

**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Northern Regional Office**

STATEMENT OF LEGAL AND FACTUAL BASIS

Rappahannock Regional Solid Waste Management Board (R-Board)
R-Board Landfill
489 Eskimo Hill Road, Stafford, Virginia 22554
Permit No. NRO-40946

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, the R-Board has applied for a Title V Operating Permit for its Stafford County landfill facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: August 1, 2016
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Air Permit Manager: _____ Date: _____
James B. LaFratta

Regional Director: _____ Date: _____
Thomas A. Faha

FACILITY INFORMATION

Permittee

Rappahannock Regional Solid Waste Management Board (R-Board)
County of Stafford
P.O. Box 339
Stafford, Virginia 22555

Facility

R-Board Landfill
489 Eskimo Hill Road
Stafford, Virginia 22554

County-Plant Identification Number: 51- 179-00050

SOURCE DESCRIPTION

NAICS Code: 562212; SIC 4593 - Municipal Solid Waste (MSW) Landfill
221119; SIC 4911 - Other Electrical Power Generation

This stationary source consists of a municipal solid waste (MSW) landfill operated by Rappahannock Regional Solid Waste Management Board ("R-Board") and two landfill gas fired reciprocating internal combustion engines (RICE) operated by Ameresco Stafford, LLC ("Ameresco"). For administration purposes, DEQ has registered R-Board under air facility registration no. 40946 and Ameresco under air facility registration no. 41050. Accordingly, DEQ also administers separate minor new source review (mNSR) permits, as detailed later, for each of these entities.

R-Board operates the sanitary landfill for the municipalities of Stafford County and the City of Fredericksburg. The main process is the sanitary landfilling of non-hazardous MSW received by commercial and private vehicles and the collection and control of the generated landfill gas. The facility covers approximately 805 acres (currently with waste footprint of 62.3 acres) located at 489 Eskimo Hill Road about a mile from U.S. Route 1, in Stafford County. The landfill was opened in 1968, with the initial area unlined and referred to as "the old area 74". The newer areas are lined with clay and composite liners, designated as cells A to G. The MSW landfill has a current permitted design capacity of 3.45 million megagrams.

The MSW received is hauled in trucks to the working face of the landfill for final disposal in different Resource Conservation and Recovery Act (RCRA) "Subtitle D" units at the facility. Over time, the landfilled MSW undergoes anaerobic decomposition forming landfill gas (LFG) which primarily consists of methane and carbon dioxide (an approximate 50%/50% by volume mixture) and a small amount of non-methane organic compounds (NMOC). This NMOC fraction often contains various organic hazardous air pollutants (HAPs) and volatile organic compounds

(VOC). LFG is collected or “captured” from the interior of the landfill by a series of vertical extraction wells and horizontal trenches, which are embedded in the landfill at various depths. The extraction wells or trenches are connected to header pipes that direct the LFG to the flares for destruction or the collected gas is routed to a treatment system for subsequent sale/use as fuel to generate electricity. The primary flare, Perennial Energy, Inc. (PEI) model FL-1483, is rated at 2000 scfm, with the backup flare, LFG Specialties model CF62114, rated at 800 scfm.

Ameresco buys and treats the landfill gas from R-Board to use as fuel for their two engine-generator sets that produce electricity for sale to the electric utility. The two spark-ignition RICE are GE Jenbacher Genset model JGS 320 GS-LL, each rated at 1468 brake horsepower (bhp) and 1060 electric kilowatts (kW). Each RICE has a rated throughput capacity of 400 cubic feet per minute (scfm) of landfill gas, can operate continuously, consuming up to 448 million cubic feet of landfill gas per year. Ameresco currently operates under mNSR permit issued June 20, 2007, as amended March 27, 2015.

This stationary source consisting of the MSW landfill, flares and the two landfill gas fired RICE is not considered a ‘major source’ under 9 VAC 5-80-60, as provided in Attachment A. However, the MSW Landfill is subject to 40 CFR Part 60, Subpart WWW, wherein 40 CFR § 60.752(c) requires affected facilities to obtain an operating permit under Title V of the Clean Air Act Amendments (hereinafter referred to as ‘Title V Operating Permit’ or Title V Permit). In accordance with 9 VAC 5-80-110.A.2, the proposed Title V Permit only includes the applicable requirements that apply to the portion of the stationary source (i.e. the MSW landfill) that cause the source to be subject to Title V permitting.

The R-Board Landfill had been filling cells A to E, under an air permit (mNSR permit) issued August 12, 2005. With the expansion of the landfill to cell F-1, a revised air permit was issued June 28, 2013, as amended on July 2, 2013, and December 13, 2013. The permit was further amended for landfill expansion to cell F-2, on December 17, 2015. Finally, a revised permit was issued on May 19, 2016 (5/19/2016 mNSR Permit), to also include a tub grinder on site to ensure facility-wide emissions do not exceed major source levels (provided as Attachment B). Although permitted emissions remain below Title V major source levels, the landfill now has a design capacity of 3.45 million megagrams (Mg), which makes it subject to the federal New Source Performance Standards (NSPS), 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste landfills. It is also subject to the Landfill MACT (40 CFR 63 Subpart AAAA – NESHAP for Municipal Solid Waste Landfills. In accordance with the NSPS, the facility must obtain a Title V permit, designated as a ‘Title V source by rule’, since its capacity is over 2.5 million Mg (mass) and/or 2.5 million cubic feet (volume). Prior to being an affected facility under NSPS Subpart WWW, the landfill was required under state rules (Rule 4-43) to install a gas collection and control system earlier since the facility is located in a VOC Emissions Control area. Their current air permit allows for processing 5.50×10^8 standard cubic feet (scf) of landfill gas per year. For their emissions inventory data in 2015, the R-Board reported 1.412×10^8 cubic feet of landfill gas burned at the flares, with 1.9537×10^8 cubic feet directed to the engines at the Ameresco facility, and estimated fugitive landfill gas emission of 1.143×10^8 cubic feet.

The landfill facility also operates some minor equipment considered “insignificant emission units”. However, only the 50,000 gallon above ground leachate storage tank is listed in the Title

V permit, since it is directly related to landfilling and gas collection and control system operation. All other insignificant emission emissions are not included in the permit. There is a small emergency diesel engine generator, rated at 25 kVA, three small oil-fired furnaces, each rated under a half million Btu/hour, and two other above ground storage tanks, with 500 gallon fuel oil tank, and 1000 gallon used oil tank. These insignificant emission units are not listed in the Title V Permit, as the proposed permit only covers the regulated emission unit/processes (in this case, the MSW landfill and flares) consistent with 'Title V Permit by Rule' sources.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, was most recently conducted on October 13, 2015. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Landfill Operations							
001	MSW Landfill	MSW Landfill Operations	3.45 million mega grams (Mg)	See Flares below	GCCS	NMOC	5/19/2016 mNSR Permit
LFG Combustion Equipment							
F001	001	Open Flare, LFG Specialties Model CF62114	800 cfm	(Considered landfill NMOC emission control device)	--	NMOC	5/19/2016 mNSR Permit
F002	002	Open Flare, Perennial Energy, Inc., model FL-1483	2000 cfm	(Considered landfill NMOC emission control device)	--	NMOC	5/19/2016 mNSR Permit
003**	003	GE Jenbacher Genset model JGS 320 GS-L.L	30 million Btu/hr; 1468 bhp; 1060 kW	--	--	--	6/20/2007, as amended 3/27/2015 mNSR Permit
004**	004	GE Jenbacher Genset model JGS 320 GS-L.L	30 million Btu/hr; 1468 bhp; 1060 kW	--	--	--	6/20/2007, as amended 3/27/2015 mNSR Permit
005**	005	W.H.O. Tub Grinder model P12-56XSHD with Caterpillar engine model 3412	100 tons/hr; 760 bhp engine	--	--	--	5/19/2016 mNSR Permit

* The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

** The landfill gas engines (ID #003, 004) operated by Ameresco (Reg. #41050) and the wood waste tub grinder (ID#005) operated by R-Board Landfill are considered part of the same stationary source. However, applicable requirements of only the MSW landfill are addressed in this Title V permit per 9 VAC 5-80-110.A.2.

EMISSIONS INVENTORY

A copy of the 2015 annual emission update is provided as Attachment C. The emissions from the stationary source, which consist of the R-Board Landfill (including the flares, fugitive NMOCs and VOCs from uncollected LFG, also a tub grinder) and the Ameresco engines are summarized in the following table. The tub grinder and Ameresco engines are not included in the Title V permit, which is limited to the emission units subject to the municipal solid waste landfill standards, as given in 40 CFR 60 (NSPS) Subpart WWW.

2015 Actual/Estimated Emissions

	2015 Pollutant Emissions (tons/year)							
R-Board Landfill	NMOC	VOC	CO	SO ₂	PM ₁₀	NO _x	HCl	Total HAPs*
Flares	0.18	0.07	13.06	0.54	0.60	2.40	0.28	0.08
Fugitives	7.49	2.92	-	-	-	-	-	3.22
Tub Grinder	-	0.01	0.08	-	0.04	0.52	-	-
Ameresco								
Engines	-	1.41	7.83	1.41	2.18	12.72	-	No Data
Total Emissions	7.67	4.41	20.97	1.95	2.82	15.64	0.28	3.30

* Total HAPs, excluding HCl, is estimated to be 43% of NMOC emissions (based on AP-42, dated 11/98, Tables 2.41-1 and 2.4-2).

“-“ Refers to emissions considered to be negligible.

“No Data” refers to lack of emissions data on HAPs for landfill gas engines.

LANDFILL OPERATIONS APPLICABLE REQUIREMENTS - [Emission Unit ID# 001/MSWL, F001, F002]

Limitations

The following limitations are derived from Conditions 1 – 18 of the latest DEQ minor new source review permit issued on May 19, 2016 (referred to as 5/19/16 mNSR Permit), but excludes Conditions 8, 13-15, and 17, which relate to the tub grinder and not required for the Title V permit by rule.

Condition 1: References the applicable federal New Source Performance Standards (NSPS) in 40 CFR 60, Subpart WWW, for Municipal Solid Waste Landfills. The facility is responsible for compliance with its requirements even if there are later revisions made, per Condition 12 of 5/19/16 mNSR Permit.

Condition 2: References the applicable federal hazardous air pollutant regulations (MACT) given in 40 CFR 63, Subpart AAAAA, for Municipal Solid Waste Landfills. The facility is responsible for compliance with its requirement even if there are later revisions made. In addition, the MACT requires a “Startup, Shutdown and Malfunction” (SSM) Plan for the landfill, with specified actions to be taken, per Conditions 6 and 12 of 5/19/16 mNSR Permit.

Condition 3: Limits design capacity for the municipal solid waste (MSW) landfill (Phase 1, Cells A, B, C, D, E, and F1) to 3.45 million megagrams (Mg), per Condition 1 of 5/19/16 mNSR Permit.

Condition 4: Prescribes design and operational standards for the landfill gas collection and control system (GCCS) per Condition 3 of 5/19/16 mNSR Permit.

Condition 5: Prescribes design, operation and maintenance of the two, nonassisted open flares in accordance with 40 CFR 60.18, and manufacturer recommendations, per Condition 5 of 5/19/16 mNSR Permit.

Condition 6: Requires the facility to implement fugitive dust emission controls in accordance with Condition 7 of 5/19/16 mNSR Permit.

Condition 7: Requires R-Board Landfill to operate the LFG GCCS at all times when collected gas is routed to the system in accordance with Condition 9 of 5/19/16 mNSR Permit.

Condition 8: States the approved fuel for the open flares is LFG, with propane or natural gas to light the pilot light. Also, LFG usage shall be calculated monthly not to exceed 5.5×10^8 scf per year, with minimum heat content of 200 Btu/scf HHV, per Condition 10 of 5/19/16 mNSR Permit.

Condition 9: Outlines the procedures for removal of the GCCS per Condition 11 of 5/19/16 mNSR Permit.

Condition 10: Sets the annual emission limits for NO_x (as NO_2), CO, PM-10, SO_2 , VOC, NMOC and HCl from the operation of the landfill GCCS, per Condition 16 of 5/19/16 mNSR Permit.

The annual emission limits are estimated using LandGem model prediction for landfill gas generated from the decomposition of municipal solid waste years later. Then, there are emission factors provided to estimate criteria pollutant emissions from flare burning the landfill gas. There is uncertainty in emission factors for open flares since stack tests cannot be conducted. The emission factors for flares can be found in AP-42, Section 2.4, Table 2.4-5, for Municipal Solid Waste Landfills. There is also a Draft Section 2.4 with similar NOx emission factor in Table 2.4-4, much lower CO factor, but which have not been finalized by EPA for general use. In addition, Section 13.5, for Industrial Flares in AP-42 includes Table 13.5-1 factors, which are higher for NOx but lower for CO than in Section 2.4. The manufacturer of their larger flare, PEI, has provided emission guarantees, similar to AP-42 Section 13.5 factors. The flare manufacturer data is preferred and although DEQ staff had previously used AP-42 Section 2.4 factor for NOx at 40 lbs/million cubic feet of Methane, the manufacturer, PEI, factor of 68 lbs/million cubic feet of Methane is now used for their minor new source review permit and Title V permit limit. For CO emissions, the PEI manufacturer data is used for the new flare with the old LFG flare using factor from AP-42 Section 2.4. The following emission factor table for NOx, CO and PM-10, highlights the selected factors used in the flare emission calculations for compliance determination with the permit limits.

Pollutant	AP-42 Section 2.4, Municipal Solid Waste Landfills - Flare (lb/million cubic feet Methane)		Flare Manufacturer, PEI, also AP-42 Section 13.5, Industrial Flares	
	Final Section Table 2.4-5	Draft Section Table 2.4-4	(lb/million Btu)	(Estimated lb/million cubic feet Methane)
Nitrogen Dioxide (NO ₂)	40	39	0.068	68
Carbon Monoxide (CO)	750	46	0.37	370
Particulate Matter (PM-10)	17	15	-	-

Actual emissions are calculated by multiplying the emission factors and landfill gas throughput in proper units. Therefore, the following are the calculated flare annual emissions using maximum 550 million cubic feet per year of landfill gas. The landfill gas has an estimated heating value of 500 Btu/cubic foot (methane content of 50%).

$$\begin{aligned} \text{NOx} &= (550 \text{ million cf/yr}) \times 0.5 \text{ Methane} \times (68 \text{ lb/mil. cf Methane}) \div 2000 \text{ lbs/ton} = 9.35 \text{ tons/yr} \\ \text{CO} &= (550 \text{ million cf/yr}) \times 0.5 \text{ Methane} \times (370 \text{ lb/mil.cf Methane}) \div 2000 \text{ lbs/ton} = 50.9 \text{ tons/yr} \\ \text{PM-10} &= (550 \text{ million cf/yr}) \times 0.5 \text{ Methane} \times (17 \text{ lbs/mil. cf Methane}) \div 2000 \text{ lbs/ton} = 2.34 \text{ tons/yr} \end{aligned}$$

Highest CO emissions is obtained at permit limit of 20 million cf/yr of landfill gas for the LFG flare using AP-42 Table 2.4-5 factor, and the rest, 530 million cf/yr, using PEI flare manufacturer data.

$$\text{CO} = [(20 \text{ million cf/yr} \times 0.5 \text{ Methane} \times 750 \text{ lb/mil. cf Methane}) + (530 \text{ million cf/yr} \times 0.5 \text{ Methane} \times 370 \text{ lb/mil. cf Methane})] \div 2000 \text{ lbs/ton} = 52.8 \text{ tons/yr}$$

Condition 11: Requires open flares to have no visible emissions, using EPA Method 22, except for up to five minutes during two consecutive hours, per Condition 18 of 5/19/16 mNSR Permit.

Monitoring and Corrective Actions

The monitoring requirements and corresponding corrective actions are taken from Conditions 23 to 31 (excluding tub grinder Condition 28) of the minor new source review permit, issued May 19, 2016 (5/19/16 mNSR Permit) and reflect the requirements of NSPS subpart WWW and MACT subpart AAAA.

There is no periodic monitoring required for visible emission on the flares based on EPA determination that compliance is assured if the requirements of 40 CFR 60.18 are met, along with proper operation and maintenance, as well as continuous heat sensing device to detect the presence of flare pilot or flame. The LFG flare (Ref. # F001) was tested on December 1, 2004, with the Perennial Energy flare (Ref. # F002) tested on September 12, 2005. Each flare demonstrated compliance with no visible emissions observed, gas exit velocity under 60 ft/sec, and net heating value of landfill gas over 200 Btu/scf.

Conditions 12 through 16: Outlines landfill surface monitoring and gas collection & control system monitoring requirements, including monthly measurements of gauge pressure, LFG temperature and nitrogen or oxygen concentration at each well; gas flow to or bypass of the flares; a heat sensing device to detect flare pilot or flame; surface methane concentration not to exceed 500 ppm above background; monitoring devices maintained to manufacturer specifications; and a program for landfill cover integrity and repair, per Conditions 23 -27 of 5/19/16 Permit.

Conditions 17 through 19: Specifies corrective actions that shall be taken in case of positive gauge pressure at well heads, exceedances of oxygen or nitrogen concentrations, and landfill surface methane emissions, per Conditions 29, 30, and 31 of 5/19/16 Permit.

Testing

Conditions 20 through 22: Specifies further testing of the flares, upon DEQ request, for net heating value and exit velocity determinations and visible emission evaluations, per Conditions 20, 21, and 22 of 5/19/16 mNSR Permit.

Recordkeeping and Reporting

The recordkeeping and reporting requirements are restated from the minor new source review permit (5/19/16 mNSR Permit), which are based on the requirements of NSPS subpart WWW and MACT subpart AAAA.

Condition 23: Outlines all associated recordkeeping to demonstrate compliance with the requirements contained in the permit per Condition 33 of 5/19/16 mNSR Permit.

Condition 24: Specifies the Semi-Annual Compliance Reports on monitoring exceedances; periods the control devices (flares) is not operating or bypassed; periods when collection system is not operating; surface methane concentration exceedances; date and location of each well added for collection system expansion; and Startup, Shutdown Malfunction (SSM) Plan report, per Condition 34 of 5/19/16 mNSR Permit; with SSM report added to meet MACT subpart AAAA.

Conditions 25 and 26: Requires that a closure report be submitted within 30 days of when landfill stops accepting MSW, and a written notification of at least 30 days prior to removal or cessation of control equipment (flares) operation, per Conditions 35 and 36 of 5/19/16 mNSR Permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110. There are a number of insignificant emission units listed in the application. However, because of the purpose of the Title V permit, it is being limited to equipment related to landfilling and the gas collection and control system (GCCS).

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation ¹	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
T3	One (1) Above Ground Leachate Tank	9 VAC 5-80-720.B	VOC	50,000 gallons

¹The citation criteria for insignificant activities are as follows:
 9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
 9 VAC 5-80-720 B - Insignificant due to emission levels
 9 VAC 5-80-720 C - Insignificant due to size or production rate

MACT ZZZZ EMISSION UNIT

The source submitted a permit application for their initial Title V permit and that application included one emergency generator (Ref. No. G1) that is subject to MACT ZZZZ. The authority to enforce this regulation has been retained by the EPA and not incorporated by reference into the Virginia regulations (9 VAC 5-60-100). The emissions unit is subject to MACT ZZZZ and the source must comply with the applicable requirements of the regulation. The applicable requirements for this regulation have not been included in this Title V permit because Virginia

regulations (9 VAC 5-80 110.A.2) states that for any source other than a major source subject to this article [Federal Operating Permits for Stationary Sources], the board shall include in the permit all applicable requirements that apply to emissions units that cause the source to be subject to this article. This stationary source is not a major source and the landfill portion of the facility is what causes the source to be subject to Title V permitting.

INAPPLICABLE REQUIREMENTS

The applicant did not identify any inapplicable requirements in its application. The following requirements are included in this section for reference purposes only:

Citation	Title of Citation	Description of Applicability
40 CFR 60, Subpart Kb	Volatile Organic Liquid Storage Vessels	The leachate stored in storage tank (T3) has vapor pressure less than NSPS Kb specified threshold limits.
40 CFR 64	Compliance Assurance Monitoring	The landfill is subject to an NSPS that was proposed after 11/15/1990; therefore the regulation is not applicable.
9 VAC 5, Rule 4-43	Emission Standards for Municipal Solid Waste Landfills	Existing Source Rule for MSW Landfills does not apply any more, since the facility is being modified after 05/30/91, and its capacity makes it subject to 40 CFR 60, Subpart WWW.

The source has emissions of greenhouse gases (GHG) from carbon dioxide emissions and methane content in (uncontrolled) landfill gas. However, the stationary source is not considered a major source for any pollutant, including greenhouse gases (GHG); rather it is subject to Title V permit by Rule as stated in NSPS subpart WWW. Therefore, there are no GHG permitting requirements.

STREAMLINED CONDITIONS

Condition 2 of 5/19/16 mNSR Permit, Landfill Gas (LFG) Collection and Control System Design Plan, has been streamlined out since the Plan was submitted in May 2015, and since Condition 33.c. of 5/19/16 mNSR Permit or draft Title V permit Condition 23.c. requires the source to keep records on the most recently updated gas collection and control system design plan. Similarly, Condition 4 of 5/19/16 mNSR Permit, Surface Monitoring Plan, has been streamlined out since the plan was developed and being used for the semi-annual monitoring reports, and also since recordkeeping Condition 33.o. of 5/19/16 mNSR Permit or draft Title V permit Condition 23.o. requires a copy of the most recent plan be kept. Condition 32 of 5/19/16 mNSR Permit was streamlined since DEQ address is given in Title V permit Condition 24. Other requirements in 5/19/16 mNSR Permit Conditions (8, 13-15, 17,19 and 28) related to the tub grinder are not streamlined but rather excluded since they are not subject to the Title V permit by rule.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

Conditions 30 - 35: Permit Expiration

These conditions refer to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit applications has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 2-09".

These general conditions cite the Article that follows:

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

These general conditions cite the sections that follow:

- 9 VAC 5-80-80. Application
- 9 VAC 5-80-140. Permit Shield
- 9 VAC 5-80-150. Action on Permit Applications

Condition 41: Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. The wording has been updated after recent state regulation revision. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

- 9 VAC 5-40-41. Emissions Monitoring Procedures for Existing Sources
- 9 VAC 5-40-50. Notification, Records and Reporting
- 9 VAC 5-50-50. Notification, Records and Reporting

Condition 45: Permit Modification

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
9 VAC 5-80-190. Changes to Permits.
9 VAC 5-80-260. Enforcement.
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9 VAC 5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications
Located in Prevention of Significant Deterioration Areas
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications
Locating in Nonattainment Areas

Condition 62: Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.
40 CFR 61.154, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to active waste disposal sites.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards
9 VAC 5-80-110. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5, Chapter 50, Part II, Article 2: Standards of Performance for Odorous Emissions (Rule 5-2)

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V permit and application are suitable for public review.

PUBLIC PARTICIPATION

A public notice was placed in the Free Lance-Star newspaper on August 7, 2015, for comments to be received on the proposed permit from August 7, 2015, to September 8, 2015. In addition, a copy of the notice was sent to EPA Region III staff, contacts for the affected states and individuals or organizations on the agency mailing list for Title V permits. There were no comments received from the public or the affected states. Comments from EPA, Region III, were received on September 9, 2015. After follow-up discussions with EPA, DEQ staff provided a formal response to comments on July 19, 2016, which was approved by EPA on July 27, 2016.

ATTACHMENTS

- Attachment A (Table of separate and combined emission limits as single stationary source)
- Attachment B (5/19/2016 mNSR Permit)
- Attachment C (2015 Emissions Updates for R-Board Landfill and Ameresco Stafford, LLC.)

ATTACHMENT A

The following table shows a comparison of the permit emission limits for the stationary source, which consists of R-Board Landfill (Reg. #40946) and Ameresco Stafford, LLC. (Reg. #41050). The emission limits should not be added directly since the landfill gas can either all be burned by flares at the R-Board Landfill or else fired in the engines at Ameresco with any excess burned in the flares. The R-Board permit limit for landfill gas throughput is set at 550 million standard cubic feet per year (scf/yr), while Ameresco permit limits the engines to total 484 million scf/yr. However, using the rated engine capacity at 400 scf/min, the maximum throughput for both engines should be 421 million scf/yr with the rest (550 – 421 =) 129 million scf/yr flared. Adding the emissions contributions together gives the last column, as worst case emissions from the stationary source.

Comparison Table of Emission Limits for R-Board Landfill and Ameresco

Pollutant	R-Board Landfill		Ameresco	Highest Total Emissions (tons/yr) from Ameresco operated at full capacity and R-Board flaring rest of throughput limit (with tub grinder emissions added)
	Grinder	Flares	Engines	
	(tons/yr)	(tons/yr)	(tons/yr)	
PM-10	0.4	2.3	23.6	24.3
NO _x	2.5	9.4	31.5	35.9
SO ₂	0.002	2.1	7.0	7.5
CO	0.4	52.8	85.0	99.3
VOC	0.04	0.3	7.0	7.2

Therefore, emissions from a combined “single source” remain below major source levels. For administrative purposes, DEQ deals with the two facilities separately (under separate registration numbers) since they have different owners, equipment and responsibilities. However, for regulatory purposes, they are considered a single source and DEQ will track their combined emissions. The two facilities will be subject to the full Title V permit requirements once the major source threshold is exceeded for their combined emissions. (DEQ may separate the conditions of the Title V permit between the two facilities, each having its own part of the Title V permit, based on equipment and areas of responsibility, as preferred by the R-Board and Ameresco. However, even in such a case they will be evaluated in combination as a single source).

ATTACHMENT B

R-Board Landfill 5/19/2016 mNSR Permit



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193

(703) 583-3800 Fax (703) 583-3821

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

May 19, 2016

Mr. Keith C. Dayton
Deputy County Administrator
County of Stafford
P.O. Box 339
Stafford, Virginia 22555

Location: Stafford County
Registration No.: 40946

Dear Mr. Dayton:

Attached is a permit to construct and operate a municipal solid waste landfill that includes a diesel engine-driven tub grinder in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This permit supersedes your permit dated December 17, 2015.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on March 28, 2016.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to construct and operate shall not relieve the R-Board of the responsibility to comply with all other local, state, and federal permit regulations.

The municipal solid waste (MSW) landfill is subject to 40 CFR 63, Maximum Achievable Control Technology, (MACT) Subpart AAAA, and 40 CFR 60, New Source Performance Standard (NSPS), Subpart WWW. Also, the diesel engine for the tub grinder is subject to 40 CFR 63, MACT, Subpart ZZZZ. Virginia has accepted delegation of NSPS Subpart WWW and MACT Subpart AAAA for landfills but not MACT Subpart ZZZZ for diesel engines. In summary, the facility is required to comply with certain federal emission standards and operating limitations. The Department of Environmental Quality (DEQ) advises you to review the referenced MACT and NSPS to ensure compliance with applicable emission and operational limitations. As the owner/operator you are also responsible for any monitoring, notification, reporting and recordkeeping requirements of the MACT and NSPS. Notifications shall be sent to DEQ and EPA, Region III.



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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This permit supersedes your permit dated December 17, 2015.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Rappahannock Regional Solid Waste Management Board
(R-Board)
P.O. Box 339
Stafford, VA 22555

Registration No.: 40946

is authorized to construct and operate a

Municipal Solid Waste Facility and Landfill Gas Collection System

located at

489 Eskimo Hill Road
Stafford, Virginia 22554

in accordance with the Conditions of this permit.

Approved on May 19, 2016.

A handwritten signature in black ink, appearing to read "Thomas A. Faha", written over a horizontal line.

Thomas A. Faha
Regional Director

Permit consists of 18 pages.
Permit Conditions 1 to 45.

Equipment/Emission Units permitted prior to the date of this permit (continued):				
Reference No.	Equipment Description	Rated Capacity	Delegated Federal Requirements	Original Permit Date
001	Open flare (non-assisted), LFG Specialties model CF62114	800 scfm	40 CFR 60.18, NSPS subpart WWW, MACT subpart AAAA	11/19/2001
002	Open Candlestick flare (non-assisted), PEI model FL-1483	2000 scfm	40 CFR 60.18, NSPS subpart WWW, MACT subpart AAAA	8/12/2005

Reference No.	Equipment Description	Rated Capacity	Exemption Citation
B1	Fuel-oil fired furnace, Clean-Burn model 1750	0.17 million Btu/hr	9 VAC 5-80-1105 B.1.
B2	Fuel-oil fired furnace, Clean-Burn model 2500	0.25 million Btu/hr	9 VAC 5-80-1105 B.1.
B3	Fuel-oil fired furnace, Clean-Burn model 3500	0.35 million Btu/hr	9 VAC 5-80-1105 B.1.
T1	Above ground (Used Oil) fuel oil storage tank	1000 gallons	9 VAC 5-80-1105 B.4.
T2	Above ground fuel oil storage tank	500 gallons	9 VAC 5-80-1105 B.4.

Specifications included in the above tables are for informational purposes only and do not form enforceable terms or conditions of the permit.

PROCESS REQUIREMENTS

1. **Design Capacity** - The facility shall not accept more than 3.45 million megagrams (3.8 million tons) of municipal solid waste (MSW) for disposal at the landfill. An increase in the amount of waste accepted may require a new or amended permit. (9 VAC 5-80-1180 D).
2. **Landfill Gas (LFG) Collection and Control System Design Plan** - The permittee shall update the facility landfill gas (LFG) collection and control system design plan, which describes the management of LFG generated at the facility, including LFG generated from waste to be placed in Cell F-2. The design plan shall be prepared by a professional engineer and shall conform to the specifications for an active collection system as specified in Condition 3 of this permit. The design plan shall include any proposed alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of this permit. (9 VAC 5-80-1180, 9 VAC 5-50-400, and 9 VAC 5-50-410)
3. **LFG Collection and Control System: Design and Operational Standards** - The permittee shall operate a landfill gas (LFG) collection and control system which:

collection area and along a pattern that traverses the landfill at 30 meter interval and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. The permittee shall conduct surface testing along the design plan route and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, as stated in Condition 24.

(9 VAC 5-80-1180, 40 CFR 60.753 (d), and 9 VAC 5-50-410)

5. **Open Flare Requirements** - The open flare system (Ref. #001, 002) shall be designed and operated in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754 (e)). The nonassisted flares shall combust landfill gas with a net heating value of 200 Btu/scf or greater, and an exit velocity less than 60 ft/sec. Prior DEQ approval is required for the flares to be designed and operated with a higher exit velocity but less than 400 ft/sec, as specified in 40 CFR 60.18 (c) (4) (ii) or (iii), and based on calculation of higher net heating value and maximum permitted velocity, as stated in 40 CFR 60.18 (f) (3) – (6). Each flare shall be maintained and operated in accordance with the manufacturer's written instructions and recommendations. The open flare system shall be in operation when the landfill gas collection system is operating and landfill gas is routed to the flare(s). The open flare system shall be provided with adequate access for inspection.

(9 VAC 5-80-1180, 40 CFR 60.18 (c) (4), 9 VAC 5-50-410 and 9 VAC 5-50-260)

6. **Startup, Shutdown, and Malfunction Plan** - A "Startup, Shutdown and Malfunction" (SSM) Plan shall be developed and implemented for the facility to include Cell F-2 according to the provisions in 40 CFR 63.6(e)(3). The permittee shall develop the plan within 90 days of the permit issue date. A copy of the SSM plan must be maintained on site. Records and reports required by 40 CFR 63, Subpart AAAA, with respect to the SSM plan should include:

- a. Actions taken during a SSM event that are consistent with the SSM plan shall be recorded as required by §63.6(e)(3)(iii) and §63.10(b) and reported in the semi-annual SSM reports submit as required by §63.6(e)(3)(iii) and §63.10(d)(5). These reports are due on or before September 1st (for the semi-annual period of January through June) and March 1st (for the semi-annual period of July through December).
- b. Actions taken during a SSM event that are inconsistent with the SSM plan must be recorded, as required by §63.6(e)(3)(iv), and reported within 2 working days of the event, followed by a letter to the Administrator within 7 working days after the end of the event, in accordance with §63.10(d)(5). Any new actions that are indicated as appropriate during an SSM event shall be incorporated in a new SSM Plan.

(9 VAC 5-60-100, 40 CFR 63.1930 through 63.1990, 63.6(e)(3), and 40 CFR 63.10(b) & (d))

7. **Dust Emission Control** - Unless otherwise specified, dust emission controls shall include the following or equivalent as a minimum:

- a. Dust from grading, cell construction, waste compaction, application of daily cover, wood waste chipping operations, storage piles and traffic areas shall be controlled by wet suppression or equivalent (as approved by the DEQ) control measures.

- c. Following the procedures specified in 40 CFR 60.754 (b), the calculated (Non-Methane Organic Compounds) NMOC gas produced by the landfill shall be less than 23 megagrams per year on three successive test dates. The test dates shall be no less than ninety days apart, and no more than 180 days apart.

(9 VAC 5-80-1180, 9 VAC 5-50-400 and 9 VAC 5-50-410)

12. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the MSW landfill shall be constructed/modified and operated in compliance with the applicable requirements of 40 CFR 60 Subpart WWW and 40 CFR 63 Subpart AAAA.

(9 VAC 5-80-1180, 9 VAC 5-50-410, and 9 VAC 5-60-100)

13. **Tub Grinder Engine Operating Hours** - The tub grinder engine (Ref. # 005) shall not operate more than 500 hours per year, calculated monthly as the sum of each consecutive 12 month period. Compliance for the consecutive 12 month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

(9 VAC 5-80-1180)

14. **Tub Grinder Engine Fuel** - The approved fuel for the tub grinder engine (Ref. # 005) is diesel fuel. The diesel fuel shall meet the ASTM D975 specification for S15 diesel fuel oil with a maximum sulfur content per shipment of 0.0015%. A change in the fuel may require a new or amended permit.

(9 VAC 5-80-1180)

15. **Tub Grinder Engine Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the diesel fuel was received;
- c. The quantity of diesel fuel delivered in the shipment;
- d. A statement that the diesel fuel complies with the American Society for Testing and Materials specifications (ASTM D975) for S15 diesel fuel oil; and
- e. The sulfur content of the diesel fuel.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 14. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-1180)

one hour in which visible emissions shall not exceed 10% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction.
(9 VAC 5-80-1180)

CONTINUING COMPLIANCE DETERMINATION

20. **Stack Tests** - Upon request by the DEQ , the permittee shall conduct additional performance testing of the open flares (Ref. #'s 001, 002) to demonstrate compliance with the net heating value determination and exit velocity determination as stated in 40 CFR 60.754 (e). The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO.
(9 VAC 5-80-1200 and 9 VAC 5-50-30 G)
21. **Visible Emissions Evaluation** - Upon request by the DEQ, the permittee shall conduct visible emission evaluations of the open flares (Ref. #'s 001, 002) and tub grinder engine (Ref. # 005) to demonstrate compliance with the visible emission limits contained in this permit. The details of the VEE shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO.
(9 VAC 5-80-1200 and 9 VAC 5-50-30 G)
22. **Testing/Monitoring Ports** - The facility shall be constructed or modified so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Sampling ports shall be provided when requested by the DEQ at the appropriate locations and safe sampling platforms and access shall be provided.
(9 VAC 5-50-30 F and 9 VAC 5-80-1180)

MONITORING

23. **LFG Collection System Monitoring Requirements** - The operation of the gas collection system shall be monitored monthly as follows:
- a. Gauge pressure, each well.
 - b. LFG temperature, each active well.
 - c. Nitrogen concentration or oxygen concentration, each active well.
- (9 VAC 5-80-1180, 9 VAC 5-50-20 C, 9 VAC 5-50-400, and 9 VAC 5-50-410)
24. **LFG Collection Surface Monitoring Requirements** - To demonstrate compliance with the limit on methane concentration at the surface of the landfill as given in Condition 3.i (not to exceed 500 ppm above background), the landfill gas collection areas shall be monitored for methane according to the surface monitoring design plan, as stated in Condition 4, and in the following manner:

engine shall be observed by the owner with a frequency of not less than once each day the engine is operated. The owner shall record the hour readings observed in a log that shall be maintained on-site and made available to DEQ staff upon request.

Each monitoring device shall be installed, maintained, calibrated (as appropriate) and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the tub grinder engine is operating.

(9 VAC 5-80-1180 D)

CORRECTIVE ACTIONS

29. Positive Gauge Pressure at Well Head - If positive gauge pressure exists at any well head during the monthly monitoring required in Condition 23, action shall be initiated to correct the exceedance within five days, except under the following conditions: when there is a fire or increased well temperature; when an alternative pressure limit was established in the design plan as a result of the use of a geomembrane or synthetic cover; and directly after shutdown of a well. If a negative pressure cannot be achieved without excess air infiltration within fifteen days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedance of other operational or performance standards. An alternative schedule may be submitted to Regional Air Compliance Manager of the DEQ's NRO for approval. As long as the specified actions are taken, the exceedance(s) are not a violation of the operational requirements of this permit or 40 CFR 60.753.

(9 VAC 5-80-1180 D, 9 VAC 5-50-400, and 9 VAC 5-50-410)

30. Exceedance of Temperature and Oxygen or Nitrogen Standards at Active Well Head - If conditions at an active well head equal or exceed 55°C (131°F) and five percent oxygen concentration or twenty percent nitrogen concentration during the monthly monitoring required in Condition 23, action shall be initiated to correct the exceedance within five days. If correction of the exceedance cannot be achieved within fifteen days from the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause an exceedance of other operational or performance standards. An alternative schedule may be submitted to the Regional Air Compliance Manager of the DEQ's NRO for approval. As long as the specified actions are taken, the exceedance(s) are not a violation of the operational requirements of this permit or 40 CFR 60.753.

(9 VAC 5-80-1180 D, 9 VAC 5-50-400, and 9 VAC 5-50-410)

31. Exceedance of Landfill Surface Methane Emission Standard - If surface emissions of methane equal or exceed 500 parts per million above background during the quarterly monitoring required in Condition 24, actions shall be taken as follows:

- a. The location of each monitored exceedance shall be marked and the location recorded.

- b. Description, location, amount, and placement date of all non-degradable refuse including asbestos and demolition refuse placed in landfill areas which are excluded from landfill gas collection and control.
- c. A copy of the most recently updated gas collection and control system design plan (including Cells F-1 and F-2).
- d. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures listed in 40 CFR 60.759(a)(1).
- e. All decommissioned wells and supporting documentation to show the reason for decommissioning each well.
- f. Installation date, location and construction details of all newly installed vents, wells and flares.
- g. Map or plot showing each existing and planned well in the gas collection system with each well uniquely identified.
- h. Maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1), or by other means as approved by the Regional Air Compliance Manager of the DEQ's NRO.
- i. Total annual landfill gas flow to the open flares, recorded monthly, as the sum of each consecutive twelve-month period.
- j. Monthly well field results demonstrating compliance with Condition 23.
- k. Gas control system monitoring results demonstrating compliance with Condition 25.
- l. Value and length of time for exceedance of applicable parameters monitored under sections 40 CFR 60.756 (a), (b), (c), and (d) (also in permit Conditions 23 - 25).
- m. Specific corrective action(s) taken pursuant to Condition 29, 30, and 31, including date corrective action(s) was taken, date re-monitoring occurred and re-monitoring result(s).
- n. All occurrences of the LFG collection or control system shut down that are greater than or equal to one hour in duration. These records shall include date, duration of time, and reason the system was inoperable.
- o. A copy of the most recent surface methane monitoring design plan (including Cells F-1 and F-2).
- p. Results of quarterly surface monitoring demonstrating compliance with Condition 24.
- q. A copy of the facility SSM plan, as required by 40 CFR 63, Subpart AAAAA.

- f. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755 (a) (3), (b), and (c) (4); or added as part of the expansion of the collection system associated with new Cells F-1 and F-2;
- g. SSM Plan Report, as stated in Condition 6 and 40 CFR 63.1980.

The semi-annual reports shall cover the two semi-annual periods (January through June and July through December) of each calendar year. One copy of the reports shall be submitted to U.S. Environmental Protection Agency at the following address:

Associate Director
Office of Air Enforcement (3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

The semi-annual report, to include 40 CFR 63 NESHAP Subpart AAAA reports (Subsection 63.1930), shall be submitted by March 1 and September 1 of the calendar year.
(9 VAC 5-80-1180, 9 VAC 5-50-400, 9 VAC 5-50-410, 9 VAC 5-60-90, and 9 VAC 5-60-100)

- 35. **Closure Report** - The permittee shall submit a closure report to the Regional Air Compliance Manager of the DEQ's NRO, within thirty days of the date the landfill stopped accepting municipal solid waste as required by 40 CFR 60, Subpart WWW.
(9 VAC 5-50-50 and 9 VAC 5-50-410)
- 36. **Control Equipment Removal Report** - The permittee shall submit an equipment removal report to the Regional Air Compliance Manager of the DEQ's NRO, at least thirty days prior to the removal or cessation of operation of the control equipment.
(9 VAC 5-50-50, 9 VAC 5-50-40, and 9 VAC 5-50-410)

GENERAL CONDITIONS

- 37. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:
 - a. Knowingly makes material misstatements in the permit application or any amendments to it;
 - b. Fails to comply with the conditions of this permit;
 - c. Fails to comply with any emission standards applicable to a permitted emissions unit;
 - d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or

equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.

(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

40. Record of Malfunctions - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.

(9 VAC 5-20-180 J and 9 VAC 5-80-1180 D)

41. Notification for Facility or Control Equipment Malfunction - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone, email or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO.

(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

42. Notification for Control Equipment Maintenance - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO in case of shutdown or bypassing, or both, of air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour. The intent to shut down or bypass such equipment shall be reported to the Regional Air Compliance Manager of the DEQ's NRO and local air pollution control agency, if any, at least twenty-four hours prior to the planned shutdown. Such prior notice shall include, but is not limited to the following information:

- a. Identification of air pollution control equipment to be taken out of service, as well as its location and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollution likely to occur during the shutdown period; and
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.

(9 VAC 5-20-180 B)

ATTACHMENT C

2015 Emissions Inventory Updates for
R-Board Landfill (Reg. #40946), and
Ameresco Stafford, LLC. (Reg. #41050)

Site: Rappahannock Regional Solid Waste Management Board (40946)

489 Eskimo Hill Rd, Stafford, VA 22554

- General
- Permits
- Emissions**
- Inspections
- Enforcement
- Requirements
- Events
- Contacts
- Targeting Data
- Financials

Site Emissions

Site Information

Emission Year Status

Release Points

Units

Processes

Emissions Drill Down

Road Map

2015 Emission Year Review

Final

Permit Limits Complete and Current

Reset Status to Draft

Last Active Permit: 12/17/2015

Last AUR: 01/12/2016

Permit Limits Complete & Current By: TWPAGE @
03/22/2016 9:49 AM

Data Entry Completed By: TWPAGE @ 03/18/2016 7:35 AM

AUR Review Completed By: TWPAGE @ 03/22/2016 9:49 AM

Update Comments

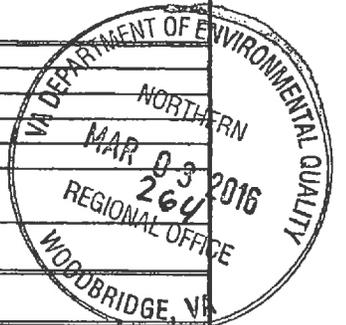
Filter:

Review Flags

No review flags generated or AUR data entry not complete.

CEDS
JWP 3-22-16

3/1/2016, 7:19 AM		Commonwealth of Virginia Department of Environmental Quality Annual Update Report for Calendar Year: 2015	
Registration No.	40946	Office:	Northern Regional Office
Site Name:	Rappahannock Regional Solid Waste Management Board	County / City:	Stafford County 179
Physical Location:	489 Eskimo Hill Rd, Stafford, VA 22554	NAICS:	Solid Waste Landfill 562212
Mailing Address:	1300 Courthouse Rd PO Box 339 Stafford, VA 22555-0339	Employees:	18
Annual Update Report Contact:	Jason Pauley Phone: (540) 658-4224 Email: jpauley@staffordcountyva.gov	Inspector:	Tadric Page Phone: (703) 583-3929
Billing Contact:	Phone: Email:	Classification:	Synthetic Minor



Process Data

CEDS ID (RelPt-Unit-Process)	Process Description	Annual Throughput Annual Throughput by Season (%)				Fuel Data					
		CY 2014		CY 2015		Sulfur (Wt%)		Ash (Wt%)		Heat Content (MMBtu/unit)	
		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	CY 2014	CY 2015	CY 2014	CY 2015	CY 2014	CY 2015
1-1-1	LFG Combustion-Flares 1&2	313		337*		MILLION CUBIC FEET BURNED					
		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov						
		25	25	25	25	CY 2014					
Unit Ref ID: 1		25%	25%	25%	25%	CY 2015					
1-1-2	Fugitive Landfill Gas	131		114.3*		MILLION CUBIC FEET PROCESSED					
		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov						
		25	25	25	25	CY 2014					
Unit Ref ID: 1		25%	25%	25%	25%	CY 2015					
1-2-1	Accumulation of MSW	120223		129000		Tons Handled					
		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov						
		25	25	25	25	CY 2014					
Unit Ref ID: 2		25%	25%	25%	25%	CY 2015					

During the reporting period, have changes or corrections occurred? Yes No
 If yes, briefly explain:

* In order to properly calculate the fugitive landfill gas amount for the facility, the combustion quantity reported above is inclusive of the combustion amounts generated by the LFGTE facility, Amerasco Stafford, LLC, collocated with the facility's flare station.

Based on the data you are reporting, are you aware of any potential air permit violations? Yes No
 If yes, briefly explain:

Document Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print) Keith C. Dayton

Title Deputy County Administrator

Signature Keith C. Dayton Date 3/1/2016

Must be signed by a Responsible Official as defined in 9 VAC 5-20-230 of the Regulations for the Control and Abatement of Air Pollution, available at: <http://www.deq.virginia.gov/>

Run Date: 07/05/2016 09:21 AM

Commonwealth of Virginia
Department of Environmental Quality

Registration Number: 40946

Site Name: Rappahannock Regional Solid
Waste Management Board**ROAD MAP REPORT**

Inventory Year: 2015

Release Point #: 1 LFG Collection & Control

Unit #: 1 (1) Flares 1 & 2

Process#: 1 LFG Combustion - Flare 1 (LFG model CF62114)
 SCC: 50100410 - Waste Gas Destruction: Waste Gas Flares
 Throughput: 0 (MILLION CUBIC FEET BURNED) Limit: 20 (Million Cubic Feet Burned)

	<u>Factor</u>	<u>Emissions</u>
Carbon Monoxide	375 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Nitrogen Oxide	20 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Particulate Matter 10	8.50 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Particulate Matter 2.5	8.50 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Sulfur Dioxide	7.69 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Volatile Organic Compounds	0.96 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Chlorine		0 tons/yr
Hydrochloric acid (hydrogen chloride [gas only])	3.92 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Methyl chloroform (1,1,1-Trichloroethane)		0 tons/yr
Methylene chloride (Dichloromethane)		0 tons/yr
Tetrachloroethylene (Perchloroethylene)		0 tons/yr
Acrylonitrile		0 tons/yr
Benzene		0 tons/yr
Toluene		0 tons/yr
Trichloroethylene		0 tons/yr
Vinyl chloride		0 tons/yr
Total Non-methane Org Cmpds	2.47 lbs/MILLION CUBIC FEET BURNED	0 tons/yr
Total reduced sulfur		0 tons/yr

Process#: 2 LFG Combustion - Flare 2 (PEI model FL-1483)
 SCC: 50100410 - Waste Gas Destruction: Waste Gas Flares

Throughput: 141.2 (MILLION CUBIC FEET BURNED) Limit: 550 (Million Cubic Feet Burned)

	<u>Factor</u>	<u>Emissions</u>
Carbon Monoxide	185 lbs/MILLION CUBIC FEET BURNED	13.061 tons/yr
Nitrogen Oxide	34 lbs/MILLION CUBIC FEET BURNED	2.4004 tons/yr
Particulate Matter 10	8.50 lbs/MILLION CUBIC FEET BURNED	0.6001 tons/yr
Particulate Matter 2.5	8.50 lbs/MILLION CUBIC FEET BURNED	0.6001 tons/yr
Sulfur Dioxide	7.69 lbs/MILLION CUBIC FEET BURNED	0.542914 tons/yr
Volatile Organic Compounds	51 lbs/MILLION CUBIC FEET BURNED	0.072012 tons/yr
Chlorine		0 tons/yr
Hydrochloric acid (hydrogen chloride [gas only])	3.92 lbs/MILLION CUBIC FEET BURNED	0.276752 tons/yr
Methyl chloroform (1,1,1-Trichloroethane)		0 tons/yr
Methylene chloride (Dichloromethane)		0 tons/yr
Tetrachloroethylene (Perchloroethylene)		0 tons/yr
Acrylonitrile		0 tons/yr
Benzene		0 tons/yr
Toluene		0 tons/yr
Trichloroethylene		0 tons/yr
Vinyl chloride		0 tons/yr
Total Non-methane Org Cmpds	131 lbs/MILLION CUBIC FEET BURNED	0.184972 tons/yr
Total reduced sulfur		0 tons/yr

Unit #: 2 (2) Municipal Landfill

Process#: 1 Accumulation of MSW
 SCC: 30300003 - Fine Ore Storage
 Throughput: 129000 (Tons Handled) Limit: None

	<u>Factor</u>	<u>Emissions</u>
Volatile Organic Compounds		0 tons/yr

Process#: 2 Fugitive Landfill Gas
 SCC: 50100406 - Gas Collection System: Other
 Throughput: 114.3 (million cubic ft gas) Limit: None

	<u>Factor</u>	<u>Emissions</u>
Volatile Organic Compounds	51 lbs/million cubic ft gas	2.91465 tons/yr
Total Non-methane Org Cmpds	131 lbs/million cubic ft gas	7.48665 tons/yr

Release Point #: 2 Tub grinder engine exhaust

Unit #: 5 (005) Tub grinder engine

Process#: 1 Diesel engine tub grinder
 SCC: 20300101 - Reciprocating
 Throughput: 102 (hours of operation) Limit: 500 (Hours of Operation)

	<u>Factor</u>	<u>Emissions</u>
Carbon Monoxide	1.50 lbs/hours of operation	0.0765 tons/yr
Nitrogen Oxide	10.10 lbs/hours of operation	0.5151 tons/yr
Particulate Matter 10	0.80 lbs/hours of operation	0.0408 tons/yr
Particulate Matter 2.5	0.50 lbs/hours of operation	0.0255 tons/yr
Volatile Organic Compounds	0.17 lbs/hours of operation	0.00867 tons/yr

Total Emissions by Pollutant:

<u>Pollutant</u>	<u>Emission Total (tons/yr)</u>
Acrylonitrile	0
Benzene	0
Carbon Monoxide	13.1375
Chlorine	0
Hydrochloric acid (hydrogen chloride [gas only])	0.276752
Methyl chloroform (1,1,1-Trichloroethane)	0
Methylene chloride (Dichloromethane)	0
Nitrogen Oxide	2.9155
Particulate Matter 10	0.6409
Particulate Matter 2.5	0.6256
Sulfur Dioxide	0.542914
Tetrachloroethylene (Perchloroethylene)	0
Toluene	0
Total Non-methane Org Cmpds	7.671622
Total reduced sulfur	0
Trichloroethylene	0
Vinyl chloride	0
Volatile Organic Compounds	2.995332

CEDSAir

Quick Search

All Modules ▾

4:36 PM
03/10/2016

Home Facility Search / Ameresco Stafford LLC / Ameresco Stafford LLC - LFGTE... (servlet?config=prod) Help

Site: Ameresco Stafford LLC - LFGTE Facility (41050) 489 Eskimo Road, Stafford, VA 22554

- General
- Permits
- Emissions**
- Inspections
- Enforcement
- Requirements
- Events
- Contacts
- Targeting Data
- Financials

Site Emissions

Emission Year Status

Site Information

Release Points

Units

Processes

Emissions Drill Down

Road Map

2015 Emission Year Review

2015 ▾

Final

Permit Limits Complete and Current

Last Active Permit: 03/27/2015

Last AUR: 02/22/2016

Reset Status to Draft

Permit Limits Complete & Current By: TWPAGE @ 03/10/2016 4:32 PM

Data Entry Completed By: TWPAGE @ 03/10/2016 4:32 PM

Comments

Update Comments

Permit Condition 5 specifies a combined fuel throughput limit (both units combined). CEDS does not provide for individual throughput limit entries; therefore, throughput limit specified for Unit 1 only.
TWP 3/10/16

Filter:

Review Flags

CEDS Trp
3-10-16



2/24/2016, 3:40 PM

Commonwealth of Virginia
Department of Environmental Quality
Annual Update Report for Calendar Year: 2015

Registration No.	41050	Office:	Northern Regional Office
Site Name:	Ameresco Stafford LLC - IFGTE Facility	County / City:	Stafford County 179
Physical Location:	489 Eskimo Road, Stafford, VA 22554	NAICS:	Other Electric Power Generation 221119
Mailing Address:	111 Speen Street Suite 410 Framingham, MA 01701	Employees:	
Annual Update Report Contact:	Sarah Simon Phone: (508) 662-2231 Email: sasimon@ameresco.com	Inspector:	Tadric Page Phone: (703) 583-3929
Billing Contact:	Phone: Email:	Classification:	True Minor

Process Data

CEDS ID (Rept-Unit- Process)	Process Description	Annual Throughput Annual Throughput by Season (%)				Fuel Data					
		CY 2014		CY 2015		Sulfur (Wt%)		Ash (Wt%)		Heat Content (MMBtu/unit)	
		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	CY 2014	CY 2015	CY 2014	CY 2015	CY 2014	CY 2015
1-1-1	Ref No. 1 GE Jenbacher Genset JGS 320 GS - L.L.	109.77	105.23	Units: Million Cubic Feet Burned							
	Unit Ref ID: 1	10	25	27	38						
		24%	36%	30%	10%						
1-1-2	Ref No. 2 GE Jenbacher Genset	55.46	90.14	Units: Million Cubic Feet Burned							
	Unit Ref ID: 1	10	25	27	38						
		22%	25%	40%	13%						

During the reporting period, have changes or corrections occurred? Yes No
If yes, briefly explain:

Based on the data you are reporting, are you aware of any potential air permit violations? Yes No
If yes, briefly explain:

Document Certification
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print) Nathan Hall
Title Director, Plant Operations

Signature [Signature] Date 2/24/16

Must be signed by a Responsible Official as defined in 9 VAC 5-20-230 of the Regulations for the Control and Abatement of Air Pollution, available at: <http://www.deq.virginia.gov/>



111 Speen Street, Suite 410
Framingham, MA 01701

P: 508 661 2200
F: 508 661 2201

ameresco.com

February 26, 2016

Mr. Justin Wilkinson
Virginia Department of Environmental Quality
Northern Regional Office
13901 Crown Ct
Woodbridge, VA 22193



Re: Ameresco Stafford LLC 2015 Annual Update Form (Reg. No. 41050)

Dear Mr. Wilkinson:

Ameresco Stafford LLC is submitting our 2015 Annual Update Form covering landfill gas throughput during calendar year 2015. Should you have comments or need more information on this report, please contact me at (508) 661-2242 or amcclelland@ameresco.com.

Ameresco Stafford LLC;
By: Ameresco LFG Holdings III LLC, Its Sole Member
By: Ameresco, Inc. Its Sole Member

By: Andrew J. McClelland
Environmental Compliance Specialist

Attachment: 2015 Annual Update Form



Run Date: 07/05/2016 09:22 AM

Commonwealth of Virginia
Department of Environmental Quality

Registration Number: 41050

Site Name: Ameresco Stafford LLC -
LFGTE Facility

ROAD MAP REPORT

Inventory Year: 2015

Release Point #: 1	GE Jenbacher Genset JGS 320 GS - L.L.
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Unit #: 1 (1)	GE Jenbacher Genset JGS 320 GS - L.L.
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Process#: 1	Ref No. 1 GE Jenbacher Genset JGS 320 GS - L.L. SCC: 20100802 - Reciprocating Throughput: 105.23 (Million Cubic Feet Burned) Limit: 484 (Million Cubic Feet Burned)
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	<u>Factor</u>	<u>Emissions</u>
Carbon Monoxide	80.17 lbs/Million Cubic Feet Burned	4.21814455 tons/yr
Nitrogen Oxide	130.17 lbs/Million Cubic Feet Burned	6.84889455 tons/yr
Particulate Matter 10	22.31 lbs/Million Cubic Feet Burned	1.17384065 tons/yr
Sulfur Dioxide	14.46 lbs/Million Cubic Feet Burned	0.7608129 tons/yr
Volatile Organic Compounds	14.46 lbs/Million Cubic Feet Burned	0.7608129 tons/yr

Process#: 2	Ref No. 2 GE Jenbacher Genset SCC: 20100802 - Reciprocating Throughput: 90.14 (Million Cubic Feet Burned) Limit: None
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	<u>Factor</u>	<u>Emissions</u>
Carbon Monoxide	80.17 lbs/Million Cubic Feet Burned	3.6132619 tons/yr
Nitrogen Oxide	130.17 lbs/Million Cubic Feet Burned	5.8667619 tons/yr
Particulate Matter 10	22.31 lbs/Million Cubic Feet Burned	1.0055117 tons/yr
Sulfur Dioxide	14.46 lbs/Million Cubic Feet Burned	0.6517122 tons/yr
Volatile Organic Compounds	14.46 lbs/Million Cubic Feet Burned	0.6517122 tons/yr

Total Emissions by Pollutant:

<u>Pollutant</u>	<u>Emission Total (tons/yr)</u>
Carbon Monoxide	7.83140645
Nitrogen Oxide	12.71565645
Particulate Matter 10	2.17935235