. The revision request was completed on February 4, 2004. The requested revisions included: 1) changing the nonmethane organic compound control efficiency to 98%, from 99%, and addition of an alternate concentration limit, 2) removal of the specified end product of converted hydrogen sulfide, 3) clarification of the organic toxic air pollutant (TAP) control efficiency, and update the test method and emission estimates, and 4) revision of source test timing. As requested by the Permittee, the Notice of Construction revision request and the AOP significant permit modification review processes were integrated. Ecology granted the requested revisions in Order No. DE 98AQ-C131 First Revision, on April 13, 2004.

#### 4.4 Landfill Gas Flare #2

On June 26, 2008, the Permittee submitted a Notice of Construction application to install and operate a second LFG collection and destruction system in anticipation of increased LFG generation resulting from an anticipated increase in the waste acceptance rate. The 6,000 scfm enclosed flare (LFG Flare #2) was approved for installation and operation under Notice of Construction Order No. 08AQ-C087, issued October 22, 2008.

A June 30, 2009, source test of the installed John Zinc flare, revealed that hydrogen chloride emissions are emitted at a higher rate than originally permitted. Ecology increased the hydrogen chloride emission limit under Notice of Construction No. 08AQ-C087 First Revision. The higher emission limit is equivalent to the limit on LFG Flare #1 and is below the Acceptable Source Impact Level.

On November 26, 2012, the Permittee applied for revision of NOC No. 08AQ-C087 First Revision. The Permittee had determined that the John Zinc flare permit emission limits were based on an outdated emission source test on the Callidus flare due to LFG variability. The landfill gas flare was unable to meet the original permit limits for 16 TAPs; therefore, the Permittee requested revision of the permit was to raise the emissions limits for those pollutants. Modeling analyses were submitted demonstrating that the revised emission rates maintain ambient impacts below the respective Acceptable Source Impact Levels. The Permittee also requested 17 pollutants which are no longer classified as TAPs to be removed from the permit. Ecology granted the requested revisions in Order No. 08AQ-C087 Second Revision, on June 3, 2013.

#### 4.5 Leachate Evaporator

Installation and operation of a leachate evaporator was originally approved under Notice of Construction Order No. DE 93AQ-C416, issued August 13, 1993. This approval was contingent upon construction of the project commencing within 18 months after issuance of the Order and not discontinuing for a period of 18 months. Ecology found that construction of the leachate evaporator ceased for a period of longer

than 18-months, therefore this Order is void. The Permittee does not currently have approval to install or operate a leachate evaporator.

#### 4.6 Prevention of Significant Deterioration (PSD)

PSD permitting is required for all sources that have the potential-to-emit in excess of PSD thresholds. For landfills, the PSD thresholds are 250 non-fugitive tons per year of a criteria pollutant. The applicability of PSD at the Landfill has been a longstanding debate. A majority of the non-fugitive emissions are emitted from the flares, and a majority of these emissions are products of the flares' combustion. While the Permittee has long had approval to dispose of waste in total quality to eventually trigger PSD requirements, only a portion of the waste has been placed, and the landfill gas generation has been less than originally estimated.

In response to comments received on the original draft of the initial Air Operating Permit, Ecology took another look at whether the Landfill was subject to PSD permitting. At that time, Ecology was carrying out the Federal PSD program, under the United States Environmental Protection Agency's (EPA) review. EPA's position, at the time, as expressed by Ray Nye, EPA Region 10, was, "that even though the facility increased the waste rate, they have limited the capacity of the flare (LFG Flare #1) to be considered a minor source. This facility is not in violation of PSD requirements." (Ref.: 11/25/97 letter from Denise M. Baker, EPA Region 10, to Lynnette Haller, Ecology, regarding Regional Disposal Company's Roosevelt Regional Landfill's draft Title V Air Operating Permit, issued 9/10/97.)

Ecology's position is that when the approved flaring capacity results in total emissions at or above PSD thresholds, PSD permitting will be required for all Landfill operations. This is based upon the fact that the Landfill has had the capacity to receive waste in quantities sufficient to eventually produce the landfill gas, necessitating additional flaring capacity. However, the Permittee has limited their flaring capacity.

In anticipation of receiving approval for additional flaring capacity, the Permittee submitted a PSD application to the Department of Ecology, on November 6, 1997, for the operation of the landfill. The PSD application was never deemed complete. On October 6, 2006, the Permittee submitted a complete request for a PSD applicability determination, in anticipation of receiving approval for an increase in the annual waste acceptance rate from three million to five million tons per year, and an additional 6,000 scfm of flaring capacity (LFG Flare #2). On November 8, 2006, Ecology determined that the project was not subject to PSD permitting, since the emissions of the combined flaring capacity remain below the PSD thresholds. Ecology will continue to analyze emissions as additional project approvals are sought.

## 5.0 AIR OPERATING PERMIT HISTORY

Title V of the 1990 Federal Clean Air Act Amendments required all states to develop a renewable operating permit program for industrial and commercial source of air pollution. Congress structured the air operating permit system as an administrative tool for applying existing regulations to individual sources. The goal is to enhance accountability and compliance by clarifying in a single document which requirements apply to a given business or industry.

The Washington State Clean Air Act (Chapter 70.94 Revised Code of Washington) was amended in 1991 and 1993 to provide the Department of Ecology and local air agencies with the necessary authority to implement a state-wide operating permit program. The law requires all sources emitting one hundred tons or more per year of a criteria pollutant, or ten tons of a HAP, or twenty-five tons in the cumulative of HAPs, to obtain an operating permit. Criteria pollutants include sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, and volatile organic compounds.

Ecology authored Chapter 173-401 of the WAC, which specified the requirements of Washington State's Operating Permit Regulation. This regulation became effective on November 4, 1993. On November 1, 1993, this regulation was submitted to the United States Environmental Protection Agency (EPA), for program approval. On December 9, 1994, EPA granted interim approval of Chapter 173-401 WAC. This interim

approval was extended until EPA granted final approval on August 13, 2001. The current version of this regulation was filed on August 10, 2011.

On January 28, 1994, Ecology notified the Permittee that records indicated that the Landfill would be required to obtain an Air Operating Permit. On December 9, 1994, Ecology notified the Permittee of their obligation to submit an Air Operating Permit application. The Permittee submitted a complete application on December 8, 1995.

On December 30, 1998, Ecology issued Air Operating Permit No. DE 98AOP-C242 (valid 12/30/98 thru 11/14/99). A third party appealed this Permit to the Pollution Control Hearings Board and petitioned to EPA on February 4, 1999, and February 26, 1999, respectively. On May 4, 1999, EPA denied the petition and the appeal was dismissed by the Pollution Control Hearings Board, on September 16, 1999. The Permit then went through a significant modification, to incorporate Notice of Construction Order No. DE 98AQ-C131. The resulting Air Operating Permit, Order No. DE 98AOP-C242, First Revision, was issued November 15, 1999 (valid 11/15/99 thru 12/30/03).

The AOP was renewed on December 3, 2003, per WAC 173-401-710(1), with the issuance of AOP No. 03AQ-C005 (term of 12/31/03 through 4/12/04). The Permittee appealed AOP No. 03AQ-C005, to the Pollution Control Hearings Board, on January 2, 2004. The appeal addressed a monitoring requirement, which previously existed as Condition 5.4.15, in Air Operating Permit No. 03AQ-C005. Revision of Notice of Construction No. DE 98AQ-C131 (see Section 4.3), the underlying requirement for Condition 5.4.15, resolved the issue under appeal. Air Operating Permit No. 03AQ-C005 First Revision (valid 4/13/04 through 11/15/05), was issued on April 13, 2004.

Pursuant to Settlement Agreement and Agreed Order No. 1467 (see Section 16.2), the Permittee requested that Notice of Construction Orders Nos. DE 90-C153 Third Revision (see Section 4.1) and DE 93AQ-C163 Second Revision (see Section 4.2), be revised to allow PM10 monitor data capture rates of 75%, consistent with 40 Code of Federal Regulations Part 50 Appendix K Section 2.3. Additionally, the Permittee requested a revision to the “E-factor,” relating to ash particulate matter emissions and allowance of elevated landfill gas wellhead temperatures, as allowed by the Standards of Performance for Municipal Solid Waste Landfills (see Section 6.1.1). Ecology approved these requests, on November 16, 2005, in the integrated review of Notice of Construction Order No. DE 90-C153, Fourth Revision; Notice of Construction Order No. DE 93AQ-C163, Third Revision; and, Air Operating Permit No. 03AQ-C005 Second Revision (valid 11/16/05 through 12/30/08).

The permit was again renewed on December 31, 2008, with the issuance of AOP No. 08AQ-C090 (term of 12/31/08 through 9/15/10). However, Ecology received a request for revision to Notice of Construction No. 08AQ-C087 to increase hydrogen chloride emission rate for LFG Flare #2 (see Section 4.4). The Permittee also requested an allowance to operate select monitoring wells at higher temperatures, as allowed by Part 60 Subpart WWW (see Section 6.1.1). Air Operating Permit No. 08AQ-C090 First Revision, issued on September 16, 2010 (valid 9/16/10 through 12/30/13), incorporated the revisions.

See also “Timeline” in Section 2.0.

## **6.0 FEDERAL REGULATIONS**

### **6.1 New Source Performance Standards (NSPS)**

#### **6.1.1 Title 40 CFR Part 60 Subpart WWW, the “Landfill NSPS”**

On March 12, 1996, EPA promulgated Title 40 CFR 60 Subpart WWW, 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 NMOC emission reports. When the precontrolled NMOC emissions are calculated at or above 50 megagrams per year additional requirements are triggered. Ecology received the Permittee’s initial *Design*

*Capacity Report and NMOC Report* on June 13, 1996. Ecology received the Permittee’s *Collection and Control System Design Plan*, on February 1, 1999. The Permittee’s design capacity is 120,000,000 tons (109 million megagrams). Based on landgill gas testing performed in 2009, and allowing for variability, the Permittee estimated precontrolled NMOC emissions of up to 421 tons per year as hexane during the five year term of the AOP.

The NSPS requires that enclosed combustion devices reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. AOP Applicable Requirement Tables 6.2, 6.4, and 6.5 detail the requirements for compliance with Subpart WWW.

A majority of the time, the landfill gas is not combusted in the landfill’s flares. Instead an on-site separate source, the Public Utility District No. 1 of Klickitat County’s H.W. Hill Landfill Gas Power Plant (PUD), combusts the landfill gas in five internal combustion engines, or two combined cycle combustion turbines, or both, to generate power. While the NSPS does not apply to the PUD, the above mentioned NMOC emission standards must be met by the PUD engines and turbines. The Permittee is responsible for demonstrating that the NMOC emission standards are being met, regardless of the combustion device used. (Ref.: 8/15/00 letter from Douglas Hardesty, EPA Region 10, to Ali Nikukar, ODEQ, regarding Valley Landfill NSPS Subpart WWW Applicability).

Pursuant to Settlement Agreement and Agreed Order No. 1467 (see Section 16.2), the Permittee requested the allowance of elevated landfill gas wellhead temperatures, as allowed 40 CFR §60.753(c). Specifically, the Permittee requested to establish a higher operating temperature (i.e., 65°C = 149°F) at sixteen existing interior wellheads (i.e., T1EC1, T1EC2, T1EC3, T1EC4, T1EC5, T1WC5, T1WC6, T4NC2, T4NC3, T4NC4, T4NC5, T4NC6, T4SC4, T4SC6, T5B1, and T5A1). The historic wellhead temperature and methane data indicate that the higher temperatures experienced at the wells are not due to any subsurface fire. Ecology approved these requests in Air Operating Permit No. 03AQ-C005 Second Revision, on November 16, 2005.

Ecology granted approval to operate additional interior wellheads at higher operating temperatures (i.e., T5A3, T5A4, T5B2, T5B4, T6A4, T7A1, T7A3, T7A5, T7A7, T7B1, and T7B2), in Air Operating Permit No. 08AQ-C090 First Revision. The historic wellhead temperature and methane data indicate that the higher temperatures experienced at the wells are not believed to be due to subsurface fire.

6.1.2 **Title 40 CFR Part 60 Subpart IIII, the “ICE NSPS”**

On July 11, 2006, EPA promulgated Title 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The NSPS applies to all new, modified, and reconstructed stationary compression ignition (CI) internal combustion engines (ICE) whose construction, modification or reconstruction commenced after July 11, 2005. Two non-emergency operations generators at the landfill are classified as new CI ICE under Subpart IIII.

The two diesel operations engines (Table 2) are not included in existing NOC permits for the facility, as they were originally classified as insignificant emission units. As owner and operator of the affected facilities, the Permittee is required to demonstrate compliance with the applicable provisions of the NSPS. AOP Applicable Requirement Table 6.8 details the requirements for compliance with Subpart IIII.

**Table 2: Non-Emergency Operations Engines at Roosevelt Regional Landfill**

Purpose	Make	Model	Year Manufactured	Rating (hp)	Federal Emission Standard Tier
Block Heaters Engine	Isuzu	BJ-4JJ1X	2010	98	Tier 3
De-Tarp Engine	Onan	J100	2011	23	Tier 2



**6.2 National Emission Standard for Hazardous Air Pollutants (NESHAP)**

**6.2.1 Title 40 CFR Part 63 Subpart AAAA, the “Landfill NESHAP”**

On January 16, 2003, EPA promulgated Title 40 CFR 63 Subpart AAAA, 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 has additional capacity for waste deposition, and may include a bioreactor, and meets any one of three other criteria. One of these criteria defines a subject landfill as one that is 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, the Landfill has the potential to emit greater than 25 tons per year in combination of HAPs. Based upon this information, the Landfill is subject to the Landfill NESHAP. Existing landfills were required to comply with the NESHAP requirements by January 16, 2004. AOP Applicable Requirement Tables 6.2, 6.4, and 6.5 detail the requirements for compliance with Subpart AAAA. Note: Applicable requirements were identified based upon the current Landfill operations (i.e., no added liquids: not a bioreactor).

**6.2.2 Title 40 CFR Part 63 Subpart ZZZZ, the “RICE NESHAP”**

On June 15, 2004, EPA promulgated Title 40 CFR 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. The NESHAP originally applied to stationary reciprocating internal combustion engines (RICE) with a siterating of more than 500 brake horsepower (hp) located at major sources of HAP emissions.

On January 18, 2008, EPA promulgated an expansion of Subpart ZZZZ to include RICE that that either are located at area sources of HAP emissions, or that have a site rating of less than or equal to 500 hp and are located at major sources of HAP emissions. As indicated in Table 1, the Landfill has the potential to emit greater than 25 tons per year in combination of HAPs; therefore the Landfill is a major source of HAP. Four emergency generators at the landfill, constructed prior to June 12, 2006, are classified as existing stationary RICE under Subpart ZZZZ.

The four diesel emergency generators (Table 3) are not included in existing NOC permits for the facility, as they were originally classified as insignificant emission units. As owner and operator of the affected facilities, the Permittee is required to demonstrate compliance with the applicable provisions of the NESHAP on and after May 3, 2013. AOP Applicable Requirement Table 6.7 details the requirements for compliance with Subpart ZZZZ.

**Table 3: Emergency Generators at Roosevelt Regional Landfill**

Supported Facility	Make	Model	ManufactureYear	Rating (hp)
Leachate Ponds	Caterpillar	3306	1975	180
Leachate Pumphouse	Komatsu	81609	1992	175
Office	Caterpillar	3208	1985	241
Warming Huts	Detroit Diesel	453	1975	140

**6.2.3 Title 40 CFR Part 63 Subpart CCCCC, the “GDF NESHAP”**

On January 10, 2008, EPA promulgated Title 40 CFR 63 Subpart CCCCC, National Emission Standards for Hazardous Air Pollutants for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities (GDF). The NESHAP establishes national emission limitations and management practices for hazardous air pollutants emitted from the loading of gasoline

storage tanks at gasoline dispensing facilities at area sources. The NESHAP was revised on January 24, 2011.

As indicated in Table 1, the Landfill has the potential to emit greater than 25 tons per year in combination of HAPs; therefore the Landfill is a major source of HAP. Therefore, Subpart CCCCCC does not apply gasoline dispensing facilities at the Landfill; those facilities remain classified as insignificant emission units (see Section 9).

## 7.0 GREENHOUSE GAS REPORTING

### 7.1 Federal Greenhouse Gas Reporting.

On October 30, 2009, the EPA published a rule for the mandatory reporting of greenhouse gases (GHG) (also referred to as 40 CFR part 98) from large GHG emissions sources. The rule applies to certain facilities, including those which emit 25,000 metric tons (MT) CO<sub>2</sub>e or more per year in combined emissions from all stationary fuel combustion sources. Roosevelt Regional Landfill's potential GHG emissions are approximately 954,311 tons per year (865,736 MT) of CO<sub>2</sub>e per year. Therefore, Roosevelt Regional Landfill may be subject to the Mandatory Greenhouse Gas Reporting rule.

Regardless of applicability of the Mandatory Greenhouse Gas Reporting rule to Roosevelt Regional Landfill, Title 40 CFR Part 98, Federal Mandatory Reporting of Greenhouse Gases, is not an AOP applicable requirement. According to EPA guidance, as published in the Federal Register (56288 FR 74:209, Friday, October 30, 2009), the requirements imposed by this rule are not applicable requirements under the Title V operating permit program. Therefore, requirements of the rule have not been included in this permit.

### 7.2 State Greenhouse Gas Reporting.

On December 1, 2010, Ecology promulgated Chapter 173-441 WAC – Reporting of Emissions of Greenhouse Gases. The WAC incorporates by reference certain, but not all, calculation methods and other requirements from 40 CFR Part 98, the federal Mandatory Greenhouse Gas Reporting rule. The WAC applies to any facility that emits 10,000 MT of CO<sub>2</sub>e or more per calendar year in total GHG emissions, including biogenic CO<sub>2</sub>, from all applicable source categories listed in WAC 173-441-120.

Roosevelt Regional Landfill may be subject to the requirements of chapter 173-441 WAC if actual GHG emissions are greater than 10,000 MT of CO<sub>2</sub>e per year. Potential GHG emissions at Roosevelt Regional Landfill are 954,311 tons per year (865,736 MT) of CO<sub>2</sub>e per year. As owner and operator of the affected facility, Roosevelt Regional Landfill is required to demonstrate compliance with all applicable provisions of chapter 173-441 WAC; AOP Condition 3.10 addresses compliance requirements for state GHG reporting.

## 8.0 COMPLIANCE ASSURANCE MONITORING (CAM)

### 8.1 Criteria

On October 22, 1997, EPA promulgated Title 40 CFR, Compliance Assurance Monitoring, or the Compliance Assurance Monitoring rule. This Rule requires specialized pollutant-specific monitoring for those emission units which meet the following criteria:

- 8.1.1 The unit is located at a Title V Air Operating Permit source.
- 8.1.2 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.
- 8.1.3 The unit uses a control device to achieve compliance with any such emission limitation or standard.

8.1.4 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.

**8.2 Applicability**

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

8.2.1 Roosevelt Regional Landfill is a Title V Air Operating source (see Basis for Title V Applicability on page 5).

8.2.2 CAM exempts post November 15, 1990, New Source Performance Standard emission limitations/standards from triggering CAM. While the Landfill is subject to the Landfill NSPS, Subpart WWW, the NSPS was promulgated in 1996, and thus it cannot trigger CAM. However, Notice of Construction Order No. DE 98AQ-C131 First Revision and Order No. 08AQ-C087 Second Revision require a NMOC control efficiency of 98% or an outlet concentration of 20 ppm. The NMOC standard is specified as an alternative to a VOC emission limitation or standard. VOC is a surrogate for ozone. Therefore, the Landfill is subject to an emission standard for an applicable regulated surrogate air pollutant.

Notice of Construction Order No. DE 98AQ-C131 First Revision, and Order No. 08AQ-C087 Second Revision require 99% destruction or removal of hydrogen sulfide (H<sub>2</sub>S) and other sulfur compounds, and set H<sub>2</sub>S emission limits of 0.20 and 0.0081 pounds per hour, respectively. This is both an emission standard and emission limit for H<sub>2</sub>S, which is a regulated HAP.

Finally, Notice of Construction Order Nos. DE 98AQ-C131 First Revision and 08AQ-C087 Second Revision set a toluene emission limit of 2,493 and 10 pounds per year, respectively. Toluene is a regulated HAP.

8.2.3 The 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 enclosed flare.

8.2.4 While landfills can produce a significant quantity of NMOC emissions, only a portion of the NMOC emissions are collected and made available for control. This Landfill has conservatively estimated that they collect a minimum of 79% of the landfill gas produced.

Table 4 lists potential pre-control NMOC and H<sub>2</sub>S emissions for the two LFG flares at their full operational capacities of 5,500 dscfm and 6,000 dscfm for LFG Flare #1 and #2, respectively. While VOC emissions will be less than NMOC emissions, the variability of NMOC concentration in the landfill gas and the relationship between VOC and NMOC are uncertain enough that a conservative estimate would indicate potential collected pre-control VOC emissions are likely greater than 100 tons per year. Additionally, 10 tons per year of a HAP (i.e., H<sub>2</sub>S) classifies a source as an Air Operating Permit source.

**Table 4: Potential Pre-control NMOC and H<sub>2</sub>S Emissions for the LFG Flares**

Unit	Test Inlet Flow (dscfm)	NMOC Inlet Concentration (lbs/hr)	H <sub>2</sub> S Inlet Concentration (lbs/hr)	Potential NMOC Emissions at maximum flow (tpy)	Potential H <sub>2</sub> S Emissions at maximum flow (tpy)	Source Test Date
Flare #1	3,794	32.3	8.3	205	53.0	6/05/13
Flare #2	4,619	29.3	5.1	167	29.2	6/30/09

CAM has been identified as an applicable requirement for the Landfill, due to NMOC, H<sub>2</sub>S, and toluene emission standards/limits on the flares. However, it should be noted that there is uncertainty surrounding both the qualification and quantification of the VOC emissions. While CAM has been identified as the regulatory authority for the monitoring, recordkeeping, and reporting for the NMOC emission standard of AOP Conditions 6.4.17a and 6.5.17a, it should be noted that the required monitoring, recordkeeping, and reporting, mirror that which is required for a similar standard under the Landfill NSPS, which is presumed to be designed with monitoring that provides a reasonable assurance of compliance. Those parameters linked to controlling NMOC (ex., combustion temperature, retention time, and flow) are the same as the parameters linked to controlling H<sub>2</sub>S. Therefore, the monitoring required by the Landfill NSPS is also presumed to provide a reasonable assurance of compliance with the H<sub>2</sub>S standard and limit and the toluene limit. Therefore, while CAM has been identified as an applicable requirement, this determination does not result in any new monitoring, recordkeeping, or reporting for either the landfill or its controlling flares.

## 9.0 INSIGNIFICANT EMISSION UNITS AND ACTIVITIES

Emissions from a 35,300 gallon diesel storage tank, multiple (approximately 5-13) portable diesel-powered light towers, leachate collection ponds, and equipment degreasing are insignificant on the basis that these activities generate actual emissions less than or equal to insignificant emission thresholds of WAC 173-401-530(4) and/or thresholds for hazardous air pollutants of WAC 173-401-531(1). [WAC 173-401-530(4)(a-e), 11/6/13; WAC 173-401-531(1), 11/6/13]

There are two 2,700 gallons fuel storage tanks that are insignificant on the basis of size. [WAC 173-401-533(2)(c), 11/6/13] There are also a 10,000 gallon propane storage tank, thirty-nine 350,000 Btu/hr propane heaters, and two 500,000 Btu/hr propane heaters, that are insignificant on the basis of size [WAC 173-401-533(2)(d), 11/6/13; WAC 173-401-533(2)(e), 11/6/13]. Also, insignificant on the basis of size, is a 500,000 Btu/hr Diesel heater. [WAC 173-401-533(h), 11/6/13]

## 10.0 GAPFILLING

Section 6 of the AOP identifies requirements that are applicable to existing emission units at the source. The AOP must contain emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance. Where the applicable requirement does not require periodic testing or monitoring, periodic monitoring sufficient to yield reliable data has been identified and included in the permit. This action is termed gapfilling.

The last column of the Applicable Requirement tables in AOP Section 6, contain the monitoring, recordkeeping, and reporting (MRR) to be performed by the Permittee. This column identifies the periodic action that must be taken to demonstrate compliance with the applicable requirement. It should be noted that in addition to the MRR a source must consider all other credible evidence when certifying to their compliance status.

For some applicable requirements no action is warranted and instead the Permittee will annually certify their compliance status. These requirements are identified with, "no additional monitoring required," stated in the MRR column.

Many applicable requirements specified periodic MRR while gapfilling was used for the remainder. The source of the MRR is identified in brackets for each MRR requirement. Those that reference WAC 173-401-615(1) were gapfilled. Table 5 list a brief explanation of the basis for each instance of gapfilling.

**Table 5: Identification and basis of “gapfilled” items**

Applicable Requirement(s)	Gapfilling Basis
6.1.2, 6.2.14, 6.2.26, 6.2.29, 6.3.1, 6.3.3, 6.3.9, 6.3.12, 6.3.13, 6.4.11, 6.4.28, 6.5.11, 6.5.28, 6.6.1, 6.6.4, 6.8.3	Simple records, generally already kept, will be helpful in proving such operations.
6.1.4, 6.2.25, 6.3.6, 6.3.7, 6.4.23, 6.5.23	This source has not had a history of visible emissions and is not expected to have problems complying with established visible emission standards. Monthly MRR is determined to be appropriate. Additionally, action is required when visible emissions are observed at times other than the monthly survey.
6.1.5, 6.1.6, 6.1.11, 6.2.6, 6.2.7, 6.2.30, 6.3.10, 6.4.1, 6.4.15, 6.4.16, 6.4.17a, 6.4.17b, 6.4.18, 6.4.19, 6.4.20, 6.4.21, 6.4.22, 6.5.1, 6.5.15, 6.5.16, 6.5.17a, 6.5.17b, 6.5.18, 6.5.19, 6.5.20, 6.5.21, 6.5.22, 6.7.3, 6.8.2	MRR required for other similar applicable requirement(s) should sufficiently demonstrate compliance with the specified applicable requirement.
6.1.7, 6.1.8, 6.2.28,	This source has not had a history of violating these "nuisance" requirements. Since these could be subjective, we determined it is appropriate to consider complaints in MRR.
6.1.9, 6.3.2	A test method has been added to this condition in case testing is required to determine compliance.
6.2.23, 6.3.2, 6.3.4, 6.3.5, 6.4.6, 6.5.6	Development and implementation of these documents fulfill the applicable requirement. Periodic review/inspections will aid in assuring that the documents contents are being followed.
6.2.26, 6.3.1	Sampler specifications are noted to assure reliable particulate monitoring data is collected.

Those requirements that specify “no additional monitoring required” as the MRR, have been determined to require no specific monitoring. However, the responsible official will be required to certify the source’s compliance status, with these requirements, at least annually.

**11.0 STREAMLINING**

The reporting frequency for the Landfill NSPS is annual. The Landfill NESHAP specifies that the Landfill NSPS be complied with, except that compliance reports be submitted ever 6 months. As the NESHAP requirement is obviously more stringent than the NSPS requirement, the semi-annual NESHAP frequency has been specified in the MRR for AOP Conditions 6.2.5, 6.2.8, 6.2.10, 6.2.11, and 6.2.13.

**12.0 COMPLIANCE CERTIFICATION**

By virtue of the Air Operating Permit application and the issuance of this permit, the reporting frequency for compliance certification for this source shall be annual.

### 13.0 ENFORCEABILITY

Unless specifically designated otherwise, all terms and conditions of the AOP, including any provisions designed to limit the source's potential to emit, are enforceable by EPA, and citizens, under the Federal Clean Air Act. Those terms and conditions which are designated as state-only enforceable, by (S), are enforceable only by Ecology. It should be noted that state-only terms and conditions will become federally enforceable upon approval of the requirement in the State Implementation Plan. However, the enforceability of the terms and conditions of this AOP are not expected to change during the Permit term. All terms and conditions of the AOP are enforceable by Ecology.

Following is an example of how to identify a state-only enforceable condition. At the end of AOP Condition 3.7.2 the following notation occurred: “[WAC 173-400-107, 8/20/93, 11/6/13 (S)].” If a version of the regulation is cited with no reference to enforceability, it is federally enforceable. Thus, this notation means that the authority for this permit condition is contained in the 8/20/93 version of WAC 173-400-107 (this is the version of WAC 173-400-107 that is in the State Implementation Plan and is federally enforceable) and in the 11/6/13 version of WAC 173-400-107. The (S) after 11/6/13 means that the 11/6/13 version of WAC 173-400-107 is State-only enforceable.

### 14.0 OPERATIONAL FLEXIBILITY

The Permittee did not request or specify any alternative operating scenarios.

In the event that an emission unit is not operated during a period equal to or greater than the monitoring period designated, no monitoring is required. For example, a monthly visible emission survey is not required if the emission unit is not operated during the month that the survey covers. A monthly visible emission survey is required if the emission unit is operated for more than 24 hours in any portion of the month that the survey covers. Recordkeeping and reporting must note the reason why, and length of time, the emission unit was not operated.

### 15.0 OTHER PERMITTING ISSUES

#### 15.1 General Process Units

A “general process unit” is defined as, “an emissions unit using a procedure or a combination of procedures for the purpose of causing a change in material by either chemical or physical means, excluding combustion.” Previously, there was confusion over whether any general process units exist, at this source. The rock crusher is a general process unit due to the physical change which occurs and the fact that the emissions are not fugitive. Note: Fugitive emissions are “those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.”

#### 15.2 Flare TAPs

AOP Conditions 6.4.22 and 6.5.22 cite emission limits for a large number of toxic compounds. The quantities cited for many of these pollutants are very small. Confirming compliance with these limits via source testing may be difficult or impossible. Likewise, confirming the 99% destruction efficiency cited in AOP Conditions 6.4.22 and 6.5.22 is in some cases not possible with current test methods because the emission quantities are so small. All detected TAPs, in the exhaust, less than their detection limit shall be set equal to their detection limit for purposes of determining total mass in source testing and assuring compliance with the applicable requirements.

#### 15.3 Petroleum Contaminated Soil

PCS is received at the landfill in containers. Upon receipt at the landfill, the containers are unloaded adjacent to the working face and used for as daily cover within 48 hours of being unloaded. PCS is used as daily cover only on the interior working faces of the landfill. The Permittee's solid waste permit specifically allows for the disposal of PCS and for the use of PCS as daily cover. It does not allow for the treatment of PCS at the Landfill.

The Permittee is currently allowed to “dispose” of PCS; the Permittee does not have approval to treat (i.e. aerate, landfarm) PCS. Ecology’s Solid Waste Program considers PCS to be a solid waste being disposed of in the landfill. Washington State’s Municipal Solid Waste Landfill Regulation (Chapter 173-351 WAC) states that daily cover is to control disease vectors, fires, odors, blowing litter, and scavenging; PCS is found to meet these criteria and is currently allowed use as daily cover.

Ecology received guidance from EPA which clarifies that volatilized VOCs from a landfill constitute MSW Landfill emissions. The volatilization of PCS meets the definition of MSW landfill emissions and is regulated by the Standards of Performance for Municipal Solid Waste Landfills NSPS; PCS emissions are not, as a whole, considered fugitive.

#### 15.4 Landfill Emissions as Fugitive

Ecology has received guidance from EPA on the topic of fugitive emissions at landfills. EPA has stated that a “well designed collection system,” as required by the Standards of Performance for Municipal Solid Waste Landfills NSPS, is capable of collecting approximately 75% of the MSW landfill emissions. That means that approximately 75% of MSW landfill emissions could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening so are non-fugitive; approximately 25% of MSW landfill emissions are fugitive. However, at landfills which have not increased their permitted capacity since October 21, 1994, and where no collection system has been installed, all MSW landfill emissions are fugitive.

#### 15.5 State Ambient Air Quality Standards

The following regulations are ambient air quality standards that apply generally to all areas of the state. There are no on-going monitoring, recordkeeping, or reporting requirements specific to the source to prove compliance with the ambient air quality standards. Compliance with the ambient air quality standards is required, and Chapter 173-476 WAC, Ambient Air Quality Standards 11/20/13 (S) is triggered for any source when undergoing New Source Review for Notice of Construction or Prevention of Significant Deterioration permitting and are generally reported in the permits as findings as required, or when an actual or suspected violation of an ambient air quality standard is found locally.

### 16.0 COMPLIANCE SUMMARY

#### 16.1 Compliance Status.

A Full Compliance Evaluation (FCE)<sup>1</sup> was completed for Roosevelt Regional Landfill on August 8, 2012. The FCE showed that as of December 31, 2011<sup>2</sup>, Roosevelt Regional Landfill was In Compliance<sup>3</sup>. Documents related to this and other FCEs completed for Roosevelt Regional Landfill are available for public viewing from the Department of Ecology, Central Regional Office.

#### 16.2 PM<sub>10</sub> Sampling

AOP Conditions 6.2.26 and 6.3.1, require particulate matter sampling downwind of the landfill and monofill, respectively. The equivalent of AOP Condition 6.2.26 was violated on June 5, 2000, October 16, 2001, and May 2, 2002. The equivalent of AOP Condition 6.3.1 was violated on August 23, 2001, September 4, 2001, and October 16, 2001. In response to these intermittent violations Ecology issued Notice of Violation (NOV) No. 02AQCR-5060, on November 26, 2002. NOV No. 1122, issued April 15,

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<sup>1</sup> An FCE is a comprehensive evaluation of the compliance status of a source. It evaluates all regulated pollutants at all regulated emission units, and it addresses the compliance status of each unit, as well as the source’s continuing ability to maintain compliance at each emission unit.

<sup>2</sup> This is the most recent date (i.e., end of time period covered) of a document used in making the compliance status determination.

<sup>3</sup> Defined per HPV criteria from “The Time and Appropriate (T&A) Enforcement Response to High Priority Violations (HPVs)”, issued by EPA on 12/22/98. and Federally Reportable Violation criteria from the memorandum “Clarification Regarding Federally-Reportable Violations for Clean Air Act Stationary Sources”, issued by EPA on 3/22/10.

2004, cited an additional violation of the equivalent of AOP Condition 6.2.26 which occurred on September 29, 2002.

The Permittee attributed the violations to temporary construction activities (i.e., cell construction), high wind speed, and drought conditions. To reduce particulate matter emissions, the Permittee hydroseeded areas with the highest potential to generate particulate matter and has reduced soil excavation, for use in constructing the bottom liner system, by receiving approval to use a manufactured geosynthetic clay liner. Both Notices of Violation were resolved by Settlement Agreement and Agreed Order No. 1467, effective June 24, 2004.

### 16.3 **Waste Disposal Rate**

See Section 4.1.

### 16.4 **NMOC Destruction Efficiency**

A February 6, 2003, source test showed a violation of the condition which previously existed as Condition 5.4.21, in AOP No. 03AQ-C005, 99% control of NMOC by the flare. The test showed NMOC control around 95%. A June 26, 2003, test also showed a NMOC control efficiency of 95%. The tests did show compliance with a similar requirement, from the Landfill New Source Performance Standard, the condition which previously existed as AOP Condition 5.4.21 (now AOP Condition 6.4.17), which allows for less than 20 parts per million NMOC from LFG Flare #1. This violation was resolved upon revision of the Notice of Construction permit to mimic the Landfill New Source Performance Standard (see Section 4.3).

### 16.5 **LFG Flare #1 Temperature**

The condition which previously existed as Condition 5.2.9 in AOP No. 08AQ-C080 (now Condition 6.2.10), requires that all 3-hour periods of operation during which the average combustion temperature in a LFG Flare is more than 28°C below the average combustion temperature during the most recent performance test constitute exceedances. Between July 1, 2010 and August 23, 2010, LFG Flare #1 operated at temperatures less than 1665°F for periods greater than three hours. Such temperatures were more than 28°C (50.4°F) below 1716°F, the average combustion temperature during the unit's most recent performance test at that time. The violations qualified as a Tier 1 Federally Reportable Violation and a High Priority Violation.

The Permittee attributed the violations to a misadjustment of the flare combustion temperature controller such that the flare was able to operate at temperatures less than 1665 °F. The Permittee reported that the controls were corrected on August 25, 2010 to operate the flare at no less than 1700 °F. In response the violations, Ecology issued NOV No. 9582 on October 30, 2012. On December 14, 2012, the Permittee provided a response to the NOV which reiterated the corrective actions taken to prevent recurrence of the violation. Ecology's statute of limitations for penalty assessment for NOV No. 9582 had expired since greater than two years had elapsed by the time of enforcement. The NOV was resolved upon issuance of a closeout memorandum dated December 24, 2012.

### 16.6 **Other Reported Violations**

While required to certify compliance annually, the Permittee has certified their compliance status semi-annually. These certifications have been combined with their semi-annual monitoring reports. In addition to the violations discussed in Sections 16.1 through 16.5, the Permittee has reported additional violations. These additional violations have not been categorized as "high priority."

Violations occurring in 2002 and 2003 were cited in NOV No. 1122, issued April 15, 2004, and resolved by Settlement Agreement and Agreed Order No. 1467, effective June 24, 2004. Similarly, violations occurring in 2010 and 2011 were cited in NOV No. 9582, issued October 30, 2012, and resolved by a closeout memorandum dated December 24, 2012. Additional "minor" (i.e., not "Tier 1 Federally Reportable" or "High Priority") violations have not resulted in formal enforcement action. These compliance certifications are available for review at the Department of Ecology's Central Regional Office, located in Yakima, Washington. Interested persons may make an appointment to view these documents by calling (509) 575-2490 and asking for the public records disclosure coordinator.