COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Valley Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Rockingham County Landfill
Harrisonburg, Virginia
Permit No. VRO-81569

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, Rockingham County Department of Public Works has applied for a Title V Operating Permit for the Rockingham County Landfill in Harrisonburg, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: *Signed original* Date: *6/27/12*
Jeremy W. Funkhouser
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Air Permit Manager: *Signed original* Date: *6/27/12*
Janardan R. Pandey, P.E.

FACILITY INFORMATION

Permittee
Rockingham County Department of Public Works
20 East Gay Street
Harrisonburg, Virginia 22801

Facility
Rockingham County Landfill
2400 Grassy Creek Road
Harrisonburg, Virginia 22803

County Plant Identification Number: 51-165-0222

SOURCE DESCRIPTION

NAICS Code 562212 (Refuse Systems)

The Rockingham County Landfill is a municipal solid waste management (MSW) facility located at 2400 Grassy Creek Road (Route 711) in Rockingham County, east of Interstate 81. The landfill is owned and operated by the Rockingham County Department of Public Works. The landfill site is partially in Rockingham County (144 acres) and partially in the City of Harrisonburg (83 acres), receiving waste from both areas.

The landfill site (Solid Waste Permit 62) consists of six phases. "Old Fill Part 1" consisted of approximately 420,000 cubic yards and was active from 1972-1980. "Old Fill Part 2" consisted of approximately 3,052,000 cubic yards and was active from 1981-2001. "Phase 1" consisted of approximately 745,000 cubic yards and was active from 2001-2005. "Phase 2" consists of approximately 835,000 cubic yards and is currently active. On August 17, 2007, the minor NSR permit was modified to add "Phase 3" and "Phase 4" with approximately 1,210,000 and 454,000 cubic yards, respectively. For air permitting purposes, all phases of the landfill are considered a single waste disposal facility since the phases are contiguous and have the same owner.

The landfill contains an active gas collection and control system (GCCS) in two of the existing phases of the landfill, "Old Fill Part 1" and "Old Fill Part 2," which includes gas collection wells, and header lines leading to an on-site pollution control device, a landfill gas-fired utility flare. The LFG collection system is installed progressively as the phases are filled in and a final cap is applied. After capping, gas extraction wells are drilled and emission collection lines are installed. In 1999, 9 VAC 20-80-280 of the solid waste regulations required the facility to install a LFG collection system for the purposes of managing the lower explosive limit of the landfill gasses, reducing lateral landfill gas migration, and providing odor control. The flare automatically re-ignites, operates continuously, and utilizes propane as an auxiliary fuel. The facility's volatile organic compound (VOC) and non-methane organic compound (NMOC) emissions are uncontrolled as there are no federally enforceable requirements for the facility to control emissions.

According to the amended minor NSR permit application, the combined four phases of the existing landfill have a design capacity of 2,178,173 Megagrams (Mg), and the two recently permitted phases will increase the design capacity by 717,046 Mg (based on 950 lbs/cubic yard) with a total designed capacity of 2,895,219 Mg and 6,716,000 cubic yards (5,134,750 cubic meters). A design capacity report and Tier 1 NMOC Emission Rate Report, dated September 14, 2007, was received by the DEQ on September 18, 2007; a copy of the amended design capacity report is provided in Attachment A.

Since the permitted design capacity of the Rockingham County Landfill is greater than 2.5 million m^3 and 2.5 million megagrams, and the landfill was modified after May 30, 1991, the landfill is regulated according to New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (40 CFR 60 Subpart WWW). As stated in 40 CFR §60.752 (b), landfills above the 2.5 million m^3 and 2.5 million megagrams design capacity are subject to Title V permitting requirements.

MSW landfills with a design capacity greater than or equal to 2.5 million m^3 and 2.5 million Mg with estimated uncontrolled NMOC emissions equal to greater than 50 Mg/yr are subject to Maximum Achievable Control Technology (MACT) Standard (40 CFR Part 63, Subpart AAAA) for Municipal Solid Waste Landfills. The permitted design capacity of the Rockingham County Landfill is greater than 2.5 million m^3 and 2.5 million megagrams, and Rockingham County Landfill estimated that their annual NMOC emissions are over 50 Mg/yr using Tier 1 procedures; as a result, the facility is subject to 40 CFR 63, Subpart AAAA.

On September 14, 2007, SCS Engineers, on behalf of Rockingham County Department of Public Works, estimated that the annual NMOC emissions are over 50 Mg/yr using Tier 1 procedures. As a result of Tier 1 estimates, the facility conducted Tier 2 testing in January 2008 to determine the site-specific NMOC concentration. On May 16, 1995, the Environmental Protection Agency (EPA) published a memorandum for sources subject to MACT standards. The memo outlines a "once in, always in" interpretation of the MACT standard, requiring major HAP sources to comply permanently with the MACT standards, to ensure that maximum achievable reductions in toxic emissions are achieved and maintained. The MACT, Subpart AAAA compliance date for existing affected sources was January 16, 2004. Since the Tier 2 test date was after the MACT compliance date (January 16, 2004), the facility is subject to the MACT according to the "once in, always in" memorandum on MACT standards. The final MACT rule required that an existing landfill comply with the NSPS (40 CFR 60 Subpart WWW) at that time (the compliance date of 1/16/04). Compliance with the *additional* requirements of the final rule (those over and above the NSPS requirements) is required by January 16, 2004, or the date the source is required to install a collection and control system by the NSPS, whichever is later. The permit includes the requirements for the permittee to comply with all operational, monitoring, recordkeeping, reporting, and testing requirements of the MACT, Subpart AAAA. Please note no action under the MACT is triggered until the permittee is required to install a collection and control system, as provided in the NSPS, Subpart WWW. Although the facility owns and operates a utility flare, there are currently no NSPS, Subpart WWW or MACT, Subpart AAAA requiring its use.
This source is located in an attainment area for all pollutants. The PSD major source threshold level is 250 tons per year (tpy) for any regulated pollutant. The potential emissions of each

regulated pollutant from the facility fall below this threshold; therefore, this facility is not subject to permitting requirements under 9 VAC 5 Chapter 80, Article 8. The maximum potential emissions are from the year 2013; the filling of all proposed phases is estimated to be complete in 2012 and final caps will be in place. Potential emissions from the landfill (LF01) are calculated using the LandGEM model with the AP-42 specified NMOC concentration of 595 ppmv, as a conservative estimate:

Table I: Potential Emissions from the Landfill (2013)

2013 Pollutant Emissions (Landfill Total)	
Pollutant	Annual Tons Emitted
Criteria Pollutants	
PM-10	1.7
VOC	12.695
NO_x	--
CO	2.489
SO_2	2.20
TRS	0.955
H_2S	0.779
Non Methane Organic Compounds (NMOC)	
NMOC	32.55
Hazardous Air Pollutants (HAP)	
Total HAP	17.15

Rockingham County Landfill accepts construction demolition debris (CDD) dispersed with municipal solid waste (MSW) throughout the active cells; there is no separate area for CDD. The breakdown of wall board, composed of calcium sulfate, in the presence of decomposable organic matter and water, can produce Hydrogen Sulfide (H_2S). Emissions of SO_2 and H2S from the landfill were calculated using AP-42 emission factors; the calculations indicate that the PTE for SO_2 and H_2S are 2.2 tons/yr and 0.78 tons/yr, respectively.

The facility also operates a utility flare to reduce lateral landfill gas migration and provide odor control. The LFG collection system is installed progressively as the phases are filled in and a final cap is applied. After capping, gas extraction wells are drilled and emission collection lines are installed.

Potential emissions from the utility flare are provided in Table II; emissions are based on the maximum rated capacity of the flare.

Table II: Potential Emissions from the Utility Flare

Flare Emissions [1]	
Pollutant	Annual Tons Emitted
PM-10	3.3
SO_2	2.7
NO_X	13.3
CO	72.8
VOC	0.4

[1] Potential Flare emissions represent LFG collection from the entire landfill and are estimated at the design capacity of the flare.

Additional information on the utility flare calculations is provided in Attachment E. The facility is currently permitted under a Minor NSR Permit issued on August 17, 2007.

Table III: Total Potential Emissions

Pollutant	Tons Emitted
Criteria Pollutants	
PM-10	5.00
VOC	13.09
NO_x	13.3
CO	75.29
SO_2	4.9
TRS	0.955
H_2S	0.779
Non Methane Organic Compounds (NMOC)	
NMOC	32.55
Hazardous Air Pollutants (HAP)	
Total HAP	17.15

The PSD major source threshold level is 250 tons per year (tpy) for any regulated criteria pollutant. The potential emissions of each regulated criteria pollutant from the facility fall below this threshold; therefore, this facility is not subject to PSD permitting requirements for criteria pollutants under 9 VAC 5 Chapter 80, Article 8, as shown above in Table III. Criteria pollutant emissions from the landfill are below the Major New Source Review (NSR) levels; therefore major NSR permitting does not apply to the Rockingham County Landfill at this time. Additional information is available in the LandGEM emission summary provided in Attachment D, and the Utility Flare Calculations in Attachment E.

In addition to the pollutants above, emissions of greenhouse gases (GHG) were evaluated for PSD and Title V applicability. To determine if the source is a PSD or Title V source for greenhouse gases (GHG), the mass basis and carbon dioxide equivalent (CO_{2e}) approach were used to calculate emissions to show "existing conditions", as outlined in Appendix D of the EPA manual, *PSD and Title V Permitting Guidance for Greenhouse Gases*.

Under the PSD program the definition of *Major Stationary Source*, as defined in 9 VAC 5-80-1615 C, subsection "c" of the definition, excludes fugitive emissions of a stationary source in determining whether it is a major stationary source. A similar definition of Major Source for Title V purposes is defined in 9 VAC 5-80-60 C, subsection "b." Fugitive emissions are "those emissions that could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening" (9 VAC 5-80-1615 C and 9 VAC 5-80-60 C). For MSW landfills EPA has determined, as provided in an October 21, 1994 policy memorandum, that LFG which cannot reasonably be collected is considered fugitive, while LFG that can reasonably collected is not considered fugitive even if it is not currently being collected.

Additionally, in June 2011, the EPA deferred, for a period of three years, the application of PSD and Title V permitting requirements to carbon dioxide (CO2) emissions from biogenic stationary sources. Biogenic CO2 is defined as emissions of CO2 resulting from the combustion or decomposition of biologically-based materials other than fossil fuels and mineral sources of carbon.

In the NSPS Subpart WWW, the EPA directs landfills to utilize AP-42 when calculating emissions for PSD purposes. In AP-42, Section 2-4 (11/98), the EPA provides direction on how to estimate landfill emissions and stipulates that, in lieu of site-specific data regarding collection efficiency, an average efficiency of 75 percent should be used. This means that at a landfill with no gas collection 75 percent of the generated gas can be reasonably collected, while 25 percent cannot be reasonably collected and is fugitive.

Under the approach outlined above, (maximum) potential emissions from the facility are examined to determine if the facility is currently a PSD or Title V source for GHG. Using the current methane generation rate, and waste acceptance data provided by the facility, and the assumption that 25 percent of the gas generated is fugitive, emissions were calculated using the LandGEM model (ver. 3.02).

To determine if the source is a PSD source for greenhouse gases (GHG) the mass basis emissions must be greater than 250 tons/yr <u>and</u> carbon dioxide equivalent (CO_{2e}) emissions must be greater than 100,000 tons/yr, as outlined in Appendix D of the EPA manual, *PSD and Title V Permitting Guidance for Greenhouse Gases*. A summary of the GHG emissions, including both the mass basis and CO_{2e} basis, are provided in Table IV.

Table IV: Greenhouse Gas Emissions for PSD Applicability

Pollutant	Mass Basis (tons/yr)	CO_{2e} (tons/yr)	PSD Thresholds		Subject to PSD?
			Mass Basis (tons/yr)	CO_{2e} (tons/yr)	
Methane (GHG / CO_{2e})	3,818	80,185	250	100,000	**No**

Table V below shows the combined emissions for Title V applicability are provided on both a mass basis and CO2e basis, as required by the two step process from the Tailoring Rule.

Table V: Greenhouse Gas Emissions for Title V Applicability

Pollutant	Mass Basis (tons/yr)	Mass Basis Threshold (tons/yr)	CO_{2e} Basis (tons/yr)	CO2e Basis Threshold (tons/yr)	Subject to Title V?
Methane (GHG / CO_{2e})	3,818	100	80,185	100,000	**No**

Greenhouse Gas calculations for Title V and PSD applicability are provided in Attachment H.

COMPLIANCE STATUS

A full compliance evaluation has not been completed. A partial compliance inspection was performed on April 24, 2009 to observe a required Visible Emissions Evaluation of their utility flare. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. 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:

Table VI: Significant Emission Units

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
Landfills							
LF01	-	MSW Landfill	2.895 million Mg	-	-	-	08/17/2007 Permit
Landfill Roads							
02	-	Landfill Roads	-	-	-	-	08/17/2007 Permit
Fuel Burning Equipment							
F01	-	Utility Flare	1,362 scfm	-	-	NMOC and VOC	08/17/2007 Permit

EMISSIONS INVENTORY

The Rockingham County Landfill consists of six "phases" and is covered under the Department of Environmental Quality (DEQ) Solid Waste Permit 62. The six phases are divided as such: Old Fill Part 1 consisted of approximately 420,000 cubic yards and was active from 1972-1980; Old Fill Part 2 consists of approximately 3,052,000 cubic yards and was active from 1981-2001; Phase 1 consists of approximately 745,000 cubic yards and was active from 2001-2005; Phase 2 consists of approximately 835,000 cubic yards and is currently active, having been constructed in 2004; Phase 3 was added in late 2007 and consists of approximately 1,210,000 cubic yards; and Phase 4, also added in late 2007, consists of approximately 454,000 cubic yards. For air permitting purposes, all phases of the landfill (Solid Waste Permit 62) are considered a single waste disposal facility since the landfill area is contiguous and has the same owner. A mixture of municipal solid waste and waste from construction, demolition, and debris is accepted by the facility. Hydrogen sulfide (H_2S) emissions from the facility, along with sulfur dioxide (SO_2) emissions from the facility were calculated using AP-42, Section 2.4 (11/98) emission factors. Potential emissions from the landfill, based on the projected size and waste acceptance rate after the August 2007 expansion, will occur in the year 2013, as shown above in Table I.

Maximum potential emissions from the landfill, based on Tier 1 data, are summarized in Table I above; estimated emissions using the LandGEM model with site specific NMOC concentration, established from the Tier 2 testing in March 2008, for emission estimates for 2010 are provided in Table VII, below:

Table VII: 2010 Annual Emissions (Landfill)

2011 Pollutant Emissions (Landfill)	
Pollutant	Tons Emitted
Criteria Pollutants	
PM-10	-
VOC	7.33
NO_x	-
CO	2.19
SO_2	1.68
TRS	0.84
H_2S	0.69
Non Methane Organic Compounds (NMOC)	
NMOC	18.79
Hazardous Air Pollutants (HAP)	
Total HAP	15.09

In addition to emissions from the MSW and CDD at the landfill, the facility also operates a utility flare; emissions from the utility flare for 2010 are based on the annual throughput of landfill gas provided by the facility. Emissions from the utility flare are provided in Table VIII, below:

Table VIII: 2010 Annual Emissions (Utility Flare)

Flare Emissions	
Pollutant	Annual Tons Emitted
PM-10	2.86
SO_2	1.35
NO_X	4.89
CO	26.72
VOC	0.26

A copy of the 2010 Annual Update and Consolidated Plant Emissions Report is provided in Attachment G; a copy of the LandGEM model using Tier 2 testing results is available in Attachment D.

EMISSION UNIT APPLICABLE REQUIREMENTS – MSW LANDFILL (LF01)

Limitations

Rockingham County Landfill is subject to 40 CFR 60, Subpart WWW - New Source Performance Standards (NSPS), and 40 CFR 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills. The following limitations are state BACT and/or other applicable requirements from the minor NSR permit dated August 17, 2007, which includes requirements that are based on 40 CFR Part 60, Subpart WWW and 40 CFR 63, Subpart AAAA. The condition numbers are from the permit dated August 17, 2007; a copy of the permit is enclosed as Attachment C.

Condition 2: design capacity shall not exceed 2.895 million megagrams and 5.135 million cubic meters

Condition 3: landfill gas (LFG) collection and control system requirements in the event NMOC emission rate would ever be equal to or greater than 50 Mg/yr.

Condition 10: the MSW landfill shall be operated in compliance with the requirements of 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA.

Condition 23: the LFG collection and control system design plan submittal requirement in the event landfill gas (LFG) collection and control system is required.

Condition 24: solid waste permit amendment requirement in the event landfill gas (LFG) collection and control system is required.

The MACT (40 CFR 63, Subpart AAAA) and NSPS (40 CFR 60, Subpart WWWW) requirements as provided in Condition 10 of the minor New Source Review (NSR) permit have been incorporated. In addition the Visible Emission Limits and the Visual Survey Requirements, Conditions 13 and 18, respectively, of the Minor NSR permit, are included in the facility-wide section.

Being subject to the NSPS means that Rockingham County Landfill is also subject to 40 CFR 60, Subpart A - General Provisions. All applicable limitations from Subparts A and WWW have been included in the permit. Note that Condition 3 does not currently require the facility to install a LFG collection and control system. However, Condition 3 requires the facility to submit a collection and control design plan and install a collection and control system in compliance with 40 CFR §60.752 (b)(2) in the event NMOC emission rate would ever be equal to or greater than 50 Mg/yr.

The NSPS (40 CFR 60, Subpart WWW) includes requirements applicable to the operation and monitoring of LFG collection and control systems (e.g., 40 CFR §60.753: Operational Standards for collection and control systems; §60.755: Compliance Provisions, and §60.756: Monitoring of Operations). The requirements have not been included in the Title V permit because the facility is not currently required to operate a collection and control system. If in the future the permittee is required to install a LFG collection and control system (i.e., if its NMOC emission rate becomes equal to or greater than 50 Mg/yr), the permittee is required by 9 VAC 5-80-190 to apply for an amendment to the Title V permit. The amended permit would include the applicable Subpart WWW operational and monitoring requirements.

With respect to the NSPS and MACT, the facility's only applicable requirements at this time are monitoring, recordkeeping and reporting.

Monitoring and Recordkeeping

The monitoring and recordkeeping requirements in Conditions 6 and 19 of the minor NSR permit dated August 17, 2007 have been included in the permit. These requirements, derived from 40 CFR 60 Subpart WWW, meet Part 70 monitoring requirements for the landfill.

As required by Condition 13 of the minor NSR permit, the permittee shall maintain records including but not limited to the design capacity of the landfill, the current amount of solid waste in place, and the year-by-year waste acceptance rate.

As required by Condition 6 of the minor NSR permit, actual emissions from the operation of the landfill shall be calculated using either of the following equations (Equation 1 or 2). Equation 1 is used if the actual year-to-year solid waste acceptance rate is known; Equation 2 is used if the actual year-to-year solid waste acceptance rate is unknown:

……..Equation 1

M_{NMOC}	= total NMOC emission rate from the landfill, megagrams per year
k	= methane generation rate constant, year $^{-1}$
L_O	= methane generation potential, cubic meters per megagram solid waste
M_i	= mass of solid waste in the ith section, megagrams
t_i	= age of the ith section, years
C_{NMOC}	= concentration of NMOC, parts per million by volume as hexane
$3.6x10^{-9}$	= conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

……..Equation 2

M_{NMOC}	= mass emission rate of NMOC from the landfill, megagrams per year
L_O	= methane generation potential, cubic meters per megagram solid waste
R	= average annual acceptance rate, megagrams per year
k	= methane generation rate constant, year $^{-1}$
t	= age of the landfill, years
C_{NMOC}	= concentration of NMOC, parts per million by volume as hexane
c	= time since closure, years (for an active landfill c = 0 and e^{-kc} = 1)
$3.6x10^{-9}$	= conversion factor

The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if documentation of the nature and amount of such wastes is maintained.

Compliance Assurance Monitoring (CAM) Applicability

As per 40 CFR Part 64, Compliance Assurance Monitoring (CAM), emission limitations or standards proposed after November 15, 1990 pursuant to Section 111 or 112 are exempt from CAM (40 CFR §64.2 (b)(1)). All applicable monitoring requirements from Subpart WWW have been included in the permit. Since Subpart WWW was promulgated on March 1996 under the authority of Section 111 of the Clean Air Act (New Source Performance Standards (NSPS)), the emission limitations or standards derived from Subpart WWW are exempt from CAM and no additional monitoring has been incorporated into the Title V permit.

Testing

The permit requires testing of the site-specific NMOC concentration using the procedures described in 40 CFR 60, Subpart WWW as required by Conditions 15 through 17 of the minor

NSR permit, which have been incorporated into the Title V permit. Additional language from the NSPS Subpart WWW was included in the Tier 2 testing requirement in the Title V permit (Condition III.C.1). The language allows the facilities with active or passive gas removal systems the option of collecting the Tier 2 samples from these systems instead of surface probes. The Title V permit includes the requirement that the permittee use appropriate method(s) in accordance with procedures approved by DEQ if further testing for compliance purposes is performed.

Reporting Requirements

The reporting required in the Title V permit has been incorporated from Conditions 20, 21, 22, and 25 of the minor NSR permit dated August 17, 2007. Since the NMOC emission rate is less than 50 Mg/yr, 40 CFR 60 Subpart WWW reporting requirements related to a collection and control system are not currently applicable and therefore have not been incorporated into the permit. However, Conditions 21 and 22 require the facility to submit a collection and control design plan and install a collection and control system in compliance with 40 CFR §60.752 (b)(2) in the event NMOC emission rate would ever equal to or greater than 50 Mg/yr; the NSR reporting requirements have been included. If the NMOC emission rate, calculated using the site-specific NMOC concentration (C_{NMOC}) is less than 50 Mg/yr, the permittee is required to submit the emission rate report required in Condition 20 of the NSR permit, and retest the site-specific NMOC concentration (C_{NMOC}) every 5 years using the methods specified in Condition 15 of the NSR permit; this condition in the Title V permit is established in accordance with 40 CFR §60.754 (a)(3).

Condition 26 of the minor NSR permit dated August 17, 2007 requiring initial notification for the Visible Emissions Evaluation (Condition 14) has already been fulfilled, and has therefore not been included in the Title V permit. The initial notification for the Visible Emissions Evaluation was received by the Department of Environmental Quality (DEQ) on April 27, 2009. Condition 27 of the minor NSR permit, dated August 17, 2007, requiring initial notification for the Phase 3 and 4 modification and start-up has already been fulfilled, therefore the condition was not included in the Title V permit. The initial notification for the Phase 3 and 4 modification was provided with the revised design capacity report, which was received by the DEQ on September 18, 2007.

Streamlined Requirements

The following applicable requirements have not been included for the reasons provided:

> **40 CFR §60.7 (a) (1) – Requirements of Notification of the Date of Construction is Commenced**
>
> The initial design capacity report submitted on August 30, 1996 fulfilled this requirement as per 40 CFR §60.757(a)(1). A copy of the initial design capacity report is provided in Attachment A.

40 CFR §60.757 (a) - Initial Design Capacity Submittal Requirement

The initial design capacity report was submitted on August 30, 1996. SCS Engineers, on behalf of the Rockingham County Department of Public Works, submitted an updated design capacity report, dated September 14, 2007, and received September 18, 2007, for the landfill due to the recent Phase 4 lateral expansion. A copy of the amended design capacity report is provided in Attachment A.

40 CFR §60.757 (b) - Initial Non Methane Organic Compounds (NMOC) Emission Rate Report Requirement

SCS Engineers, on behalf of the Rockingham County Department of Public Works, submitted the Tier 1 NMOC Emission Rate Report on September 18, 2007. As per the report, the 2007 emission estimate for the landfill was 295 Mg/yr; the projected 2008 emission estimate was 303 MG/yr. The emission estimates are based on the maximum capacity of the landfill after all current and future phase expansions, as a conservative estimate. Since the NMOC emission rates exceeded 50 Mg/yr, the facility was required to determine a site-specific NMOC concentration and recalculate the NMOC emission rate under Tier 2 procedures, **or** submit a collection and control system design plan prepared by a professional engineer within one year of the report and comply with 40 CFR §60.752 (b)(2). The facility conducted Tier 2 sampling in January 2008. Results were submitted to the DEQ and a revised NMOC emission rate was submitted; a copy of the Tier 2 test results are provided as Attachment B.

40 CFR §60.757 (c)(1) - Non Methane Organic Compounds (NMOC) Emission Rate Report Requirement under Tier 2 sampling

The facility conducted Tier 2 sampling in January 2008 and recalculated the NMOC emission rate. The site-specific NMOC concentration and Tier 2 NMOC emission rate report were received by the DEQ on March 13, 2008. As per the report, the average site-specific NMOC concentration for Phases 1 and 2 was 843.7 ppmv as Hexane, and the average site-specific NMOC concentration for Old Parts 1 and 2 was 173 ppmv as Hexane; therefore the 2008 NMOC emission rate was 29.3 Mg/yr, based on the maximum capacity of the landfill after all current and future phase-expansions as a conservative estimate. Since the NMOC emission rate was under 50 Mg/yr, the facility is not required to submit a collection and control system design plan at this time.

Condition 32 of the minor NSR Permit, dated August 17, 2007

The condition requiring notification for Facility or Control Equipment Malfunction has not been included as the requirement is already included in the General Conditions Section of the Title V permit (Condition VIII. F).

The remaining general conditions of the minor NSR permit have been modified to meet the general condition requirements of 40 CFR Part 70 and 9 VAC 5-80-110.

EMISSION UNIT APPLICABLE REQUIREMENTS – FUEL-BURNING EQUIPMENT (F01)

Limitations

The following are applicable limitations and requirements for the utility flare (F01) from the minor NSR permit issued August 17, 2007. A copy of the minor NSR permit, issued August 17, 2007, is enclosed as Attachment C:

Condition 7: The approved fuel for the utility flare (F01) is landfill gas (LFG). Propane gas may be used as fuel to ignite the pilot flame. A change in the fuel may require a permit to modify and operate.

Condition 8: The utility flare (F01) shall consume no more than 716 million cubic feet of LFG per year, calculated monthly as the sum of each consecutive 12 month period.

Condition 9: Emissions from the utility flare (F01) shall be controlled by proper operation and maintenance. The operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum.

Condition 11: The condition establishes the hourly and annual emission limits for the utility flare (F01).

Condition 12: The utility flare (F01) shall be designed for and operated with no visible emissions, except for periods not to exceed a total of five minutes during any two consecutive hours.

Monitoring and Recordkeeping

The following are applicable monitoring and recordkeeping requirements for the utility flare (F01) from the minor NSR permit issued August 17, 2007. A copy of the minor NSR permit, issued August 17, 2007, is enclosed as Attachment C:

Condition 9: The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the utility flare. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.

Condition 20: The permittee is required to maintain records of the monthly and annual throughput of LFG in cubic feet to the utility flare, and records of all visible emission evaluations. The annual throughput shall be calculated

monthly as the sum of each consecutive 12 month period. In addition, the facility is required to keep records of the all operator training in accordance with Condition 9.

The permit includes requirements for maintaining records of all emission data and operating parameters. These records include monthly and annual landfill gas (LFG) consumption (in cubic feet) by the utility flare. The hourly and annual emission limits established for the utility flare are based on the capacity of the utility flare. Therefore, if the utility flare is operated at capacity, or below, there should not be a violation of the hourly and annual emission rates. The calculations that were used to determine the flare's criteria pollutant emission limits are provided in Attachment E. As long as the utility flare is operated properly, it can be assumed that the emission limitations will not be violated.

Maintenance of records demonstrating that the operators have been properly trained along with the maintenance of operating procedures will ensure compliance with the emission limitations and satisfy the periodic monitoring requirements.

There is no monitoring for the visible emission limit. Compliance with the visible emission limit was demonstrated by initial testing performed April 23, 2009. This test showed that the opacity was 0%. As long as the flare is operated properly, it can be assumed that the opacity limitations will not be violated. The maintenance of records demonstrating that the operators have been properly trained along with the maintenance of operating procedures will ensure compliance with the opacity limitation and satisfy the periodic monitoring requirements.

Compliance Assurance Monitoring (CAM)

CAM does not apply to the utility flare (F01) because the utility flare does not use a control device to achieve compliance with the emission limitations.

Testing

The permit does not require source emission tests of the flare. The DEQ and the EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit.

Streamlined Requirements

There are no streamlined requirements for the utility flare (F01).

FACILITY WIDE CONDITIONS

The general conditions in the NSR permit, dated August 17, 2007, have been modified to meet the general condition requirements of 40 CFR Part 70 and 9 VAC 5-80-110 permit dated August 17, 2007. Please note that the condition numbers are from the NSR permit dated August 17, 2007; a copy of the permit is enclosed as Attachment C.

The requirements related to landfill roads (EU-02) are listed under "Facility Wide Conditions" in the permit. The "Facility Wide Conditions" in the permit also includes some of the fugitive dust conditions related to landfill work, i.e., cell construction, daily cover application, etc.

Limitations

The following limitations are state BACT and other applicable requirements from the minor NSR permit dated August 17, 2007. Please note that the condition numbers are from the permit dated August 17, 2007. A copy of the NSR permit is enclosed as Attachment C.

Condition 4: The condition establishes the fugitive dust emission control requirements.

Condition 5: In order to minimize the duration and frequency of excess emissions, the permittee shall implement the DEQ-approved Dust Control Plan which outlines the preventive measures to be implemented for dust control at the landfill. The condition outlines the requirements of the dust control plan.

Condition 13: Visible emissions from the facility shall not exceed 20 percent opacity except for one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).

The maintenance and operating requirements in Condition 30 of the minor NSR permit, dated August 17, 2007, have been included in the operating permit.

Monitoring and Recordkeeping*:*

The monitoring and recordkeeping requirements in Conditions 18 and 19 of the minor NSR permit dated August 17, 2007 have been included in the permit.

In lieu of conducting periodic evaluations using EPA Method 9 to demonstrate compliance with the facility-wide visible emission limit, each day of landfill operations, the permittee shall perform a visual survey of the trafficable roads at the site and landfill activities for sources of excessive emissions (Condition 18 of the minor NSR permit). The reason for not requiring EPA Method 9 is that there is no stack on the landfill roads on which to perform the test. The presence of excessive emissions requires further investigation as to the cause of the emissions and timely corrective action is required. All observations and corrective actions taken are to be logged and recorded. These records are to be available on-site for inspection by the DEQ and must be current for the most recent five years.

The dust control plan, dated November 13, 2007, was approved by the DEQ on November 19, 2007. There is reasonable assurance that violations of the visible emission standard should not occur if the permittee complies with the permit condition to mitigate fugitive dust, implements the operating procedures included in the dust control plan, performs a daily visible emission survey and conducts timely corrective actions as needed.

The monitoring and recordkeeping requirements in Condition 31 of the minor NSR permit, dated August 17, 2007, have been included in the operating permit.

Compliance Assurance Monitoring (CAM)

CAM does not apply to the landfill surface and roads because the landfill surface and roads do not use a control device to achieve compliance with the emission limitations.

Testing

The permit does not require source emission tests. The permit requires that the permittee use appropriate method(s) in accordance with procedures approved by DEQ if further testing for compliance purposes is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included.

Streamlined Requirements

The remaining general conditions (other than Conditions 30 and 31, as described above) in the minor NSR permit have been modified to meet the general condition requirements of 40 CFR Part 70 and 9 VAC 5-80-110.

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 permit 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.

STATE-ONLY APPLICABLE REQUIREMENTS

Rockingham County Landfill did not identify any state-only requirements in their application. Therefore, no state-only requirements have been included in the permit.

FUTURE APPLICABLE REQUIREMENTS

On September 8, 2006 EPA proposed amendments (71 FR 53272) to 40 CFR 60, Subpart WWW, New Source Performance Standards (NSPS) for Municipal Solid Waste. In summary the amendments will clarify who is responsible for compliance activities where multiple parties are involved in the ownership or operation of the landfill gas collection, control, and/or treatment systems. In addition, the amendments will revise the NSPS requirements regarding startup, shutdown, malfunction, and routine maintenance. The proposed amendments will be applicable to the facility upon final action and incorporation into the NSPS.

INAPPLICABLE REQUIREMENTS

The applicant did not identify any inapplicable requirements in its application, other than CAM (40 CFR 64).

COMPLIANCE PLAN

The facility has not been found to be in violation of any state or federal applicable requirements at this time. No compliance plan was included in the application or in the 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.

Table IX: Insignificant Emission Units

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)
IS01	Off-Road Diesel Storage Tank	9 VAC 5-80-720 B	VOC	10,000 gallons
IS03	Gasoline Storage Tank	9 VAC 5-80-720 B	VOC	3,000 gallons
IS04	Brake Wash Aerosol Cans	9 VAC 5-80-720 B	VOC	--
IS05	ZEP Mudslide Concrete Cleaner	9 VAC 5-80-720 B	VOC	--
IS06	Waste Oil Storage Tank	9 VAC 5-80-720 B	VOC	1,500 gallons
IS07	Lube Oil Storage Tank	9 VAC 5-80-720 C	--	300 gallons
IS08	Hydraulic Fluid Storage Tank	9 VAC 5-80-720 C	--	300 gallons
IS09	Transmission Fluid Storage Tank	9 VAC 5-80-720 C	--	300 gallons
IS10	Fuel Truck Pump Portable Gasoline Generator	9 VAC 5-80-720 B	NO_x, CO, SO_x, PM_{10}, VOC, HAPs	14 BHP
IS11	Portable Gasoline Air Compressor	9 VAC 5-80-720 B	NO_x, CO, SO_x, PM_{10}, VOC, HAPs	13 BHP
IS12	TARP Machine Gasoline Motor	9 VAC 5-80-720 B	NO_x, CO, SO_x, PM_{10}, VOC, HAPs	6 BHP

[1]The 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

Calculations, provided on behalf of Rockingham County Department of Public Works by SCS Engineers, showing the emission levels for the units in Table VI that are insignificant due to emission rate (9 VAC 5-80-720 B), are available in Attachment F.

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. Therefore, all portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

A public notice regarding the draft permit was placed in the *Daily News-Record* newspaper, Harrisonburg, Virginia, on May 9, 2012. All persons on the Title V mailing list were sent a copy of the public notice by either e-mail or mail on May 9, 2012. Public comments were accepted from May 10, 2012 to June 11, 2012. The affected state of West Virginia was notified of the public notice by e-mail on May 9, 2012. No comments were received.

EPA was notified of the public notice and sent a copy of the Statement of Basis and draft permit on May 8, 2012. The 45-day EPA review period expired on June 26, 2012; no comments were received.

ATTACHMENTS

The following information is available upon request:

ATTACHMENT A:	**Initial Design Capacity Report dated 8/30/1996 and Amended Design Capacity Report with Tier 1 Calculations dated 9/14/2007**
ATTACHMENT B:	**Tier 2 Test Results and Estimated NMOC Emissions**
ATTACHMENT C:	**Minor NSR Permit dated 08/17/2007**
ATTACHMENT D:	**LandGEM Models**
ATTACHMENT E:	**Utility Flare (F01) Emission Calculations and Equations**
ATTACHMENT F:	**Insignificant Emission Calculations**
ATTACHMNET G:	**2010 Annual Update and Consolidated Emissions Report**
ATTACHMENT H:	**Title V and PSD Greenhouse Gas Emission Evaluation**

ATTACHMENT A

Initial Design Capacity Report dated 8/30/1996 and
Amended Design Capacity Report with Tier 1 Calculations dated 9/14/2007

ATTACHMENT B

Tier 2 Test Results and Estimated NMOC Emissions

ATTACHMENT C

Minor NSR Permit dated 08/17/2007

ATTACHMENT D

LandGEM Models

Attachment D.1

LandGEM Model with AP-42 NMOC Estimate

Attachment D.2

LandGEM Model with Tier 2 NMOC Value

ATTACHMENT E

Utility Flare (F01) Emission Calculations and Equations

ATTACHMENT F

Insignificant Emission Calculations

ATTACHMENT G

2010 Annual Update and Consolidated Emissions Report

ATTACHMENT H

Title V and PSD Greenhouse Gas Emission Evaluation