

# Cowlitz County Headquarters Landfill

## Title V Basis Statement

Issued: October 10, 2018

Southwest Clean Air Agency  
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Vancouver, WA 98682-2322  
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PERMIT #: SW14-20-R0

PREPARED FOR: Cowlitz County Department of Public Works  
1600 South Thirteenth Ave.  
Kelso, WA 98626

PLANT SITE: Cowlitz County Headquarters Landfill  
3434 South Silver Lake Road  
Castle Rock, WA 98611

PERMIT ENGINEER: Clint H. Lamoreaux, Air Quality Engineer

REVIEWED BY: Paul T. Mairose, Chief Engineer 

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Appendix A Applicable Requirements Review

**I. GENERAL INFORMATION AND CERTIFICATION**

1. Company Name: Cowlitz County Department of Public Works
2. Facility Name: Cowlitz County Headquarters Landfill
3. Responsible Official: Ron Williams – Solid Waste Manager
4. Inspection Contact Person: Ron Williams
5. Unified Business Identification Number: 600072510
6. SIC / NAICS Number: 4953 / 562212

## 7. Basis for Title V Applicability:

40 CFR 60.750 et seq. Subpart WWW "Standards of Performance for Municipal Solid Waste Landfills" establishes NMOC control requirements, testing, monitoring, recordkeeping and reporting requirements for municipal solid waste landfills that commenced construction, reconstruction or modification on or after May 30, 1991. The Cowlitz County Headquarters Landfill is an affected facility for the purposes of this regulation. Affected facilities with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters are subject to Title V permitting requirements. This facility has a design capacity of approximately 54.8 million cubic yards (41.9 million cubic meters); therefore, this facility is required to obtain a Title V Air Operating Permit.

**Facilitywide Potential To Emit Summary**

<b>Pollutant</b>	<b>Emissions (tons per year)</b>
Nitrogen oxides	15.60
Carbon monoxide	25.81
Volatile organic compounds	45.60
Sulfur dioxide	38.88
Particulate Matter	4.47
PM <sub>10</sub>	4.47
PM <sub>2.5</sub>	4.47
Combined HAPs	9.10
Individual HAP	5.52 (HCl)

## 8. Current Permitting Action:

This Title V Air Operating Permit is being issued in response to an initial Title V permit application submitted on June 11, 2014.

## 9. Attainment Area:

The Cowlitz County Headquarters Landfill is located in an area that is in attainment for all criteria pollutants.

#### 10. Facility Description:

The Headquarters Landfill was originally constructed in 1993 as an industrial waste landfill. The facility is permitted to cover an area of 308 acres, with additional area for ancillary facilities. The facility was permitted in 1992 with a capacity of 50 million cubic yards; however, Cowlitz County has estimated the planned total site waste capacity at 54.8 million cubic yards. Cowlitz County reports that the increase in the capacity estimate is primarily a result of refined engineering calculations related to slope stability. Although the projected annual waste receipt beginning 2018 is 490,000 tons of waste placement, the solid waste permit could allow significantly more waste placement annually. Cowlitz County noted in their draft EIS that if these higher waste placement rates occurred and increased the landfill gas generation rate above the permitted rates, a modification of the Air Discharge Permit would be necessary.

The facility has the ability to accept municipal solid waste, as well as the industrial waste the landfill was originally permitted for, including boiler ash, paper recycling rejects (clay binders, short fibers), pulp mill lime wastes, lime stabilized activated wastewater sludge from the Weyerhaeuser Longview facility, petroleum contaminated soils, and construction and demolition debris. The first municipal waste was placed March 13, 2014.

Wastes are received by truck. Leachate is collected on-site in ponds lined with impervious materials and is primarily pumped off-site via pipeline, with additional trucking during heavy rain events.

Landfill gas collected from vertical wells and subsurface horizontal collection piping is directed to two enclosed flares. Bottom-liner horizontal collectors and horizontal interim collectors will be installed to collect landfill gas initially in each cell. Sixty foot deep vertical landfill gas collection wells will be installed on a trial basis when the waste depth is sufficient to support this type of well. A series of horizontal surface collectors will be installed under the final cover material to capture landfill gas that migrates to the surface of the landfill. The spacing of wells, the number of wells, and the vacuum on each well will be modified as necessary to assure optimum capture of landfill gas and meet the landfill gas capture requirements of 40 CFR 60 Subpart WWW.

## 11. SWCAA Air Discharge Permits and Consent Order:

The following table lists each Air Discharge Permit and Consent Order issued for this facility. Permits or Orders in bold contain no active requirements. The requirements may have been superseded, may have been of limited duration, or the equipment may have been removed.

<u>Number</u>	<u>App. #</u>	<u>Date Issued</u>	<u>Description</u>
<b>01-2345</b>	CO-482	4-12-2001	Consent Order requiring Weyerhaeuser to submit an Air Discharge Permit application when significant landfill gas generation is detected.
<b>07-2730</b>	N/A	6-7-2007	Consent Order specifying actions to be taken for the control of H <sub>2</sub> S from Cell 3 prior to issuance of an Air Discharge Permit for the control of landfill emissions.
<b>08-2772</b>	CO-830	6-11-2008	Superseded Consent Orders 01-2345 and 07-2730. Comprehensive permit for the landfill.
<b>13-3068</b>	CO-916	2-3-2014	Superseded 08-2772 and allowed for the placement of municipal solid waste in the landfill.
<b>15-3157</b>	CO-957	12-8-2015	Superseded 13-3068. Primarily related to replacement of the emergency generator set. In addition, various updates including modification of leachate dissolved O <sub>2</sub> requirement, and accommodation of scenario where only some of landfill gas is scrubbed.
15-3157R1	CO-977	1-23-2018	Superseded 15-3157. Approved an increase in emission limits for the flares to account for a higher than expected landfill gas generation rate and an increase in the SO <sub>2</sub> emission limit for the flares to account for a higher than expected initial H <sub>2</sub> S concentration in the landfill gas.

## II. EMISSIONS UNIT DESCRIPTIONS

### EU-1 and EU-2 Landfill and Flares

Because the landfill and landfill gas capture and control systems are inter-related, the landfill and the flares are grouped together with EU-1 encompassing the landfill and Flare #1 and EU-2 encompassing the landfill and Flare #2.

These emission units (one for each enclosed flare) consists of the active and closed landfill that will eventually cover an area of 308 acres and has an estimated waste capacity of approximately 54.8 million cubic yards (net waste volume) and the landfill gas control system. The Headquarters Landfill is located in Cowlitz County, Washington, at 3434 South Silver Lake Road in Castle Rock. The landfill is approximately 10 miles northeast of Kelso, 6 miles east of Interstate 5, and 2 miles south of Silver Lake. It is in Sections 22, 23, 24, and 26 of Township 9 North, Range 1 West, Willamette Meridian.

Landfill gas collected from vertical wells and subsurface horizontal collection piping will be directed to one or more enclosed flares. Bottom-liner horizontal collectors and horizontal interim collectors will be installed to collect landfill gas initially when possible. Sixty foot deep vertical landfill gas collection wells will be installed on a trial basis when the waste depth is sufficient to support this type of well. A series of horizontal surface collectors will be installed under the final cover material to capture landfill gas that migrates to the surface of the landfill. The spacing of wells, the number of wells, and the vacuum on each well will be modified as necessary to assure optimum capture of landfill gas and meet the landfill gas capture requirements of 40 CFR 60 Subpart WWW.

Fugitive dust from haul roads will be controlled by wet suppression or paving as necessary. Interim tarps will be applied to inactive areas of the landfill that are not closed. The tarps will minimize the opportunity for windblown dust during dry periods and minimize the amount of leachate generated from rainfall during wet periods. Areas of the landfill with final cover will be seeded to prevent wind erosion.

The first municipal waste was placed in the landfill March 13, 2014. Filling in Cell 6 began ~ mid August 2015. The Cell 7 bottom liner and bottom gas collectors were installed in 2015. Filling of Cell 7 began in 2016.

### Flares

Two identical enclosed flares have been installed to burn landfill gas. This will allow the combustion of up to 2,000 scfm of landfill gas.

Make / Model:	Perennial Energy (PEI) / 30 MMBtu/hr
Capacity:	3 to 30 MMBtu/hr, 100 to 1,000 scfm with 300 to 500 Btu/ft <sup>3</sup> gas
Dimensions:	8' diameter x 40' high
Burner:	Stainless steel multi-port burner

Installation of Flare #1 was completed April 15, 2015. Installation of Flare #2 was completed November 16, 2017. The original shrouded flare may be retained for emergency service (does not

have to be physically removed), but is not an approved emission unit and is not authorized for regular service and therefore has not been included in the permit as an emission unit.

### **Caustic Scrubber**

The caustic scrubber currently consists of a nearly horizontal (slight angle to drain condensate) 18" diameter PVC enclosure containing five spray nozzles oriented counter-currently to treat up to approximately 300 cfm of landfill gas. At least three spray nozzles will be used at any one time. The caustic scrubber solution is sprayed at approximately 3.5 gallons per minute at ~50 - 110 psig. The solution is continuously recycled to the scrubber. Currently ~0.3 GPM of fresh 10% sodium hydroxide solution is added to the flow to the scrubber (the actual amount necessary depends on the amount of H<sub>2</sub>S being treated). The equivalent flow of spent solution is collected and reused in Nippon Dynawave's Kraft pulping process as make up chemical.

Different areas of the landfill may produce landfill gas with very different H<sub>2</sub>S concentrations. The caustic scrubbing solution will react not only with the hydrogen sulfide in the landfill gas, but also with the CO<sub>2</sub> in the landfill gas. For these reasons it is not desirable to use the caustic scrubber on landfill gas containing low concentrations of H<sub>2</sub>S because the primary effect would be to consume the caustic solution producing sodium carbonates. Therefore, the scrubber may be used to scrub all, or specific portions of, the landfill gas in order to achieve the permitted emission levels. Use of the Caustic Scrubber may be discontinued when it is no longer needed to meet the flare SO<sub>2</sub> emission limit.

### **EU-3 Emergency Generator Engine**

The emergency generator engine supplies electrical power to the facility in the event of a power outage. Engine and generator details are listed below:

Location:	NE of the Rail Transfer Facility in electrical transformer enclosure
Installed (date):	2015
Engine Make / Model:	Cummins / QSB7-G5 NR3
Engine Serial Number:	73824703
Engine Built:	2015
Engine Horsepower:	303 bhp at full standby load in this application
Generator Make / Model:	Cummins / 200DSGAE
Generator Serial Number:	D150816405
Generator Capacity:	200 kW
Exhaust Description:	Exhausts vertically at ~1,428 cfm @ 949°F through 4" diameter stack, ~7' above grade.

### **EU-4 Leachate Ponds**

Leachate is sent to two ponds lined with impervious materials, one primary and one backup. Leachate is continuously removed from the ponds via pipeline. Excess leachate may also be removed by truck when the pipeline capacity is exceeded.

### III. EXPLANATION OF INSIGNIFICANT EMISSIONS UNIT (IEU) DETERMINATIONS

Each emission unit listed as insignificant in the permit has been reviewed by SWCAA to confirm its status. Emission units were determined to be insignificant as follows:

#### IEU-1 Welding

IEU-2 consists of maintenance welding. Welding at the landfill is insignificant as defined by WAC 173-401-533(2)(i) because less than one ton of welding rod is consumed per day.

#### IEU-2 Surface Coating

IEU-3 consists of miscellaneous maintenance painting. This activity is insignificant as defined by WAC 173-401-533(2)(q) because coating will not exceed the threshold quantity of 2 gallons per day.

#### IEU-3 Space Heaters

IEU-4 consists primarily of portable heating devices that may be used to warm the scrubber, or warm or unplug frozen caustic piping. These units are insignificant as defined by WAC 173-401-533(2) because they combust less than the threshold quantity of propane (5 MMBtu/hr) or fuel oil (1 MMBtu/hr).

#### IEU-5 Fuel Storage Tanks

IEU-5 consists of two 550 gallon diesel storage tanks and one 550 gallon gasoline storage tank. These storage tanks are all insignificant as defined by WAC 173-401-533 because of their size or fluid composition

### IV. EXPLANATION OF SELECTED PERMIT PROVISIONS AND GENERAL TERMS AND CONDITIONS

#### P11. Unavoidable Excess Emissions

[SWCAA 400-107]

SWCAA 400-107 establishes criteria and procedures for determining when excess emissions are considered unavoidable. Excess emissions that are classified as unavoidable by the criteria in SWCAA 400-107 must be reported as excess emissions but are excused from penalty. Notification of excess emissions is required as soon as possible and shall occur no later than 48 hours following the excess emissions event. Excess emissions due to startup or shutdown conditions are considered unavoidable if the permittee meets several criteria, including adequately demonstrating the excess emissions could not have been prevented through careful planning and design. Excess emissions due to an upset or equipment malfunction are considered unavoidable if the permittee adequately demonstrates the upset event was not caused by poor or inadequate design, operation, maintenance, or other reasonably preventable condition, and the permittee takes appropriate corrective action that minimizes emissions during the event, taking into account the total emissions impact of that corrective action.



It is unlikely that any of the permittee's emission units can cause excess emissions due to startup, shutdown or scheduled maintenance.

**G11. Portable Sources**

[SWCAA 400-110(6) - local only, SWCAA 400-110(5) – SIP only, SWCAA 300-036 – local only]

SWCAA 400-110 establishes procedures for approving the operation of portable sources of air emissions that locate temporarily at project sites. These requirements apply to all portable sources of air contaminants. Common equipment subject to these conditions include emergency generators, engine-powered pumps, rock crushers, concrete batch plants, and hot mix asphalt plants that operate for a short time period at a site to fulfill the needs of a specific contract. Portable sources exempt from registration under SWCAA 400-101 are exempt from SWCAA 400-110 and not subject to the requirements for portable sources. Among those categories listed in SWCAA 400-101 that are exempt are operations with potential to emit less than 1 ton per year of all criteria pollutants other than PM<sub>2.5</sub>, and less than 0.5 tons per year of PM<sub>2.5</sub>.

SWCAA 400-036 provides provisions under which SWCAA can approve operation of portable sources that do not have a valid air discharge permit issued by SWCAA, but do have a valid approval issued by another Washington authority. A portable rock crushing facility would be one of the more common examples of a source that could utilize these provisions.

**V. EXPLANATION OF OPERATING TERMS AND CONDITIONS****Req. 1-8 General Standards for Maximum Emissions**

[SWCAA 400-040]

SWCAA 400-040 establishes maximum emission standards for various air contaminants. These requirements are general standards that apply to all sources of air contaminants. Therefore, these requirements apply to all emission units at the source, both EU and IEU. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the underlying requirements.

Req-7 prohibits any concealment or masking. At present, the permittee does not operate any equipment capable of masking emissions, therefore monitoring is limited to the annual compliance certification.

**Req. 9 Emission Standards for General Process Units**

[SWCAA 400-060]

SWCAA 400-060 establishes maximum particulate matter emission standards for general process units. These requirements apply to all general process units at the source, both EUs and IEUs. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing,



Air Discharge Permit 15-3157R1 includes all of the New Source Review requirements for the landfill operations. The permit was intended to also include all of the substantial requirements of the relevant federal standards for the landfill (40 CFR 60 Subpart WWW, 40 CFR 60 Subpart IIII, and 40 CFR 63 Subpart AAAA).

Requirements 27 – 29 contain parameter monitoring requirements to assure that the landfill gas collection system is being operated properly. In accordance with 40 CFR 60.753(g), exceedance of the monitored parameters is not a violation if the corrective actions specified in 40 CFR 60.755 are taken. For example, if a methane concentration of over 500 ppm above background is measured at the surface of the landfill but the corrective actions required by 40 CFR 60.755(c)(4) (listed in M4) are taken then the exceedance is not a violation.

#### **Req. 24 Collection System Specifications**

[40 CFR 60 Subpart WWW]

This requirement was not included in Air Discharge Permit SWCAA 15-3157R1 in any detail therefore it was included as a separate requirement in this permit. 40 CFR 60.759(a) requires that collection devices be certified to achieve comprehensive control of surface gas emissions by a professional engineer and specifies items that must be addressed in the design.

#### **Req. 45 Engine Operating Requirements Originating Only from 40 CFR 60 Subpart IIII**

[40 CFR 60 Subpart IIII]

40 CFR 60 Subpart IIII established emission limitations and operating requirements for "new" compression ignition engines. The only applicable unit at this facility is the Emergency Generator Engine. All of the applicable requirements for this engine have been included in the Air Operating Permit except the requirement listed in Req-45. Req-45 requires that the engine be operated and maintained in accordance with the manufacturer's emissions-related written instructions (e.g. maintenance or operations manual). The permittee provided SWCAA with a copy of the relevant section of the engine maintenance manual. Appendix B of the Air Operating Permit lists those maintenance items listed in the maintenance manual that may be emissions-related.

## **VI. EXPLANATION OF OBSOLETE AND FUTURE REQUIREMENTS**

### **1. Obsolete Air Discharge Permits**

The following Air Discharge Permits have been issued for this facility and are no longer in effect.

<b>Air Discharge Permit</b>	<b>Application #</b>	<b>Date Issued</b>	<b>Description</b>
01-2345	CO-482	4-12-2001	Consent Order requiring Weyerhaeuser to submit an Air Discharge Permit application when significant landfill gas generation is detected.
07-2730	N/A	6-7-2007	Consent Order establishing a timeline for implementation of landfill gas control system for Cell 3.
08-2772	CO-830	6-11-2008	Air Discharge Permit and approval conditions for operation of an existing landfill gas collection and treatment system consisting of a caustic scrubber and shrouded candle-stick flare.
13-3068	CO-916	2-3-2014	Approval to accept municipal solid waste and install necessary gas collection and control system utilizing enclosed flare(s).
15-3157	CO-957	12-8-2017	Approval of a replacement diesel-fired emergency generator engine and miscellaneous minor permit modifications.

## 2. Future Requirements

40 CFR 60.30f et.seq. Subpart Cf "Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills" requires administrators of air quality programs to submit a state plan to the EPA to implement the Emission Guidelines in Subpart Cf. The guidelines apply to MSW landfills that commenced construction, modification, or reconstruction on or before July 17, 2014. The state plan was due May 30, 2017 except that Subpart Cf was stayed from May 31, 2017 until August 29, 2017. At this time Washington has not submitted a state plan and EPA has not proposed a federal plan. This facility will be subject to the state or federal plan that implements these guidelines when the plan is issued.

## VII. EXPLANATION OF MONITORING AND RECORDKEEPING TERMS AND CONDITIONS

### M1. General Recordkeeping

This section is taken directly from SWCAA 15-3157R1 and WAC 173-401-615(2) and contains the general recordkeeping requirements that apply to monitoring requirements. Recordkeeping requirements were separated into Sections (a) through (d) to organize the requirements.

**M2. Visible Emission Monitoring**

This monitoring requirement is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with the general requirements drawn from SWCAA 400 and specific requirements drawn from SWCAA 15-3157R1. With the exception of the requirements drawn from SWCAA 15-3157R1, no specific monitoring or recordkeeping is established by SWCAA 400 to determine the compliance status of any specific emission unit with the standards listed. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615.

M2 requires a survey of the landfill and haul roads to identify potential visible emissions. If emissions are not apparent during the initial survey, it is highly unlikely that the source is violating particulate matter or opacity standards and it is not necessary to perform a formal Method 9 opacity observation. Excess visible emissions from the emergency generator engine and flares are unlikely and/or are only addressed by generally applicable requirements; therefore, opacity observations have only been required when indicated by a compliant or if otherwise unusual emissions are observed.

**M3. Complaint Monitoring**

This monitoring requirement is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with the general requirements drawn from SWCAA 400 and a specific odor nuisance requirement from Air Discharge Permit 15-3157R1. SWCAA 400 does not directly establish any specific regime of monitoring or recordkeeping for these requirements. Consequently, for these rules SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. This requirement is designed to assure compliance through prompt complaint response and corrective action whenever necessary.

**M4. Landfill Surface Methane Monitoring**

This monitoring requirement contains the landfill surface methane monitoring requirements from 40 CFR 60 Subpart WWW. These requirements were also included in SWCAA 15-3157R1. The surface monitoring requirements are meant to assure that the landfill gas collection system is functioning properly and identify instances when new gas extraction wells or other action must be taken to minimize fugitive landfill gas emissions.

**M5. Subpart WWW Gas Collection and Control Monitoring**

This monitoring requirement contains the landfill gas collection and control system monitoring requirements from 40 CFR 60 Subpart WWW. Most of these requirements were also included in SWCAA 15-3157R1. These requirements are meant to assure that the landfill gas flares are functioning properly, identify new well locations, and assure that excess air infiltration (which could cause a fire) is not occurring.

**M6. Landfill Emissions Related Monitoring**

These monitoring requirements are all directly related to emissions from the landfill. Information provided in paragraphs (b), (c), (d), and (g) can be used directly for calculating emissions. Information in paragraphs (a), (e), (h), and (i) provide information indicating whether emissions are being controlled properly.

**M7. Source Emissions Testing of Enclosed Flare System**

This monitoring requirement is used to provide, in combination with other monitoring requirements, a reasonable assurance of compliance with the non-methane organic compound (NMOC) control requirements of 40 CFR 60 Subpart WWW, the opacity limits from SWCAA 400 and 40 CFR 60.18, and the emission limits (including NMOC and opacity) from SWCAA 15-3157R1.

Carbon monoxide, VOC, and visual emission from the flare(s) must be measured at the lowest operating temperature because the lower operating temperature is the worst-case emission scenario for these pollutants. In addition, the flare(s) must also be tested for NO<sub>x</sub> at the highest operating temperature to assure that increases in thermal NO<sub>x</sub> generation anticipated at the higher temperature does not cause the permit limit to be exceeded. EPA Compendium Method TO-15 is required at both the flare inlet and outlet to quantify volatile organic toxic air pollutants. All of the volatile organic toxic air pollutants with a specific limit in the Air Discharge Permit are target analytes of EPA Compendium Method TO-15. Total sulfur compounds in the landfill gas are to be measured by ASTM Method D5504 to determine total sulfur dioxide emission from the flare. Hydrogen sulfide is specified separately for comparison with the hydrogen sulfide emission limit.

A gas chromatograph / mass spectroscopy scan is required to tentatively identify the 10 VOC compounds that appear to be in greatest abundance in the landfill gas. This data is a screening tool to help determine if there are any major organic constituents that warrant additional scrutiny and because this information may provide additional data regarding processes in the landfill.

**M8. Emergency Generator Engine Monitoring**

This monitoring requirement is used to provide a reasonable assurance of compliance with all of the specific requirements relating to operation of the emergency generator engine.

The total number of hours the engine is operated must be recorded for each calendar year to provide a reasonable assurance of compliance with the hours limitation and allow for a calculation of annual emissions.

Unless new testing is conducted after the issuance date of SWCAA 15-3157R1 (January 23, 2018), the following emission factors are to be used:

<b>Pollutant</b>	<b>Emission Factors (g/hp-hr)</b>
NO <sub>x</sub>	4.58
CO	0.19
PM	0.03
PM <sub>10</sub>	0.02
PM <sub>2.5</sub>	0.02

SO<sub>2</sub> emissions are to be calculated using a material balance based on a fuel consumption rate of 14.5 gallons per hour. All emissions are calculated with the assumption that the unit is always operated at full load (303 horsepower).

The permittee is required to obtain a fuel certification or other analysis to document the fuel sulfur content to demonstrate compliance with the fuel sulfur limitation of SWCAA 15-3157R1. A fuel receipt indicating that ultra-low sulfur fuel was delivered satisfies this requirement and allows for the calculation of annual sulfur dioxide emissions. Similarly, the fuel cetane index or aromatic content must be documented to satisfy the additional fuel requirements of 40 CFR 60 Subpart III.

Logging the hour meter reading each time an inspection, maintenance or repair activity is conducted is part of providing a reasonable assurance of compliance with the maintenance requirements of 40 CFR 60 Subpart III. Subpart III requires that certain maintenance activities be undertaken at specified frequencies (measured in the number of hours an engine has operated), but does not include any provision for monitoring how many hours an engine has operated. SWCAA has required the permittee to document the hour meter reading at each incident of maintenance and repairs under the "gap filling" provisions of WAC 173-401-615. At any time after the first maintenance event, the permittee or the inspector can compare the hour meter reading for an engine to the hour meter reading during the last maintenance event to determine whether the maintenance schedule is being met.

This documentation can be compared with the written maintenance instructions provided or approved by the manufacturer to determine the status of compliance with the maintenance requirements of 40 CFR 60 Subpart III.

### **M9. Cover Integrity Monitoring**

This monitoring condition is directly from 40 CFR 60.755(c)(5) and is found here and in Req-26. Because the requirement consists of an active requirement to implement repairs when necessary it was included in the "Operating Terms and Conditions" table. The monitoring component was repeated in M9 to assure that all monitoring requirements could be found in a single section.

## VIII. EXPLANATION OF REPORTING TERMS AND CONDITIONS

### R1. Deviations from Permit Conditions

This reporting section is taken directly from WAC 173-401-615(3), SWCAA 400-107, and SWCAA 15-3157R1. The permittee is required to report all permit deviations no later than 30 days following the end of the month during which the deviation is discovered. Permit deviations due to excess emissions must be reported to SWCAA as soon as possible. SWCAA may request a full report of any deviation if determined necessary. These deviations are also reported in each semi-annual report.

### R2. Complaint Reports

This reporting section is taken directly from SWCAA 15-3157R1. The permittee is required to report all complaints to SWCAA within three business days of receipt to ensure prompt complaint response.

### R3. Semi-annual Reports

The permittee is required to provide a report on the status of all monitoring records and provide a certification of all reports on a semi-annual basis. Semi-annual reporting and certification of monitoring records is required by WAC 173-401-615(3). The semi-annual report provides information on the status of all required monitoring. The actual results (e.g. amount of landfill gas flared, leachate holding pond dissolved oxygen) do not need to be submitted unless specifically required by the permit.

A startup, shutdown and malfunction report must be submitted for each semi-annual period in accordance with the requirements of 40 CFR 63 Subpart AAAAA.

A Responsible Official must certify all reports required by the Title V permit.

### R4. Annual Compliance Certification

The permittee is required to report and certify compliance with all permit terms and conditions on an annual basis. Annual compliance certification is required by SWCAA 401-630(5). Any reports of deviations from permit conditions or certifications of intermittent compliance need to be accompanied by an explanation.

### R5. Annual Report

#### Emissions-Related Reports

The reporting elements listed here are all either directly related to the calculation and reporting of annual emissions, or indirectly related to calculating the potential for landfill gas generation and composition (R5(f)).

#### Subpart WWW Reports

The reporting elements listed in this section are all required by 40 CFR 60 Subpart WWW and generally relate to confirming proper operation of the landfill gas collection system.



**R6. Source Test Plans and Reports**

This reporting section is taken from SWCAA 15-3157R1 and contains the reporting requirements related to source emissions testing.

**R7. Landfill Gas Generation Projection**

Beginning in 2023 and every 10 years thereafter the permittee is required to submit a report of the anticipated future landfill gas generation rates. This data can be used to help assure the landfill gas collection and control system is properly sized and built out in a timely manner to minimize futitive emissions.

**IX. COMPLIANCE HISTORY**

The following Notices of Violation (NOV) were issued in the last five years.

NOV#	Date Issued	Notes
6109	6/15/2016	Exceedance of the hourly SO <sub>2</sub> emission rate from the enclosed landfill flare due to increased landfill gas flow and H <sub>2</sub> S concentration.
5890	1/20/2016	Landfill gas collection and control system outages outside of required maintenance or safety checks. Outages were initiated by utility power interruptions, power spikes, and a frozen landfill gas line. Outages totaled 42.3 hours for 2015.
5880	7/8/2015	Late installation of enclosed flare and two 54 minute flare outages caused by a PLC programming error on the newly installed enclosed flare.
5272	1/23/2015	Two scrubber/flare incidents. Decreased scrubbing efficiency in the first event caused by plugging of a caustic supply line, one brief outage caused by a lightning strike – induced power outage.

**X. APPENDICES**

Appendix A contains the method by which visible emissions from the permittee's operations are to be evaluated when performing required monitoring.

Appendix B contains the manufacturer's emissions-related maintenance requirements for the Emergency Generator Engine. 40 CFR 60.4211 requires that this engine be operated in accordance with these requirements.

Appendix C contains the version of EPA Method 21 that the permittee must follow.

**XI. PERMIT ACTIONS**

Air Operating Permit SW14-20-R0

- |  |                  |
|--|------------------|
| 1. Permit Application Submitted:       | June 11, 2014    |
| 2. Permit Application Deemed Complete: | October 14, 2014 |
| 3. Permit Application Sent to EPA:     | June 13, 2018    |
| 4. Draft Permit Issued:                | June 13, 2018    |
| 5. Proposed Permit Issued:             | July 26, 2018    |
| 6. Final Permit Issued:                | October 10, 2018 |

**XII. FACILITY LAYOUT**



**Google Earth – June 21, 2017 Image**

**Appendix A**  
**Applicable Requirement Review**

<b>Air Discharge Permit 15-3157R1</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
1 (Facilitywide VOC limit)	Req-10	
2 (Enclosed flare emission limits)	Req-11	
3 (Facilitywide toxic air pollutant emission limits)	Req-12	
4 (Visible emissions limit for flares)	Req-13	
5 (NO <sub>x</sub> and CO limits for emergency generator engine)	Req-14	
6 (Visible emissions limit for emergency generator engine)	Req-15	
7 (Visible emissions limit for fugitive dust from operation of mobile equipment)	Req-16	
8 (Requirement to burn all collected landfill gas)	Req-17	
9 (Landfill gas flaring requirements)	Req-18	This requirement also encompasses requirements found in 40 CFR 60.753(e) & (f).
10 (Requirement to operate landfill gas collection and control at all times (with exceptions))	Req-19	
11 (Good air pollution control requirements and SSM plan)	Req-20	
12 (Prohibition on storage of petroleum contaminated soil)	Req-21	
13 (Landfill gas collection design requirements)	Req-22	These design requirements are in addition to 40 CFR 60 Subpart WWW.
14 (Landfill gas collection design requirements)	Req-23	Subpart WWW design requirements.
15 (Well placement and timing)	Req-25	
16 (Final cover integrity monitoring)	Req-26	

<b>Air Discharge Permit 15-3157R1</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
17 (Well temperature and N <sub>2</sub> /O <sub>2</sub> requirements)	Req-27	40 CFR 60 Subpart WWW requirements meant to prevent subsurface fires and inhibition of anaerobic decomposition.
18 (Landfill surface methane limit)	Req-28	
19 (Wellhead negative pressure requirement)	Req-29	
20 (Flare operating temperature requirements)	Req-30	
21 (Caustic scrubber requirements)	Req-32	
22 (Caustic scrubber flow and pH requirements)	Req-33	
23 (General odor obligation)	Req-34	
24 (Good air pollution control requirement)	Req-35	
25 (Prohibited wastes)	Req-36	Wastes that could interfere with gas collection (asbestos) or cause excess emissions and odors were prohibited.
26 (Paper mill sludge limitation)	Req-37	
27 (Gas collection system flow sufficiency determination)	Req-38	
28 (air infiltration monitoring)	Req-39	
29 (Flare stack height)	Req-40	
30 (Emergency generator use limitations)	Req-41	
31 (Emergency generator fuel sulfur requirement)	Req-42	
32 (Emergency generator maintenance checks and readiness testing limitation)	Req-43	
33 (Emergency generator stack orientation)	Req-44	
34 (Leachate holding pond minimum dissolved O <sub>2</sub> )	Req-46	
35 (Informational condition requiring compliance with permit)	—	This condition is informational in nature and not a separately enforceable requirement or one for which a compliance certification is appropriate.

<b>Air Discharge Permit 15-3157R1</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
36 (Surface methane monitoring)	M4	
37 (Subpart WWW monitoring)	M5	
38 (Flare flame out alarm)	Req-31	
39(a) (LFG maintenance)	M6(a)	
39(b) (Monitoring of LFG quantity burned)	M6(b)	
39(c) (H <sub>2</sub> S and TRS in LFG)	M6(c)	
39(d) (LFG bulk composition)	M6(d)	
39(e) (Scrubbing liquor flow)	M6(e)	
39(f) (Scrubbing liquor pH)	M6(f)	
39(g) (Scrubber H <sub>2</sub> S control)	M6(g)	
39(h) (Emergency generator hours)	M8(a)	
39(i) (Emergency engine fuel sulfur)	M8(c)	
39(j) (Leachate dissolved O <sub>2</sub> )	M6(h)	
39(k) (Upset recordkeeping)	M1	
39(l) (Complaints)	M3	
40 (Recording name and date)	Section VII	
41 (Records retention)	Section VII	
42 (Source testing)	M7	
43 (Collection and control design submission)	N/A	This is a one-time condition that was satisfied January 31, 2012. The plan was later updated April 20, 2015.
44 (SSM reports)	R3	
45 (Annual reports)	R5(h)	
46 (Excess emissions reports)	R1	
47 (Deviation reports)	R1	
48 (Complaint reports)	R2	
49 (Annual EI reporting)	R5(a – g)	

<b>Air Discharge Permit 15-3157R1</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
50 (Source test reports)	R6	
51 (Gas generator projection)	R7	
Appendix A (source testing details)	M7	

<b>40 CFR 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
60.750	—	"Applicability"
60.751	—	"Definitions"
60.752(a)	—	Submission requirement for small (<2.5 MM cubic meter). Not applicable. This facility has a capacity of 54.8 MM cubic yards (~42 MM cubic meters).
60.752(b)	Req-11, 22, 23, 25, 30, M5, M7	Standards for air emissions from MSW landfills. SWCAA required immediate control of landfill gas therefore 40 CFR 60.752(b)(1) which contains provisions that are used to determine when control is required were not included in the permit.
60.753(a)	Req-22	
60.753(b)	Req-29	
60.753(c)	Req-27	
60.753(d)	Req-28	
60.753(e – f)	Req-18	
60.753(g)	—	Corrective action requirements. This is an informational requirement that references the applicable corrective action requirements of 40 CFR 755 and states that the monitored exceedance is not a violation of the operation requirements of 40 CFR 60.753 if corrective actions are taken as specified in 40 CFR 60.755.
60.754(a-c)	—	"Test methods and procedures" – NMOC calculation methods. These methods are used to determine when controls must be installed, and when controls may be removed. Because Air Discharge Permit 15-3157R1 requires immediate installation of controls and does not have provisions for the removal of controls none of these provisions are utilized.
60.754(d)	M7	Not applicable – performance testing details for an open flare.
60.755(a)	Req-23, 38, 39	
60.755(b)	Req-25	
60.755(c)(1-4)	M4	
60.755(c)(5)	Req-26, M9	
60.755(d)	M4(a)	

<b>40 CFR 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
60.755(e)	—	This condition is informational in nature and not a separately enforceable requirement or one for which a compliance certification is appropriate.
60.756(a)(1)	Req-38, M5(c)	
60.756(a)(2-3)	Req-39, M5(d)	
60.756(b)	M5	
60.756(c)	M5	This requirement is for open flares. This requirement was included for completeness even though the shrouded flare cannot be used outside of upset conditions.
60.756(d)	—	Administrator review of alternative control devices. No alternative control devices have been proposed at this facility.
60.756(e)	—	Administrator review of alternative collective system. No alternative collection system specifications have been proposed at this facility.
60.756(f)	—	The first part of this paragraph repeats the instrumental surface monitoring specifications of 40 CFR 60.755(d), which is also referenced in 40 CFR 60.755(c)(1) and is found in the M5 of the Title V permit. The second part provides conditions for a reduced surface monitoring frequency at closed landfills. This reduced frequency is not allowed by SWCAA's Air Discharge Permit.
60.757(a - c)	—	Provisions related to the timing of gas control system installation. SWCAA's Air Discharge Permit required immediate installation of a gas control system therefore the provisions of this section are not relevant.
60.757(d)	—	Closure notification. Closure is not reasonably likely during the permit term.
60.757(f)	R5	
60.757(g)	—	Initial performance test report content. Initial performance testing has been completed.
60.758(a)	M5	
60.758(b)	M5, R7	The enclosed flares are less than 44 MW therefore the monitoring provisions of section (b)(1) apply.
60.758(c)	M5	
60.758(d)	M5	
60.758(e)	M5	
60.758(f)	—	Recordkeeping requirement for converting design capacities to demonstrate below 2.5 megagram / 2.5 million cubic meter threshold. Not applicable because this facility far exceeds these thresholds.
60.759(a)	Req-24	The design plan portion of this requirement has been completed.
60.759(b)	Req-23	
60.759(c)	Req-23	



<b>CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
60.4200	—	"Am I subject to this subpart?" Informational.
60.4201	—	"What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?"
60.4202	—	"What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?"
60.4203	—	"How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?"
60.4204	—	"What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?" Section (a) states that the engine must meet the requirements in Table 1. This engine is Tier 2 EPA certified which meets the Table 1 requirement. No active requirement.
60.4205	—	"What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?" No emergency engines at this facility.
60.4206	—	"How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?" Informational. No exemption or modification of any other requirement in this section.
60.4207	Req-42	"What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?"
60.4208	—	"What is the deadline for importing or installing stationary CI ICE produced in previous model years?"
60.4209	—	"What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?" No requirements for a non-emergency engine without a diesel particulate filter.
60.4210	—	"What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?"
60.4211	Req-42, 44 App. B	"What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?" The engine in question is EPA certified to the appropriate Tier 3 standard, so the only remaining compliance requirement is to operate the engine properly. Specific maintenance requirements are detailed in Appendix B.
60.4212	—	"What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?" No testing requirements for this engine.
60.4213	—	"What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?" The engine is much smaller than 30 liters per cylinder and is not subject to any testing requirements.

<b>CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
60.4214	—	"What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?" There are no notification requirements applicable to this engine.
60.4215	—	"What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?"
60.4216	—	"What requirements must I meet for engines used in Alaska?"
60.4217	—	"What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?" This facility does not have approval to utilize special fuels.
60.4218	—	"What parts of the General Provisions apply to me?" Refers to Table 8.
60.4219	—	"What definitions apply to this subpart?" Informational.
Table 1	—	"Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder" Informational listing of the emission standards. Compliance was demonstrated by purchasing a EPA Tier certified engine that exceeds the standards in Table 1.
Table 2	—	"Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder." No engine in this category at the facility.
Table 3	—	"Certification Requirements for Stationary Fire Pump Engines." No engine in this category at the facility.
Table 4	—	"Emission Standards for Stationary Fire Pump Engines." No engine in this category at the facility.
Table 5	—	"Labeling and Recordkeeping Requirements for New Stationary Emergency Engines." Not a requirement for the owner/operator.
Table 6	—	"Optional 3-Mode Test Cycle for Stationary Fire Pump Engines." Not a requirement for the owner/operator.
Table 7	—	"Requirements for Performance Tests for Stationary CI ICE With a Displacement of $\geq 30$ Liters per Cylinder." No engine in this category at the facility.
Table 8	—	"Applicability of General Provisions to Subpart IIII." Table 8 was not listed directly in the permit, rather the individual General Provisions were independently identified.
<b>Applicable General Requirements Identified by Table 8</b>		
60.1	—	General applicability of the General Provisions
60.2	—	Definitions
60.3	—	Units and abbreviations
60.4	—	Address. Informational.
60.5	—	Determination of construction or modification
60.6	—	Review of plans

<b>CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
60.7	—	Notification and Recordkeeping. There are no notification requirements applicable to this engine.
60.8	—	Performance tests. No performance tests are required.
60.9	—	Availability of information. Informational
60.10	—	State Authority. Informational.
60.11	P1	Compliance with standards and maintenance requirements. No active requirements, however the credible evidence provision was included in P1.
60.12	Req-7	Circumvention
60.13	—	Monitoring requirements. Only applies to stationary CI ICE with a displacement of $\geq 30$ liters per cylinder.
60.14	—	Modification. Modification is subject to New Source Review.
60.15	—	Reconstruction. Reconstruction is subject to New Source Review.
60.16	—	Priority list
60.17	—	Incorporations by reference
60.18	—	General control device requirements. No control devices.
60.19	—	General notification and reporting requirements. There are no notification requirements applicable to this engine.

<b>CFR 60 Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
63.1930	—	"What is the purpose of this subpart?" Informational.
63.1935	—	"Am I subject to this subpart?" Informational. This facility is subject to this subpart.
63.1940	—	"What is the affected source of this subpart?" Informational. The entire disposal facility in a contiguous geographic space where household waste is placed is affected.
63.1945	—	"When do I have to comply with this subpart?" Informational
63.1947	—	"When do I have to comply with this subpart if I own or operate a bioreactor?" This facility does not include a bioreactor.
63.1950	—	"When am I no longer required to comply with this subpart?" Informational. Requirement to comply will continue far beyond the permit term.
63.1952	—	"When am I no longer required to comply with the requirements of this subpart if I own or operate a bioreactor?" This facility does not include a bioreactor.

<b>CFR 60 Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills</b>		
<b>Requirement</b>	<b>Title V Permit Location</b>	<b>Comments</b>
63.1955	Req-20	"What requirements must I meet?" Requires compliance with the applicable requirements of 40 CFR 60 Subpart WWW (included in numerous areas of the permit as detailed in Subpart WWW table above), and 40 CFR 63.1960 – 40 CFR 63.1980 as applicable. Primarily informational. General requirements of 40 CFR 63.6 not included elsewhere are included in Req-20.
63.1960	—	"How is compliance determined?" Informational
63.1965	—	"What is a deviation?" Informational
63.1975	—	"How do I calculate the 3-hour block average used to demonstrate compliance?" Informational. The 3-hour average is already defined in the relevant requirement from 40 CFR 60 Subpart WWW.
63.1980	—	"What records and reports must I keep and submit?" This section references other applicable requirements already reflected in Req-20 (63.6), and R3 (63.10(d)(5)).
63.1985	—	"Who enforces this subpart?" Informational
63.1990	—	"What definitions apply to this subpart?" Informational
<b>Applicable General Requirements Identified by Table 1</b>		
63.4	Req-7	
63.6(e)	Req-20	
63.10	R3	The only additional recordkeeping and reporting relates to the SSM reporting requirements detailed in R3.