

Attachment F

Permit

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ADEQ

ARKANSAS
Department of Environmental Quality

July 19, 2010

T. Baridi Nkokheli, Director Department of Sanitation
City of Fort Smith Sanitary Landfill
P.O. Box 1908
Fort Smith, AR 72903

Dear Mr. Nkokheli:

The enclosed Permit No. 1791-AOP-R0 is issued pursuant to the Arkansas Operating Permit Program, Regulation # 26.

After considering the facts and requirements of A.C.A. §8-4-101 et seq., and implementing regulations, I have determined that Permit No. 1791-AOP-R0 for the construction, operation and maintenance of an air pollution control system for City of Fort Smith Sanitary Landfill to be issued and effective on the date specified in the permit, unless a Commission review has been properly requested under Arkansas Department of Pollution Control & Ecology Commission's Administrative Procedures, Regulation 8.603, within thirty (30) days after service of this decision.

All persons submitting written comments during the thirty (30) day, and all other persons entitled to do so, may request an adjudicatory hearing and Commission review on whether the decision of the Director should be reversed or modified. Such a request shall be in the form and manner required by Regulation 8.603, including filing a written Request for Hearing with the APC&E Commission Secretary at 101 E. Capitol Ave., Suite 205, Little Rock, Arkansas 72201. If you have any questions about filing the request, please call the Commission at 501-682-7890.

Sincerely,



Mike Bates
Chief, Air Division

ADEQ OPERATING AIR PERMIT

Pursuant to the Regulations of the Arkansas Operating Air Permit Program, Regulation 26:

Permit No. : 1791-AOP-R0

IS ISSUED TO:

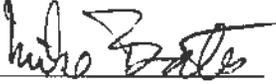
City of Fort Smith Sanitary Landfill
5900 Commerce Road
Fort Smith, AR 72916
Sebastian County
AFIN: 66-00226

THIS PERMIT AUTHORIZES THE ABOVE REFERENCED PERMITTEE TO INSTALL, OPERATE, AND MAINTAIN THE EQUIPMENT AND EMISSION UNITS DESCRIBED IN THE PERMIT APPLICATION AND ON THE FOLLOWING PAGES. THIS PERMIT IS VALID BETWEEN:

July 19, 2010 AND July 18, 2015

THE PERMITTEE IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:


Mike Bates
Chief, Air Division

July 19, 2010

Date

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

Table of Contents

SECTION I: FACILITY INFORMATION	4
SECTION II: INTRODUCTION	5
Summary of Permit Activity	5
Process Description.....	5
Regulations	6
Emission Summary	6
SECTION III: PERMIT HISTORY	9
SN-01 – Landfill Gas Surface Emissions (Uncontrolled).....	10
SN-02 – Landfill Gas Open Flare Emissions.....	12
SN-03 – Traffic Emissions (Uncontrolled).....	16
SECTION V: COMPLIANCE PLAN AND SCHEDULE	18
SECTION VI: PLANTWIDE CONDITIONS	19
NSPS Subpart WWW Conditions.....	20
Regulation 21 – Asbestos Abatement	22
Title VI Provisions.....	24
SECTION VII: INSIGNIFICANT ACTIVITIES	26
SECTION VIII: GENERAL PROVISIONS	27
Appendix A - 40 CFR Part 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills	

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

List of Acronyms and Abbreviations

A.C.A.	Arkansas Code Annotated
AFIN	ADEQ Facility Identification Number
CO	Carbon Monoxide
CFR	Code of Federal Regulations
C _{NMOC}	Concentration of NMOC
CY	Cubic Yards
EPA	Environmental Protection Agency
GCCS	Gas Control and Collection System
HAP	Hazardous Air Pollutant
HP	Horsepower
lb/hr	pound per hour
LF	Landfill
LFG	Landfill Gas
LGF	Landfill Gas Flare
LandGEM	Landfill Gas Emissions Estimation [computer] Model
Mg	megagrams
MSW	Municipal Solid Waste
MVAC	Motor Vehicle Air Conditioner
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	Nonmethane Organic Compounds
No.	Number
NO _x	Nitrogen Oxide
NSPS	New Standards of Performance for Stationary Sources
PM	Particulate matter
PM ₁₀	Particulate matter, smaller than ten microns in diameter
ppmv	parts per million by volume
PCS	Petroleum Contaminated Soil
RCRA	Resource Conservation and Recovery Act
scfm	Standard Cubic Feet per Minute
SN	Source Number
SNAP	Significant New Alternatives Program (SNAP)
SO ₂	Sulfur dioxide
SSM	Startup, Shutdown, and Malfunction Plan
Tpy	Ton per year
TRS	Total Reduced Sulfur
US-EPA	United States - Environmental Protection Agency
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
v	volume
WSR	[Asbestos-containing] Waste Shipment Record
≤	Symbol meaning equal to or greater than

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

SECTION I: FACILITY INFORMATION

PERMITTEE: City of Fort Smith Sanitary Landfill

AFIN: 66-00226

PERMIT NUMBER: 1791-AOP-R0

FACILITY ADDRESS: 5900 Commerce Road
Fort Smith, AR 72916

MAILING ADDRESS: P.O. Box 1908
Fort Smith, AR 72903

COUNTY: Sebastian County

CONTACT NAME: T. Baridi Nkokheli

CONTACT POSITION: Director Department of Sanitation

TELEPHONE NUMBER: 479-784-2431

REVIEWING ENGINEER: Andrea Sandage

UTM North South (Y): Zone 15: 3907016.53 m

UTM East West (X): Zone 15: 375708.93 m

SECTION II: INTRODUCTION

Summary of Permit Activity

The City of Fort Smith currently owns and operates a municipal solid waste sanitary landfill (FSLF) located in Fort Smith (Sebastian County), Arkansas. The site consists of approximately 1,012-acres and includes separate areas for Class 1 waste, Class 4 waste, and yard compost materials. The Class 1 area consists of approximately 555-acres and is being developed in six phases. This facility, which previously operated under a Minor Source air permit (1791-A), is required to obtain a Title V Operating Air Permit under the provisions of 40 CFR Part 60 Subpart WWW – *Standards of Performance for Municipal Solid Waste Landfills* due to the Landfill design capacity, the fact that construction commenced after May 30, 1991, and a major modification was conducted in 2003. Pursuant to 40 CFR 60, Subpart WWW the landfill is required to submit Part 70 (Title V) permit application when the landfill design capacity is greater than 3.27 million cubic yards.

There is no increase in the design capacity of the landfill with this modification. Permitted emissions are: 119.5 tpy PM, 27.2 tpy PM₁₀, 4.6 tpy SO₂, 0.2 tpy VOC, 108.3 tpy CO, 19.9 tpy NO_x, 2.30 tpy Hydrogen Chloride, numerous HAPs, and 4.04 tpy Hydrogen Sulfide. The increase of particulate (dust) emissions is due to uncontrolled landfill gas emissions (SN-02) and traffic emissions (SN-03) included in this Title V permit but not in the previous permit.

Process Description

The FSLF is operated for the disposal of Class 1 and Class 4 solid waste. The total disposal capacity for the FSLF is approximately 72,607,000 cubic yards (CY) of void space.

Solid waste decomposition is initiated by aerobic bacteria present within the waste at the time of disposal. The primary gas produced during this phase of decomposition is carbon dioxide. As the oxygen supply is depleted facultative bacteria continue the decomposition process. Ultimately anaerobic bacteria become the predominant means of waste decomposition. Methane and carbon dioxide are produced at about a 50-50 ratio as the decomposition process proceeds in the facultative and anaerobic stages. Other components present in the gas include hydrogen sulfide and non-methane organic compounds (NMOC). Some NMOC are volatile organic compounds (VOCs) and/or hazardous air pollutants (HAPs).

The purpose of the Landfill Gas (LFG) Collection and Control System (GCCS) is to provide a safe, manageable, and efficient system for the recovery of gaseous by-products that are produced in typical municipal solid waste landfills. These gaseous by-products which consist of a mixture of NMOCs, methane, and carbon dioxide, are collected and utilized at a processing facility to make pipeline quality methane.

LFG collection systems are relatively simple in design and principal. Blowers provide a negative pressure that pulls LFG through the header system and toward the control device. The

City of Fort Smith Sanitary Landfill
 Permit #: 1791-AOP-R0
 AFIN: 66-00226

goal of the LFG system operator is to balance the vacuum pressure at each well head in a manner that will provide an adequate amount of LFG control or “collection efficiency”.

South-tex Renewables operate the treatment portion of the LFG Collection and Control System to insure that the system is run in an efficient manner which does not interfere with normal landfill operations. The LFG is primarily utilized by an off-site end user and the flare is only operational at those times when it is not used for its primary purpose.

Additional insignificant activities at the FSLF include a recycling center and the utilization of water trucks for dust control on roads.

Regulations

The following table contains the regulations applicable to this permit.

Regulations
Arkansas Air Pollution Control Code, Regulation 18, effective January 25, 2009
Regulations of the Arkansas Plan of Implementation for Air Pollution Control, Regulation 19, effective July 18, 2009
Arkansas Asbestos Abatement Regulation, Regulation 21, effective July 15, 1997.
Regulations of the Arkansas Operating Air Permit Program, Regulation 26, effective January 25, 2009
40 CFR Part 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills

Emission Summary

The following table is a summary of emissions from the facility. This table, in itself, is not an enforceable condition of the permit.

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
Total Allowable Emissions		PM	103	119.5
		PM ₁₀	20.9	27.2
		SO ₂	1.1	4.6
		VOC	12.7	55.4
		CO	24.8	108.3
		NO _x	4.6	19.9
HAPs		1,1,2,2-Tetrachloroethane*	0.14	0.62
		1,1-Dichloroethane (ethylidene dichloride)*	0.18	0.79
		1,1-Dichloroethene (vinylidene chloride)*	0.02	0.08

City of Fort Smith Sanitary Landfill
 Permit #: 1791-AOP-R0
 AFIN: 66-00226

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
		1,2-Dichloroethane (ethylene dichloride)*	0.04	0.15
		Acrylonitrile*	0.25	1.15
		Benzene*	0.12	0.49
		Carbon disulfide*	0.04	0.16
		Dichloromethane*	0.89	3.91
		Ethylbenzene*	0.37	1.62
		Hexane*	0.43	1.88
		Perchloroethylene (tetrachloroethyle)*	0.46	2.02
		Toluene*	2.70	11.79
		Trichloroethylene (trichloroethene) *	0.28	1.22
		Vinyl chloride*	0.36	1.55
		Xylenes*	1.00	4.19
		Hydrochloric Acid (HCl) ¹	0.52	2.30
	Air Contaminants **	Hydrogen Sulfide (H ₂ S)**	0.92	4.04
		VOC (NMOC)	12.6	55.2
		1,1,2,2-Tetrachloroethane*	0.14	0.60
		1,1-Dichloroethane (ethylidene dichloride) *	0.18	0.77
		1,1-Dichloroethene (vinylidene chloride) *	0.02	0.07
		1,2-Dichloroethane (ethylene dichloride) *	0.03	0.14
		Acrylonitrile*	0.25	1.08
		Benzene*	0.11	0.48
		Carbon disulfide*	0.04	0.15
		Dichloromethane*	0.88	3.83
		Ethylbenzene*	0.36	1.58
		Hexane*	0.42	1.84
		Perchloroethylene (tetrachloroethyle)*	0.46	1.98
		Toluene*	2.64	11.56
		Trichloroethylene (trichloroethene) *	0.27	1.19
		Vinyl chloride*	0.34	1.47
		Xylenes*	0.94	4.10
		Hydrogen Sulfide (H ₂ S)**	0.91	3.96
		PM	1.1	4.9
		PM ₁₀	1.1	4.9
		SO ₂	1.1	4.6
		VOC (NMOC)	0.1	0.2
		CO	24.8	108.3
		NO _x	4.6	19.9
		1,1,2,2-Tetrachloroethane*	0.01	0.02
		1,1-Dichloroethane (ethylidene dichloride)*	0.01	0.02
		1,1-Dichloroethene (vinylidene chloride)*	0.01	0.01
		1,2-Dichloroethane (ethylene dichloride)*	0.01	0.01
01	Landfill Gas Surface Emissions (Uncontrolled)			
02	Open Flare			

City of Fort Smith Sanitary Landfill
 Permit #: 1791-AOP-R0
 AFIN: 66-00226

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
		Acrylonitrile*	0.01	0.03
		Benzene*	0.01	0.01
		Carbon disulfide*	0.01	0.01
		Dichloromethane*	0.02	0.08
		Ethylbenzene*	0.01	0.04
		Hexane*	0.01	0.04
		Perchloroethylene (tetrachloroethyle)*	0.01	0.04
		Toluene*	0.06	0.23
		Trichloroethylene (trichloroethene)*	0.01	0.03
		Vinyl chloride*	0.02	0.08
		Xylenes*	0.02	0.09
		Hydrochloric Acid (HCl) ¹	0.52	2.30
		Hydrogen Sulfide (H ₂ S)**	0.02	0.08
03	Traffic Emissions (Uncontrolled)	PM	101.9	114.6
		PM ₁₀	19.8	22.3

*HAPs included in the VOC totals. Other HAPs are not included in any other totals unless specifically stated.

** Air Contaminants such as ammonia, acetone, and certain halogenated solvents are not VOCs or HAPs.

*** If in the future, uncontrolled NMOC (VOC) surface emissions are calculated to be equal to or greater than (≥) 50 Mg/yr, per the reporting requirements contained in 40 CFR 60.757(b), FSLF shall comply with NSPS Subpart WWW requirements within the time frame contained in 40 CFR 60.752(b)(2). FSLF has assumed that all VOC surface emissions (SN-01) are NMOCs.

¹ Hydrochloric Acid (HCl) is not a VOC; it is a HAP. HCl emissions occur from operation of the combustion device (SN-02). All other HAP emissions occur from non-point source emissions of SN-01.

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

SECTION III: PERMIT HISTORY

Permit # 1791-A was the initial Minor Source permit for the facility. The permit was issued to the City of Fort Smith on January 20, 1999. Permitted emissions were: 5.3 tpy PM/PM₁₀, 1.8 tpy VOC, 87.6 tpy CO, 16.2 tpy NO_x, and 0.41 tpy HAPs.

SECTION IV: SPECIFIC CONDITIONS

SN-01 – Landfill Gas Surface Emissions (Uncontrolled)

Source Description

Uncontrolled emissions arising from the surface of the landfill (without the gas gathering system operating) are designated as SN-01. One hundred percent (100%) of the generated LFG may escape as Uncontrolled LFG Surface Emissions (SN-01) or otherwise migrate off-site. The most recent site specific Tier 2 testing was conducted on July 20, 2009. The Tier 2 C_{NMOC} was 77 parts per million (ppm) by volume (v) as hexane, equivalent to 16.58 Mg/year NMOC (VOC) for the year 2008. FSLF is not required to have an active landfill GCCS under 60 Subpart WWW until NMOC is equal to or greater than 50 Mg/yr (55.2 tpy).

Specific Conditions

1. When the calculated surface emissions per the latest Tier 2 testing and LandGem modeling are reported to exceed the 50 Mg/yr NMOC (55.2 tpy) emission limit set forth in the following table, the permittee shall comply with the requirements contained in §60.752(b)(2). The permittee shall demonstrate compliance with this condition by compliance with Plantwide Conditions #7, #11, #12 and #13. [Regulation 19, §19.501 et seq., 40 CFR Part 60 Subpart WWW, and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
01	Landfill Gas Surface Emissions	VOC (NMOC)*	12.6	55.2

* FSLF has assumed that all VOC surface emissions are NMOCs.

2. The permittee shall not exceed the emission rates set forth in the following table. Both hourly and annual uncontrolled surface emissions (SN-01) are worst case scenario when the GCCS is not in operation. The permittee shall demonstrate compliance with this condition by compliance with Plantwide Condition #7, #11, and #14. [Regulation 18, §18.801, and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
01	Landfill Gas Surface Emissions (Uncontrolled)	1,1,2,2-Tetrachloroethane	0.14	0.60
		1,1-Dichloroethane (ethylidene dichloride)	0.18	0.77
		1,1-Dichloroethene (vinylidene chloride)	0.02	0.07
		1,2-Dichloroethane (ethylene dichloride)	0.03	0.14

City of Fort Smith Sanitary Landfill
 Permit #: 1791-AOP-R0
 AFIN: 66-00226

SN	Description	Pollutant	lb/hr	tpy
		Acrylonitrile	0.25	1.08
		Benzene	0.11	0.48
		Carbon disulfide	0.04	0.15
		Dichloromethane	0.88	3.83
		Ethylbenzene	0.36	1.58
		Hexane	0.42	1.84
		Perchloroethylene (tetrachloroethylene)	0.46	1.98
		Toluene	2.64	11.56
		Trichloroethylene (trichloroethene)	0.27	1.19
		Vinyl chloride	0.34	1.47
		Xylenes	0.94	4.10
		Hydrogen Sulfide (H ₂ S)	0.91	3.96

SN-02 – Landfill Gas Open Flare Emissions

Source Description

The blower/flare station unit consists of a 2200 scfm blower that supplies the “vacuum” to transport the LFG to an open or “candlestick” flare unit. The blower/flare station includes valves and safety devices that prevent the system from collecting gas if the flare station is not operating. This flare unit (LFG Specialties, Inc. Model CF1228I12) is certified to meet the Best Demonstrated Technology (BDT) which mandates that the control device be capable of reducing (combusting) the NMOCs in the collected LFG by 98 weight-percent.

The flare is utilized when LFG is not transported to the South-tex Renewables Treatment Center and designated end user for the facility. The flare is not utilized when LFG is being transported to the end user or when the GCCS is not operating. Emissions from the open flare assumes a “worst case” scenario of continual flare emissions with no routing to the gas end-user.

FSLF’s GCCS will not be subject to 40 CFR Part 60, Subpart WWW– *Standards of Performance for Municipal Solid Waste Landfills* until the site specific NMOC surface emissions are determined to be ≥ 50 Mg per year. Therefore, use of the GCCS and flare are not required at this time. However, FSLF does have an unmonitored active landfill GCCS in-place, for gas migration and odor control. The flare generates combustion by-product emissions, mainly CO, NO_x and hydrogen chloride (HCl).

Specific Conditions

- The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Plantwide Conditions #14, #18 and #19. [Regulation 19, §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Pollutant	lb/hr	tpy
02	PM ₁₀	1.1	4.9
	SO ₂	1.1	4.6
	VOC (NMOC)	0.1	0.2
	CO	24.8	108.3
	NO _x	4.6	19.9

- The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Specific

Conditions #5. [Regulation 18, §18.801, and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

SN	Pollutant	lb/hr	tpy
02	PM	1.1	4.9
	Hydrogen Chloride (HCl) ¹	0.52	2.30
	1,1,2,2-Tetrachloroethane	0.01	0.02
	1,1-Dichloroethane (ethylidene dichloride)	0.01	0.02
	1,1-Dichloroethene (vinylidene chloride)	0.01	0.01
	1,2-Dichloroethane (ethylene dichloride)	0.01	0.01
	Acrylonitrile	0.01	0.03
	Benzene	0.01	0.01
	Carbon disulfide	0.01	0.01
	Dichloromethane	0.02	0.08
	Ethylbenzene	0.01	0.04
	Hexane	0.01	0.04
	Perchloroethylene (tetrachloroethyle)	0.01	0.04
	Toluene	0.06	0.23
	Trichloroethylene (trichloroethene)	0.01	0.03
	Vinyl chloride	0.02	0.08
	Xylenes	0.02	0.09
Hydrogen Sulfide (H ₂ S)	0.02	0.08	

¹ HCl is not a VOC; it is a HAP.

- The permittee shall maintain records to demonstrate compliance with Specific Condition #4. These records shall include the simultaneous gas flow to the flares in standard cubic feet per minute (scfm). The permittee shall monitor the gas flow to the flare continuously and shall be recorded once every 15 minutes. Electronic or paper hourly records shall be maintained of the flow rate to the flare. The permittee shall update these records by the fifteenth day of the month following the month to which the records pertain, shall be

maintained on site and made available to Department personnel upon request. [Regulation 18, §18.1004, Regulation 19, §19.705, 40 CFR Part 52, Subpart E and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

6. Visible emissions may not exceed the limits specified in the table below. Compliance with this condition shall be demonstrated through the use of landfill gas as the only fuel combusted.

SN	Limit	Regulatory Citation
02	0%	§18.501, §60.18(f)(1) & Dept Guidance

6. The permittee shall conduct weekly observations of the opacity of SN-02 and keep a record of these observations. The flare SN-02 shall be designated for and operated with no visible emissions, except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours. EPA Reference Methods 22 shall be used to determine compliance with the visible emission provisions of the flare. If the permittee detects visible emissions in excess of their permitted limit, the permittee must immediately take action to identify and correct the cause of the visible emissions. After implementing the corrective action, the permittee must document that the source complies with the visible emissions requirements. The permittee shall maintain records of the cause of the visible emissions and the corrective action taken. The permittee must keep these records onsite and make them available to Department personnel upon request. [Regulation 18, §18.501 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
7. The permittee must operate the flare (SN-02) pilot flame within the design limitations and manufacturer's specifications. The pilot flames may be lit by landfill gas, natural gas, or propane. [Regulation 19, §19.303 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
8. The flare (SN-02) must have a flame present at all times of operation or if no flame is present, the orifice of the unlit flare must be closed and the GCCS piping to the unlit flare shutdown to prevent passive venting of uncontrolled landfill gases. The presence of a flare pilot light shall be monitored continuously using a thermocouple, an ultraviolet sensor or any other equivalent device to detect the presence of a flame. In the event of a flame failure, the extraction system directed to the flare must automatically shut down to prevent passive venting of landfill gas. [Regulation 19, §19.303, §19.304, §60.18(b) through (f), and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
9. Flares shall be used only with the net heating value of the landfill gas being combusted being 200 BTU/scf (7.45 MJ/scm) or greater for non-assisted flares (SN-02). The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR Section 60.18(f)(3). A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation 19, §19.303, §19.304, §60.18(c)(3)(ii), and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

City of Fort Smith Sanitary Landfill

Permit #: 1791-AOP-R0

AFIN: 66-00226

10. Non-assisted flares (SN-02) shall be designed for and operated with an exit velocity less than 60 ft/sec (18.3 m/sec). The maximum permitted velocity shall be calculated as specified in 40 CFR Section 60.18(f)(5). The actual exit velocity shall be determined as specified in 40 CFR Section 60.18(f)(4). A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation 19, §19.303, §19.304, 40 CFR Section 60.18(f)(4-5), and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

SN-03 – Traffic Emissions (Uncontrolled)
 (Paved and Unpaved Roads and Aggregate Handling)

Source Description

Particulates (road emissions) are emitted from the operation of vehicles and equipment over the paved and unpaved roads, aggregate handling, and wind erosion of storage piles and from the placing of soil cover material on the landfill surface. These activities are collectively referred to as Traffic Emissions (SN-03). Dust controls may include water dispersion equipment, sweeping, and other techniques.

Specific Conditions

11. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Specific Condition #13 and #14. [Regulation 19, §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Pollutant	lb/hr	tpy
03	PM ₁₀	19.8	22.3

12. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Specific Condition #13 and #14. [Regulation 18, §18.801, and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

SN	Pollutant	lb/hr	tpy
03	PM	101.9	114.6

13. The permittee shall not operate in a manner such that fugitive emissions from the storage piles, aggregate handling, and haul roads (SN-03) would cause a nuisance off-site or allow visible emissions from extending beyond the property boundary. Under normal conditions, off-site opacity less than or equal to 5% shall not be considered a nuisance. The permittee shall use water sprays, sweeping, or other techniques as necessary to control fugitive emissions that migrate off-site. [Regulation 18, §18.501 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
14. Dust suppression activities must be conducted in a manner and at a rate of application that will not cause runoff from the area being applied. Best Management Practices (40 CFR §122.44(k)) should be used around streams and waterbodies to prevent the dust suppression agent from entering Waters of the State. Except for potable water, no agent shall be applied within 100 feet of wetlands, lakes, ponds, springs, streams, or sinkholes.

City of Fort Smith Sanitary Landfill

Permit #: 1791-AOP-R0

AFIN: 66-00226

Failure to meet this condition may require the permittee to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Department's Water Division, in accordance with 40 CFR §122.1(b). [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

SECTION V: COMPLIANCE PLAN AND SCHEDULE

City of Fort Smith Sanitary Landfill will continue to operate in compliance with those identified regulatory provisions. The facility will examine and analyze future regulations that may apply and determine their applicability with any necessary action taken on a timely basis.

SECTION VI: PLANTWIDE CONDITIONS

1. The permittee shall notify the Director in writing within thirty (30) days after commencing construction, completing construction, first placing the equipment and/or facility in operation, and reaching the equipment and/or facility target production rate. [Regulation 19, §19.704, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
2. If the permittee fails to start construction within eighteen months or suspends construction for eighteen months or more, the Director may cancel all or part of this permit. [Regulation 19, §19.410(B) and 40 CFR Part 52, Subpart E]
3. The permittee must test any equipment scheduled for testing, unless otherwise stated in the Specific Conditions of this permit or by any federally regulated requirements, within the following time frames: (1) new equipment or newly modified equipment within sixty (60) days of achieving the maximum production rate, but no later than 180 days after initial start up of the permitted source or (2) operating equipment according to the time frames set forth by the Department or within 180 days of permit issuance if no date is specified. The permittee must notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. The permittee shall submit the compliance test results to the Department within thirty (30) days after completing the testing. [Regulation 19, §19.702 and/or Regulation 18 §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
4. The permittee must provide:
 - a. Sampling ports adequate for applicable test methods;
 - b. Safe sampling platforms;
 - c. Safe access to sampling platforms; and
 - d. Utilities for sampling and testing equipment.[Regulation 19, §19.702 and/or Regulation 18, §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
5. The permittee must operate the equipment, control apparatus and emission monitoring equipment within the design limitations. The permittee shall maintain the equipment in good condition at all times. [Regulation 19, §19.303 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
6. This permit subsumes and incorporates all previously issued air permits for this facility. [Regulation 26 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
7. The facility's current Class I, Solid Waste Permit #0267-S1-R1, issued August 8, 2003, permitted a maximum design capacity of 72,607,000 cubic yards (CY). The permittee shall weigh every incoming load of waste accepted by the facility on its truck scale. The permittee shall update its' air permit to reflect the new capacity in the event that a new Solid Waste Permit is issued that allows an increase in the total capacity of the landfill. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311 and 40 CFR §70.6]

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

8. The permittee shall maintain monthly records to demonstrate compliance with Plantwide Condition #7. The permittee shall update the records by the fifteenth day of the month following the month to which the records pertain to. The permittee shall maintain a lifetime in-place total, a twelve month rolling total, and each individual month's waste acceptance data on site, made available to the Department upon request and submitted semi-annually in accordance with General Provision #7 of this permit. Any density conversions shall be documented and maintained with these records. These records shall be retained at least 5 years. [Regulation 19, §19.705 and 40 CFR Part 52 Subpart E and/or Regulation 18, §18.1004, A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR §60.758]
9. The permittee will limit all landfill operation hours to 12 hours per day, Monday through Saturday. [§18.1004 of Regulation 18, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
10. The permittee will maintain monthly records of hours of operation which demonstrate compliance with Specific Condition #9. The permittee will maintain a twelve month rolling total and each individual month's data on site and make these records available to Department personnel upon request. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. [§19.705 of Regulation 19, §18.1004 of Regulation 18, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311].

NSPS Subpart WWW Conditions

11. The permittee is subject to and shall comply with 40 CFR Part 60 Subpart WWW - *Standards of Performance for Municipal Solid Waste Landfills* (Appendix A), since it has a design fill capacity in excess of 2,500,000 Mg and the facility was modified after May 30, 1991. Analysis of Tier 2 sampling conducted July 20, 2009 calculated a 77 ppmv-hexane at the Fort Smith Landfill. The gas collection and control system will be subject to the monitoring requirements of 40 CFR 60, Subpart WWW - *Standards of Performance for Municipal Solid Waste Landfills*, 30 months after the site specific NMOC emissions are reported to be equal to or greater than 50 Mg per year. [Regulation 19, §19.304, 40 CFR §60.752, Subpart WWW, and §60.754(3)]
12. The permittee shall submit an SN-01 NMOC Emission Rate Report, which shall include a LandGEM generated HAP list, annually to the Department, except as provided for in §60.757(b)(1)(ii) or (b)(3). The Department may request such additional information as may be necessary to verify the reported NMOC emission rate. The annual NMOC Emission Rate Report shall contain annual, 5-year and remaining site life (in years) estimates of the NMOC emission rate calculated using the formula and procedures provided in §60.754(a) or (b), as applicable until the calculated NMOC emission rate equals or exceeds 50 Mg/yr or the landfill is closed. Calculations shall use the latest Tier 2 site-specific NMOC concentration [July, 2009, 77 ppmv-hexane] per §60.754(a)(3) and the actual annual solid waste acceptance data. Any density conversions shall be documented and submitted with the report. When calculated, uncontrolled NMOC (VOC) surface emissions (SN-01) exceed 50 Mg/yr, per the reporting requirements contained in 40 CFR §60.757(b), FSLF shall comply with NSPS Subpart WWW

requirements contained in 40 CFR §60.752(b)(2). [Regulation 19, §19.304 and/or Regulation 18, §18.1002 and 40 CFR §60.757(b)]

13. The permittee shall retest the SN-01 site-specific NMOC concentration every 5 years using the Tier 2 test methods and procedures described in 40 CFR §60.754(a) for as long as the calculated emissions are less than 50 Mg/yr. The next site-specific Tier 2 testing must be conducted prior to July 20, 2014, using the sampling procedures provided in §60.754(a)(3) and analyzing the landfill gas from the main landfill gas header or probe to determine the on-site NMOC concentration in parts per million (ppm) by volume (v) as hexane using Method 25 or 25C sampling procedure or other methods, if the method has been approved in advance by the Director. The permittee shall notify the Department of the scheduled date of testing at least fifteen (15) days in advance of such test, according to Plantwide Condition #3. Test results shall be submitted to the Department within thirty (30) days after the completed testing at the address in General Provision #7, maintained on-site and make available to Department personnel upon request. [Regulation 19, §19.702, §19.304 and 40 CFR 60, Subpart WWW]
14. The permittee shall test the SN-01 site-specific individual HAP emissions using EPA Method 320 sampling procedure or other methods, if the method has been approved in advance by the Department. An initial test shall be performed within 180 days of permit issuance and after the initial test, retests shall coincide with the Tier 2 test in Plantwide Condition #13. The permittee shall notify the Department of the scheduled date of testing at least fifteen (15) days in advance of such test, according to Plantwide Condition #3. Test results shall be submitted to the Department within thirty (30) days after the completed testing at the address in General Provision #7, maintained on-site and make available to Department personnel upon request. [Regulation 18, §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
15. The permittee shall be required to modify this permit before starting any modification, construction, or reconstruction at the facility not described in this permit. The permittee is allowed to install additional gas extraction wells and remove and/or replace existing gas extraction wells; any such modifications shall be documented and a record maintained on site and make available to Department personnel upon request. [Regulation 19, §19.304 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
16. The permittee shall maintain records of the following on-site and make available to Department personnel upon request:
 - a. Submit a collection and control system design plan prepared by a professional engineer to the Department within 1 year, as required by 40 CFR §60.752(b)(2) and
 - b. Install a collection and control system that captures the gas generated within the landfill areas required paragraphs by 40 CFR §60.752(b)(2)(ii)(A) or (B) and (b)(2)(iii) within 30 months after the first annual report in which the emission rate equals or exceeds 50 Mg/yr. [40 CFR §60.752(b)]

17. When the calculated Tier 2 NMOC emission rate is equal to or greater than the 50 Mg/yr threshold level, the permittee shall:
 - a. An up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and
 - b. A readily accessible record of the nature, date of deposition, amount and location of asbestos-containing or non-degradable waste excluded from collection. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311 and 40 CFR Part 52, Subpart E]
18. Once estimated uncontrolled NMOC emissions equal or exceed 50 Mg/yr as calculated in accordance with 40 CFR 60.754, the permittee becomes subject to and shall comply with 40 CFR Part 63 Subpart AAAA – *National Emission Standards for Hazardous Air Pollutants – Municipal Solid Waste Landfills*. [Regulation 19, §19.304 and 40 CFR §63.1935]

Regulation 21 – Asbestos Abatement

19. The permittee is subject to and shall comply with Regulation 21, *Arkansas Asbestos Abatement Regulation*, §11.2 Standards for Waste Disposal Sites. [Regulation 21, §11.2(A-D), and 40 CFR §60.752]
20. The permittee of an active waste disposal site that received asbestos-containing waste material from a source covered by Regulation 21 shall meet the following requirements: [Regulation 21, §11.2(A)(i-ii)]
 - a. At the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:
 - i. Be covered with at least 6 inches of compacted nonasbestos-containing material; or
 - ii. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particulate dust by the dust suppression agent manufacturers to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Director. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.
 - b. Use an alternative emissions control method that has received prior written approval by the Director demonstrating the following criteria:
 - i. The alternative method will control asbestos emissions equivalent to currently required methods;
 - ii. The suitability of the alternative method for the intended application;
 - iii. The alternative method will not violate other regulations; and
 - iv. The alternative method will not result in increased water pollution, land pollution, or occupational hazards.

21. The permittee shall maintain waste shipment records (WSR) of all asbestos-containing waste material received: [Regulation 19, §19.705 and Regulation 21, §11.2(B)(i-vii)]
- a. Maintain waste shipment records (WSR), using a form with the following information:
 - i. The name, address, and telephone number of the waste generator;
 - ii. The name, address, and telephone number of the transporter(s);
 - iii. The quantity of the asbestos-containing waste material in tons;
 - iv. The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the Department Official responsible for administering the Asbestos program for the waste generator (identified in the WSR, and, if different the local, State, or EPA regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the WSR along with the report; and
 - v. The date of the receipt.
 - b. The permittee shall as soon as possible and no longer than 30 days after receipt of the asbestos-containing waste, send a copy of the signed WSR to the waste generator. [Regulation 21, §11.2(B)(ii)]
 - c. The permittee shall check the WSR that accompanies each asbestos-containing waste shipment that arrives at the waste disposal site for accuracy of the quantity of waste designated and attempt to reconcile any discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee will immediately report in writing to the specific agency responsible for administering the NESHAP program for the waste generator. Describe the discrepancy and attempts to reconcile it, and submit a copy of the WSR along with the report. [Regulation 19, §19.705 and Regulation 21, §11.2(B)(iii)]
 - d. Furnish upon request and make available during normal business hours for inspection by the Department, all records required under Regulation 21, §11.2. [Regulation 21, §11.2(B)(iv)]
 - e. The permittee shall maintain a copy of all records and reports required by Regulation 21, §11.2 on-site for at least 2 years. [Regulation 21, §11.2(B)(v)]
 - f. Maintain until landfill closure, records of the location, depth and area, and quantity in tons of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area. [Regulation 21, §11.2(B)(vi)]
 - g. Submit to the Director, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. [Regulation 21, §11.2(B)(vii)]
22. The permittee shall notify the Department in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at the waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Department at least 10 working days before excavation begins and in no event shall

excavation begin earlier than the date specified in the original notification. The following information shall be included in the notice: [Regulation 21, §11.2(C)(i-iv)]

- a. Schedule starting and completion dates;
 - b. Reason for disturbing the waste;
 - c. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material (if deemed necessary, the Department may require changes in the emission control procedures to be used); and
 - d. Location of any temporary storage site and the final disposal site.
23. Within 60 days of a site becoming inactive, the permittee shall record a notation, in accordance with Arkansas State law, on the deed to the facility property and on any other instrument that would normally be examined during a title search. This notation will in perpetuity notify any potential purchaser of the property that: [Regulation 21, §11.2(D)(i-ii)]
- a. The land has been used for the disposal of asbestos-containing waste material; and
 - b. The survey plot and record of the location and quantity of asbestos-containing waste disposed of within the disposal site required in Regulation 21, §11.2(B)(vi) have been filed with the Department.

Title VI Provisions

24. The permittee must comply with the standards for labeling of products using ozone-depleting substances. [40 CFR Part 82, Subpart E]
- a. All containers containing a class I or class II substance stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced to interstate commerce pursuant to §82.106.
 - b. The placement of the required warning statement must comply with the requirements pursuant to §82.108.
 - c. The form of the label bearing the required warning must comply with the requirements pursuant to §82.110.
 - d. No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
25. The permittee must comply with the standards for recycling and emissions reduction, except as provided for MVACs in Subpart B. [40 CFR Part 82, Subpart F]
- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §82.156.
 - b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
 - c. Persons performing maintenance, service repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

- d. Persons disposing of small appliances, MVACs, and MVAC like appliances must comply with record keeping requirements pursuant to §82.166. (“MVAC like appliance” as defined at §82.152)
 - e. Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to §82.156.
 - f. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
26. If the permittee manufactures, transforms, destroys, imports, or exports a class I or class II substance, the permittee is subject to all requirements as specified in 40 CFR Part 82, Subpart A, Production and Consumption Controls.
27. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.
- The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term “MVAC” as used in Subpart B does not include the air tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC 22 refrigerant.
28. The permittee can switch from any ozone depleting substance to any alternative listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G.

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

SECTION VII: INSIGNIFICANT ACTIVITIES

The following sources are insignificant activities. Any activity that has a state or federal applicable requirement shall be considered a significant activity even if this activity meets the criteria of §26.304 of Regulation 26 or listed in the table below. Insignificant activity determinations rely upon the information submitted by the permittee in an application dated August 31, 2009.

Description	Category
10,000 Gallon Diesel Storage Tank 01	A3
3,000 Gallon Diesel Storage Tank 02	A3
1,000 Gallon Gasoline Storage Tank 03	A13

SECTION VIII: GENERAL PROVISIONS

1. Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.) as the sole origin of and authority for the terms or conditions are not required under the Clean Air Act or any of its applicable requirements, and are not federally enforceable under the Clean Air Act. Arkansas Pollution Control & Ecology Commission Regulation 18 was adopted pursuant to the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.). Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.) as the origin of and authority for the terms or conditions are enforceable under this Arkansas statute. [40 CFR 70.6(b)(2)]
2. This permit shall be valid for a period of five (5) years beginning on the date this permit becomes effective and ending five (5) years later. [40 CFR 70.6(a)(2) and §26.701(B) of the Regulations of the Arkansas Operating Air Permit Program (Regulation 26)]
3. The permittee must submit a complete application for permit renewal at least six (6) months before permit expiration. Permit expiration terminates the permittee's right to operate unless the permittee submitted a complete renewal application at least six (6) months before permit expiration. If the permittee submits a complete application, the existing permit will remain in effect until the Department takes final action on the renewal application. The Department will not necessarily notify the permittee when the permit renewal application is due. [Regulation 26, §26.406]
4. Where an applicable requirement of the Clean Air Act, as amended, 42 U.S.C. 7401, et seq. (Act) is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, the permit incorporates both provisions into the permit, and the Director or the Administrator can enforce both provisions. [40 CFR 70.6(a)(1)(ii) and Regulation 26, §26.701(A)(2)]
5. The permittee must maintain the following records of monitoring information as required by this permit.
 - a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses performed;
 - c. The company or entity performing the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of such analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.

[40 CFR 70.6(a)(3)(ii)(A) and Regulation 26, §26.701(C)(2)]

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

6. The permittee must retain the records of all required monitoring data and support information for at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. [40 CFR 70.6(a)(3)(ii)(B) and Regulation 26, §26.701(C)(2)(b)]
7. The permittee must submit reports of all required monitoring every six (6) months. If permit establishes no other reporting period, the reporting period shall end on the last day of the anniversary month of the initial Title V permit. The report is due within thirty (30) days of the end of the reporting period. Although the reports are due every six months, each report shall contain a full year of data. The report must clearly identify all instances of deviations from permit requirements. A responsible official as defined in Regulation No. 26, §26.2 must certify all required reports. The permittee will send the reports to the address below:

Arkansas Department of Environmental Quality
Air Division
ATTN: Compliance Inspector Supervisor
5301 Northshore Drive
North Little Rock, AR 72118-5317

[40 C.F.R. 70.6(a)(3)(iii)(A) and Regulation 26, §26.701(C)(3)(a)]

8. The permittee shall report to the Department all deviations from permit requirements, including those attributable to upset conditions as defined in the permit.
 - a. For all upset conditions (as defined in Regulation 19, § 19.601), the permittee will make an initial report to the Department by the next business day after the discovery of the occurrence. The initial report may be made by telephone and shall include:
 - i. The facility name and location;
 - ii. The process unit or emission source deviating from the permit limit;
 - iii. The permit limit, including the identification of pollutants, from which deviation occurs;
 - iv. The date and time the deviation started;
 - v. The duration of the deviation;
 - vi. The average emissions during the deviation;
 - vii. The probable cause of such deviations;
 - viii. Any corrective actions or preventive measures taken or being taken to prevent such deviations in the future; and
 - ix. The name of the person submitting the report.

The permittee shall make a full report in writing to the Department within five (5) business days of discovery of the occurrence. The report must include, in addition to the information required by the initial report, a schedule of actions taken or planned to eliminate future occurrences and/or to minimize the amount the permit's limits were exceeded and to reduce the length of time the limits were exceeded. The permittee may submit a full report in writing (by facsimile, overnight courier, or other means) by the next business day after discovery of the occurrence, and the report will serve as both the initial report and full report.

- b. For all deviations, the permittee shall report such events in semi-annual reporting and annual certifications required in this permit. This includes all upset conditions reported in 8a above. The semi-annual report must include all the information as required by the initial and full reports required in 8a.

[Regulation 19, §19.601 and §19.602, Regulation 26, §26.701(C)(3)(b), and 40 CFR 70.6(a)(3)(iii)(B)]

9. If any provision of the permit or the application thereof to any person or circumstance is held invalid, such invalidity will not affect other provisions or applications hereof which can be given effect without the invalid provision or application, and to this end, provisions of this Regulation are declared to be separable and severable. [40 CFR 70.6(a)(5), Regulation 26, §26.701(E), and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
10. The permittee must comply with all conditions of this Part 70 permit. Any permit noncompliance with applicable requirements as defined in Regulation 26 constitutes a violation of the Clean Air Act, as amended, 42 U.S.C. §7401, et seq. and is grounds for enforcement action; for permit termination, revocation and reissuance, for permit modification; or for denial of a permit renewal application. [40 CFR 70.6(a)(6)(i) and Regulation 26, §26.701(F)(1)]
11. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit. [40 CFR 70.6(a)(6)(ii) and Regulation 26, §26.701(F)(2)]
12. The Department may modify, revoke, reopen and reissue the permit or terminate the permit for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 70.6(a)(6)(iii) and Regulation 26, §26.701(F)(3)]
13. This permit does not convey any property rights of any sort, or any exclusive privilege. [40 CFR 70.6(a)(6)(iv) and Regulation 26, §26.701(F)(4)]

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

14. The permittee must furnish to the Director, within the time specified by the Director, any information that the Director may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee must also furnish to the Director copies of records required by the permit. For information the permittee claims confidentiality, the Department may require the permittee to furnish such records directly to the Director along with a claim of confidentiality. [40 CFR 70.6(a)(6)(v) and Regulation 26, §26.701(F)(5)]
15. The permittee must pay all permit fees in accordance with the procedures established in Regulation 9. [40 CFR 70.6(a)(7) and Regulation 26, §26.701(G)]
16. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes provided for elsewhere in this permit. [40 CFR 70.6(a)(8) and Regulation 26, §26.701(H)]
17. If the permit allows different operating scenarios, the permittee shall, contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility a record of the operational scenario. [40 CFR 70.6(a)(9)(i) and Regulation 26, §26.701(I)(1)]
18. The Administrator and citizens may enforce under the Act all terms and conditions in this permit, including any provisions designed to limit a source's potential to emit, unless the Department specifically designates terms and conditions of the permit as being federally unenforceable under the Act or under any of its applicable requirements. [40 CFR 70.6(b) and Regulation 26, §26.702(A) and (B)]
19. Any document (including reports) required by this permit must contain a certification by a responsible official as defined in Regulation 26, §26.2. [40 CFR 70.6(c)(1) and Regulation 26, §26.703(A)]
20. The permittee must allow an authorized representative of the Department, upon presentation of credentials, to perform the following: [40 CFR 70.6(c)(2) and Regulation 26, §26.703(B)]
 - a. Enter upon the permittee's premises where the permitted source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records required under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

- d. As authorized by the Act, sample or monitor at reasonable times substances or parameters for assuring compliance with this permit or applicable requirements.
21. The permittee shall submit a compliance certification with the terms and conditions contained in the permit, including emission limitations, standards, or work practices. The permittee must submit the compliance certification annually within 30 days following the last day of the anniversary month of the initial Title V permit. The permittee must also submit the compliance certification to the Administrator as well as to the Department. All compliance certifications required by this permit must include the following: [40 CFR 70.6(c)(5) and Regulation 26, §26.703(E)(3)]
 - a. The identification of each term or condition of the permit that is the basis of the certification;
 - b. The compliance status;
 - c. Whether compliance was continuous or intermittent;
 - d. The method(s) used for determining the compliance status of the source, currently and over the reporting period established by the monitoring requirements of this permit; and
 - e. Such other facts as the Department may require elsewhere in this permit or by §114(a)(3) and §504(b) of the Act.
22. Nothing in this permit will alter or affect the following: [Regulation 26, §26.704(C)]
 - a. The provisions of Section 303 of the Act (emergency orders), including the authority of the Administrator under that section;
 - b. The liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance;
 - c. The applicable requirements of the acid rain program, consistent with §408(a) of the Act; or
 - d. The ability of EPA to obtain information from a source pursuant to §114 of the Act.
23. This permit authorizes only those pollutant emitting activities addressed in this permit. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
24. The permittee may request in writing and at least 15 days in advance of the deadline, an extension to any testing, compliance or other dates in this permit. No such extensions are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion in the following circumstances:
 - a. Such an extension does not violate a federal requirement;
 - b. The permittee demonstrates the need for the extension; and
 - c. The permittee documents that all reasonable measures have been taken to meet the current deadline and documents reasons it cannot be met.

City of Fort Smith Sanitary Landfill
Permit #: 1791-AOP-R0
AFIN: 66-00226

[Regulation 18, §18.314(A), Regulation 19, §19.416(A), Regulation 26, §26.1013(A), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]

25. The permittee may request in writing and at least 30 days in advance, temporary emissions and/or testing that would otherwise exceed an emission rate, throughput requirement, or other limit in this permit. No such activities are authorized until the permittee receives written Department approval. Any such emissions shall be included in the facility's total emissions and reported as such. The Department may grant such a request, at its discretion under the following conditions:
- a. Such a request does not violate a federal requirement;
 - b. Such a request is temporary in nature;
 - c. Such a request will not result in a condition of air pollution;
 - d. The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date/time such emission will occur;
 - e. Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and
 - f. The permittee maintains records of the dates and results of such temporary emissions/testing.

[Regulation 18, §18.314(B), Regulation 19, §19.416(B), Regulation 26, §26.1013(B), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]

26. The permittee may request in writing and at least 30 days in advance, an alternative to the specified monitoring in this permit. No such alternatives are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion under the following conditions:
- a. The request does not violate a federal requirement;
 - b. The request provides an equivalent or greater degree of actual monitoring to the current requirements; and
 - c. Any such request, if approved, is incorporated in the next permit modification application by the permittee.

[Regulation 18, §18.314(C), Regulation 19, §19.416(C), Regulation 26, §26.1013(C), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]

APPENDIX A

40 CFR Part 60, Subpart WWW
Standards of Performance for Municipal Solid Waste Landfill

e-CFR Data is current as of October 13, 2009

Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

[Browse Previous](#) | [Browse Next](#)

Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills

Source: 61 FR 9919, Mar. 12, 1996, unless otherwise noted.

§ 60.750 Applicability, designation of affected facility, and delegation of authority.

(a) The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Physical or operational changes made to an existing MSW landfill solely to comply with subpart Cc of this part are not considered construction, reconstruction, or modification for the purposes of this section.

(b) The following authorities shall be retained by the Administrator and not transferred to the State: §60.754(a)(5).

(c) Activities required by or conducted pursuant to a CERCLA, RCRA, or State remedial action are not considered construction, reconstruction, or modification for purposes of this subpart.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32750, June 16, 1998]

§ 60.751 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part.

Active collection system means a gas collection system that uses gas mover equipment.

Active landfill means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

Closed landfill means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under §60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

Closure means that point in time when a landfill becomes a closed landfill.

Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Controlled landfill means any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted in compliance with §60.752(b)(2)(i).

Design capacity means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site specific density, which must be recalculated annually.

Disposal facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

Emission rate cutoff means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.

Enclosed combustor means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

Flare means an open combustor without enclosure or shroud.

Gas mover equipment means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

Household waste means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, parts 264 and 265 of this title. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Interior well means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under §257.2 of this title.

Lateral expansion means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Modification means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its permitted design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.

Municipal solid waste landfill or *MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (§257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

Municipal solid waste landfill emissions or *MSW landfill emissions* means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

NMOC means nonmethane organic compounds, as measured according to the provisions of §60.754.

Nondegradable waste means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.

Passive collection system means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

Sludge means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

Solid waste means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that

are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 et seq.).

Sufficient density means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32750, June 16, 1998; 64 FR 9262, Feb. 24, 1999]

§ 60.752 Standards for air emissions from municipal solid waste landfills.

(a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the Administrator as provided in §60.757(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided for in paragraphs (a)(1) and (a)(2) of this section.

(1) The owner or operator shall submit to the Administrator an amended design capacity report, as provided for in §60.757(a)(3).

(2) When an increase in the maximum design capacity of a landfill exempted from the provisions of §60.752(b) through §60.759 of this subpart on the basis of the design capacity exemption in paragraph (a) of this section results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph (b) of this section.

(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, shall either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedures specified in §60.754. The NMOC emission rate shall be recalculated annually, except as provided in §60.757(b)(1)(ii) of this subpart. The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters is subject to part 70 or 71 permitting requirements.

(1) If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall:

(i) Submit an annual emission report to the Administrator, except as provided for in §60.757(b)(1)(ii); and

(ii) Recalculate the NMOC emission rate annually using the procedures specified in §60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

(A) If the NMOC emission rate, upon recalculation required in paragraph (b)(1)(ii) of this section, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (b)(2) of this section.

(B) If the landfill is permanently closed, a closure notification shall be submitted to the Administrator as provided for in §60.757(d).

(2) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall:

(i) Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year:

(A) The collection and control system as described in the plan shall meet the design requirements of paragraph (b)(2)(ii) of this section.

(B) The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator.

(C) The collection and control system design plan shall either conform with specifications for active collection systems in §60.759 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.759.

(D) The Administrator shall review the information submitted under paragraphs (b)(2)(i) (A), (B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.

(ii) Install a collection and control system that captures the gas generated within the landfill as required by paragraphs (b)(2)(ii)(A) or (B) and (b)(2)(iii) of this section within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year, as specified in §60.757(c)(1) or (2).

(A) An active collection system shall:

(1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;

(2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:

(i) 5 years or more if active; or

(ii) 2 years or more if closed or at final grade.

(3) Collect gas at a sufficient extraction rate;

(4) Be designed to minimize off-site migration of subsurface gas.

(B) A passive collection system shall:

(1) Comply with the provisions specified in paragraphs (b)(2)(ii)(A)(1), (2), and (2)(ii)(A)(4) of this section.

(2) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under §258.40.

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.

(A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e):

(B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).

(1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;

(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.

(iv) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of §§60.753, 60.755 and 60.756.

(v) The collection and control system may be capped or removed provided that all the conditions of paragraphs (b)(2)(v) (A), (B), and (C) of this section are met:

(A) The landfill shall be a closed landfill as defined in §60.751 of this subpart. A closure report shall be submitted to the Administrator as provided in §60.757(d);

(B) The collection and control system shall have been in operation a minimum of 15 years; and

(C) Following the procedures specified in §60.754(b) of this subpart, the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

(c) For purposes of obtaining an operating permit under title V of the Act, the owner or operator of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under part 70 or 71 of this chapter, unless the landfill is otherwise subject to either part 70 or 71. For purposes of submitting a timely application for an operating permit under part 70 or 71, the owner or operator of a MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to either part 70 or 71, becomes subject to the requirements of §§70.5(a)(1)(i) or 71.5(a)(1)(i) of this chapter, regardless of when the design capacity report is actually submitted, no later than:

(1) June 10, 1996 for MSW landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996;

(2) Ninety days after the date of commenced construction, modification, or reconstruction for MSW landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(d) When a MSW landfill subject to this subpart is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under part 70 or 71 of this chapter for the landfill if the landfill is not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met:

(1) The landfill was never subject to the requirement for a control system under paragraph (b)(2) of this section; or

(2) The owner or operator meets the conditions for control system removal specified in paragraph (b)(2)(v) of this section.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 18908, Apr. 10, 2000; 71 FR 55127, Sept. 21, 2006]

§ 60.753 Operational standards for collection and control systems.

Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of §60.752(b)(2)(ii) of this subpart shall:

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

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade;

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

(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in §60.757(f)(1);

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

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator;

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(1) The nitrogen level shall be determined using Method 3C, unless an alternative test method is established as allowed by §60.752(b)(2)(i) of this subpart.

(2) Unless an alternative test method is established as allowed by §60.752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:

(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;

(iv) A calibration error check is not required;

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

(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour; and

(f) Operate the control or treatment system at all times when the collected gas is routed to the system.

(g) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in §60.755(a)(3) through (5) or §60.755(c) of this subpart. If corrective actions are taken as specified in §60.755, the monitored exceedance is not a violation of the operational requirements in this section.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 61778, Oct. 17, 2000]

§ 60.754 Test methods and procedures.

(a)(1) The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in paragraph (a)(1)(i) of this section or the equation provided in paragraph (a)(1)(ii) of this section. Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per

megagram for L_0 , and 4,000 parts per million by volume as hexane for the C_{NMOC} . For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^n 2 k L_0 M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} =Total NMOC emission rate from the landfill, megagrams per year

k =methane generation rate constant, year⁻¹

L_0 =methane generation potential, cubic meters per megagram solid waste

M_i =mass of solid waste in the i^{th} section, megagrams

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

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

3.6×10^{-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

(ii) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_0R (e^{-kc} - e^{-kt}) C_{NMOC}(3.6 \times 10^{-9})$$

Where:

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

L_0 =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 landfill, years

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

c =time since closure, years; for active landfill $c=0$ and $e^{-kc}=1$

3.6×10^{-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 of R, if documentation of the nature and amount of such wastes is maintained.

(2) *Tier 1.* The owner or operator shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in §60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under §60.752(b)(1).

(ii) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the landfill owner shall either comply with §60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in paragraph (a)(3) of this section.

(3) *Tier 2.* The landfill owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of appendix A of this part. Method 18 of appendix A of this part may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If using Method 18, the owner or operator must identify all compounds in the sample and, as a minimum, test for those compounds published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. As a minimum, the instrument must be calibrated for each of the compounds on the list. Convert the concentration of each Method 18 compound to $C_{\text{NMOCas hexane}}$ by multiplying by the ratio of its carbon atoms divided by six. If more than the required number of samples are taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from Method 25 or 25C of appendix A of this part by six to convert from $C_{\text{NMOCas carbon}}$ to $C_{\text{NMOCas hexane}}$. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of three samples must be collected from the header pipe.

(i) The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations provided in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in paragraph (a)(1) of this section.

(ii) If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the landfill owner or operator shall either comply with §60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in paragraph (a)(4) of this section.

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in §60.757(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

(4) *Tier 3.* The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of this part. The landfill owner or operator shall estimate the NMOC mass emission rate using equations in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using a site-specific methane generation rate constant k , and the site-specific NMOC concentration as determined in paragraph (a)(3) of this section instead of the default values provided in paragraph (a)(1) of this section. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

(i) If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the owner or operator shall comply with §60.752(b)(2).

(ii) If the NMOC mass emission rate is less than 50 megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in §60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in §60.757(b)(1) using the equations in paragraph (a)(1) of this section and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (a)(3) of this section. The calculation of the

methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

(5) The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in paragraphs (a)(3) and (a)(4) of this section if the method has been approved by the Administrator.

(b) After the installation of a collection and control system in compliance with §60.755, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in §60.752(b)(2)(v), using the following equation:

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

where,

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

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

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

(1) The flow rate of landfill gas, Q_{LFG} , shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of this part.

(2) The average NMOC concentration, C_{NMOC} , shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of this part. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

(c) When calculating emissions for PSD purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in §§51.166 or 52.21 of this chapter using AP-42 or other approved measurement procedures.

(d) For the performance test required in §60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of appendix A of this part must be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by §60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

where,

NMOC_{in} = mass of NMOC entering control device

NMOC_{out} = mass of NMOC exiting control device

(e) For the performance test required in §60.752(b)(2)(iii)(A), the net heating value of the combusted landfill gas as determined in §60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C.

A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under §60.18(f)(4).

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 18908, Apr. 10, 2000; 65 FR 61778, Oct. 17, 2000; 71 FR 55127, Sept. 21, 2006]

§ 60.755 Compliance provisions.

(a) Except as provided in §60.752(b)(2)(i)(B), the specified methods in paragraphs (a)(1) through (a)(6) of this section shall be used to determine whether the gas collection system is in compliance with §60.752(b)(2)(ii).

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_0 kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in §60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(i) For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_0R (e^{-kc} - e^{-kt})$$

where,

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

L_0 = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

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

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

(ii) For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^n 2kL_0M_i(e^{-kt_i})$$

where,

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

k = methane generation rate constant, year⁻¹

L_0 = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

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

(iii) If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraphs (a)(1) (i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in paragraphs (a)(1) (i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collectors for compliance with §60.752(b)(2)(ii)(A)(2), the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with §60.752(b)(2)(ii)(A)(3), the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under §60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar 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 exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

(4) Owners or operators are not required to expand the system as required in paragraph (a)(3) of this section during the first 180 days after gas collection system startup.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in §60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of 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 exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

(6) An owner or operator seeking to demonstrate compliance with §60.752(b)(2)(ii)(A)(4) through the use of a collection system not conforming to the specifications provided in §60.759 shall provide information satisfactory to the Administrator as specified in §60.752(b)(2)(i)(C) demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with §60.753(a), each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in §60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in §60.753(d).

(1) After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.

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

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of this part, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4) (i) through (v) of this section shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §60.753(d).

(i) The location of each monitored exceedance shall be marked and the location recorded.

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

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

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4) (ii) or (iii) of this section shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in paragraph (c)(4) (iii) or (v) shall be taken.

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

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

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

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of this part, except that "methane" shall replace all references to VOC.

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

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of this part, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of this part shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of appendix A of this part shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of this subpart apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998]

§ 60.756 Monitoring of operations.

Except as provided in §60.752(b)(2)(i)(B),

(a) Each owner or operator seeking to comply with §60.752(b)(2)(ii)(A) for an active gas collection system shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60.755(a)(3); and

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in §60.755(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in §60.755(a)(5).

(b) Each owner or operator seeking to comply with §60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

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

(2) A device that records flow to or bypass of the control device. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

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

(c) Each owner or operator seeking to comply with §60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

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

(2) A device that records flow to or bypass of the flare. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

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

(d) Each owner or operator seeking to demonstrate compliance with §60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator shall review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in §60.759 or seeking to monitor alternative parameters to those required by §60.753 through §60.756 shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with §60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in §60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998; 65 FR 18909, Apr. 10, 2000]

§ 60.757 Reporting requirements.

Except as provided in §60.752(b)(2)(i)(B),

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

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

(i) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 or

(ii) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(2) The initial design capacity report shall contain the following information:

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

(ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the State, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(3) An amended design capacity report shall be submitted to the Administrator providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in §60.758(f).

(b) Each owner or operator subject to the requirements of this subpart shall submit an NMOC emission rate report to the Administrator initially and annually thereafter, except as provided for in paragraphs (b)(1)(ii) or (b)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.

(1) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in §60.754(a) or (b), as applicable.

(i) The initial NMOC emission rate report may be combined with the initial design capacity report required in paragraph (a) of this section and shall be submitted no later than indicated in paragraphs (b)(1)(i)(A) and (B) of this section. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in paragraphs (b)(1)(ii) and (b)(3) of this section.

(A) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or

(B) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(ii) If the estimated NMOC emission rate as reported in the annual report to the Administrator is less than 50 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Administrator. This estimate shall be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate shall be submitted to the Administrator. The revised estimate shall cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

(2) The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.

(3) Each owner or operator subject to the requirements of this subpart is exempted from the requirements of paragraphs (b)(1) and (2) of this section, after the installation of a collection and control system in compliance with §60.752(b)(2), during such time as the collection and control system is in operation and in compliance with §§60.753 and 60.755.

(c) Each owner or operator subject to the provisions of §60.752(b)(2)(i) shall submit a collection and control system design plan to the Administrator within 1 year of the first report required under paragraph (b) of this section in which the emission rate equals or exceeds 50 megagrams per year, except as follows:

(1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in §60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.

(2) If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in §60.754(a)(4), and the resulting NMOC emission rate is less than 50 Mg/yr, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of §60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator within 1 year of the first calculated emission rate exceeding 50 megagrams per year.

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

(e) Each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report shall contain all of the following items:

(i) A copy of the closure report submitted in accordance with paragraph (d) of this section;

(ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and

(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in §60.752(b)(2)(v) have been met.

(f) Each owner or operator of a landfill seeking to comply with §60.752(b)(2) using an active collection system designed in accordance with §60.752(b)(2)(ii) shall submit to the Administrator annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under §60.8. For enclosed combustion devices and flares, reportable exceedances are defined under §60.758(c).

(1) Value and length of time for exceedance of applicable parameters monitored under §60.756(a), (b), (c), and (d).

(2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756.

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of 5 days.

(5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of §60.755.

(g) Each owner or operator seeking to comply with §60.752(b)(2)(iii) shall include the following information with the initial performance test report required under §60.8:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area; and

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

(6) The provisions for the control of off-site migration.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998; 65 FR 18909, Apr. 10, 2000]

§ 60.758 Recordkeeping requirements.

(a) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of an MSW landfill subject to the provisions of §60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered §60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (b)(1) through (b)(4) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(ii):

(i) The maximum expected gas generation flow rate as calculated in §60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.759(a)(1).

(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:

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

(ii) The percent reduction of NMOC determined as specified in §60.752(b)(2)(iii)(B) achieved by the control device.

(3) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii)(B) (1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in §60.118; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in §60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under §60.757(f):

(i) For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28 °C below the average combustion temperature during the most recent performance test at which compliance with §60.752(b)(2)(iii) was determined.

(ii) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under paragraph (b)(3) of this section.

(2) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under §60.756.

(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with §60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal, or Federal regulatory requirements.)

(4) Each owner or operator seeking to comply with the provisions of this subpart by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under §60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under §60.755(b).

(2) Each owner or operator subject to the provisions of this subpart shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in §60.759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in §60.759(a)(3)(ii).

(e) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in §60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(f) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998; 65 FR 18909, Apr. 10, 2000]

§ 60.759 Specifications for active collection systems.

(a) Each owner or operator seeking to comply with §60.752(b)(2)(i) shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator as provided in §60.752(b)(2)(i)(C) and (D):

(1) The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat.

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

(3) The placement of gas collection devices determined in paragraph (a)(1) of this section shall control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (a)(3)(ii) of this section.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under §60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request.

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

$$Q_i = 2k L_0 M_i (e^{-kt}) C_{NMOC} (3.6 \times 10^{-9})$$

where,

Q_i = NMOC emission rate from the i^{th} section, megagrams per year

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

L_0 = methane generation potential, cubic meters per megagram solid waste

M_i = mass of the degradable solid waste in the i^{th} section, megagram

t_i = age of the solid waste in the i^{th} section, years

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

3.6×10^{-9} = conversion factor

(iii) The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_0 and C_{NMOC} provided in §60.754(a)(1) or the alternative values from §60.754(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall construct the gas collection devices using the following equipment or procedures:

(1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

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

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

(c) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall convey the landfill gas to a control system in compliance with §60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

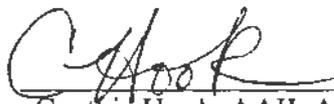
(1) For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (c)(2) of this section shall be used.

(2) For new collection systems, the maximum flow rate shall be in accordance with §60.755(a)(1).

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32753, June 16, 1998; 64 FR 9262, Feb. 24, 1999; 65 FR 18909, Apr. 10, 2000]

CERTIFICATE OF SERVICE

I, Cynthia Hook, hereby certify that a copy of this permit has been mailed by first class mail to City of Fort Smith Sanitary Landfill, P.O. Box 1908, Fort Smith, AR, 72903, on this 19~~th~~ day of July, 2010.

A handwritten signature in black ink, appearing to read 'C Hook', written over a horizontal line.

Cynthia Hook, AAIL, Air Division

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1791-AOP-R0 AFIN: 66-00226

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

City of Fort Smith Sanitary Landfill
5900 Commerce Road
Fort Smith, Arkansas 72916

3. PERMIT WRITER:

Andrea Sandage

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Legislative Bodies
NAICS Code: 92112

5. SUBMITTALS:

8/31/2009 10/15/09 12/10/09 2/12/10 4/2/10

6. REVIEWER'S NOTES:

The city of Fort Smith owns and operates a municipal solid waste sanitary landfill located at 5900 Commerce Road in Fort Smith, Arkansas. The facility includes a Class 1 and Class 4 Landfill and a Landfill Gas (LFG) Collection and Control System (GCCS) that routes the gas to the landfill gas flare (LGF) for destruction (combustion). The LFG is primarily utilized by an off-site end user and the flare is only operational at those times when it is not used for its primary purpose. This facility, which previously operated under a Minor Source air permit, is required to obtain a Title V Operating Air Permit under the provisions of 40 CFR Part 60 Subpart WWW – *Standards of Performance for Municipal Solid Waste Landfills*. There is no increase in the design capacity of the landfill with this modification. Permitted emissions are increasing by: 114.2 tpy PM, 21.9 tpy PM₁₀, 4.6 tpy SO₂, 53.6 tpy VOC, 20.7 tpy CO, 3.7 tpy NO_x, 2.3 tpy Hydrogen Chloride, numerous HAPs, and 4.04 tpy Hydrogen Sulfide with this modification. The total summary increase of particulate (dust) emissions is due to traffic emissions (SN-03) included in this Title V permit but not in the previous minor source permit.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

None

8. PSD APPLICABILITY:

- a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
- b. Is the facility categorized as a major source for PSD? N

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility	VOC (NMOC)	NSPS Subpart WWW

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING: 2004 - 2008 MET data – modeled 5 year

Criteria Pollutants - PM₁₀ - Annual 1st high, 24-hr 6th high – 12 hr M-F, 4hr Sat.
 CO - 2nd high

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m ³)	Averaging Time	Modeled Concentration (µg/m ³)	Background Values NLR 2008 (µg/m ³)	Total Highest Concentration (µg/m ³)	% of NAAQS
PM ₁₀	20.82*	50	Annual	9.86	20	29.86	59.7
		150	24-Hour	96.39	37	133.39	89.0
CO	24.71**	10,000	8-Hour	76.3	1717.8	1794.1	17.9
		40,000	1-Hour	269.2	2863.0	3132.2	7.8

* Includes SN-02 @ 1.10 lb/hr & SN-03 @ 19.72 lb/hr (0.52 lb/hr un-paved, 19.2 lb/hr paved)

** SN-02 Flare

Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
1,1,2,2-Tetrachloroethane	6.86544	0.755198	0.139	Y
1,1-Dichloroethane (ethylidene dichloride)	404.7853	44.52638	0.177	Y
1,1-Dichloroethene (vinylidene chloride)	19.82618	2.180879	0.014	Y
1,2-Dichloroethane (ethylene dichloride)	40.47444	4.452188	0.031	Y
Acrylonitrile	4.339468	0.477342	0.250	Y
Benzene	1.597342	0.175708	0.111	Y
Carbon disulfide	3.11411	0.342552	0.0326	Y
Dichloromethane	173.681	19.10491	0.890	Y
Ethylbenzene	434.1922	47.76115	0.366	Y
Hexane	176.2372	19.38609	0.426	Y
Perchloroethylene (tetrachloroethyle)	169.5297	18.64826	0.460	Y
Toluene	75.36196	8.289816	2.692	Y
Trichloroethylene (trichloroethene)	53.74233	5.911656	0.275	Y
Vinyl chloride	2.556237	0.281186	0.352	N
Xylenes	434.1922	47.76115	0.955	Y
Hydrochloric Acid (HCl)	2.984	0.328	0.52	N

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary (24hr - 1st high). The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Vinyl chloride *	25.57	3.09	Y
HCl	29.84	1.19	Y

* Includes SN-01 @ 0.335 lb/hr & SN-02 @ 0.017 lb/hr

H₂S Modeling: 2004 - 2008 MET data --2nd high

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards - N

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H ₂ S	20 parts per million (5-minute average*)	32.58 ppb or 0.0326 ppm	Y
	80 parts per billion (8-hour average) residential area	12.773 $\mu\text{g}/\text{m}^3$ = 9.17 ppb	Y
	100 parts per billion (8-hour average) nonresidential area	12.773 $\mu\text{g}/\text{m}^3$ = 9.17 ppb	Y

Includes SN-01 @ 0.902 lb/hr & SN-02 @ 0.018 lb/hr = 0.92 lb/hr H₂S

*To determine the 5-minute average use the following equation

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C_p = 5-minute average concentration

C_m = 1-hour average concentration (27.63 $\mu\text{g}/\text{m}^3$ = 19.82 ppb)

t_m = 60 minutes

t_p = 5 minutes

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	LandGEM 3.02	NMOC 25.47 Mg/yr	None	n/a	100% of LFG is emitted uncontrolled over the landfill surface. Concentration of NMOC based on site specific Tier II test values of 77 ppmv as hexane (July 2009)
02 Flare	<p><u>PM</u> – AP-42 Table 2.4-5 footnote a (11/98)</p> <p><u>SO₂</u> – AP-42 2.4.4.2</p> <p><u>NMOC</u> – Tier II testing</p> <p><u>CO & NO_x</u> – AP-42 13.5-1</p> <p>HCl – AP-42 2.4.2.2</p> <p>HAPs – AP-42 2.4.3</p>	<p><u>PM</u> = 17 lb/10-6 dscf Methane (0.0010 lb/hr/dscfm)</p> <p><u>SO₂</u> = 46.9 ppmv Reduced S</p> <p><u>NMOC</u> = 77 ppmv</p> <p><u>CO</u> = 0.370 lb/MMBtu <u>NO_x</u> = 0.068 lb/MMBtu</p> <p>C_{Cl} = 42.0 ppmv</p> <p>Varies, see Table 2.4-1</p>	Flares	<p>NMOC – 98%</p> <p>HAPs - 98.0%</p>	<p>Open candlestick flare 2200 scfm @8760 hr/yr @1012 BTU/scf Methane @50% Methane Concentration for PM, SO₂ & NO_x NMOC = 100% VOC</p>
03	Unpaved Roads – AP-42, 13.2.2 Tables 13.2.2-1,-2,-3	<p>Silt content s = 3.9%</p> <p>1 (20 ton) truck, 5 miles, P=100 PM = 3.81 lb/VMT PM10 = 0.93 lb/VMT</p>	Water suppression as necessary	None	Silt Content for Arkansas – AP 42 Section 13.2.2 Related Information

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
03	Paved Roads – AP-42, 13.2.1 Tables 13.2-1.1, 13.2.1-2,-4	Silt loading sL = 3.0 250 (20 ton) truck, 2.1 miles, P=100 PM = 1.71 lb/VMT PM10 = 0.33 lb/VMT			Silt loading for dirty paved roads – Air Pollution Engineering Manual-2000

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01	NMOC (VOC Surface emissions)	Tier 2	If NMOC is less than or equal to 50 Mg/yr (54.1 tpy), test every 5 years, next test due before July 20, 2014	NSPS Subpart WWW
01	Individual HAPs	Method 320 or other approved method	Within 180 days of permit issuance and after the initial test, retests shall coincide with the Tier 2 test	§18.1002 and A.C.A.

14. MONITORING OR CEMS

This facility has no CEMS or other monitoring equipment for air emissions.

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
Facility	Total in-place Municipal Solid Waste	72,607,000 CY design capacity (Tons accepted converted to CY)	Monthly	Y
Facility	Weigh Each Truck Load and Record Monthly & 12-month rolling Acceptance Rate	None	Monthly	N
Facility	Plot Map of collector system	None	On-going	N
Facility	Asbestos-containing or non-degradable waste: nature, date, quantity received & location	None	On-going	N
2	Maintenance Log	Maintain Good Operating Practices Maintain records	Monthly	N
1	Operating Hours		On-going	No
2	scfm	Varies with OSs	Every 15 minutes	Yes
01	NMOC SN-01	50 Mg/yr	Annually	Yes

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
02	0%	§18.501, §60.18(f)(1) and A.C.A.	Weekly Observation
03 and Off-site	5%	Reg. #18.501 & A.C.A.	Observation & Dust Suppression methods, NPDES permit required.

17. DELETED CONDITIONS:

There are no deleted conditions.

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
10,000 Gallon Diesel Storage Tank 01	A3			0.002				
3,000 Gallon Diesel Storage Tank 02	A3			0.001				
1,000 Gallon Gasoline Storage Tank 03	A13			0.355				

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1791-A

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

 Paula Parker, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-01-10

Facility Name: City of Fort Smith Sanitary Landfill
 Permit Number: 1791-AOP-R0
 AFIN: 66-00226

\$/ton factor	22.07	Annual Chargeable Emissions (tpy)	211.67
Permit Type	Modification	Permit Fee \$	4157.3259

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500

Check if Facility Holds an Active Minor Source or Minor Source General Permit

If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$ 0

Total Permit Fee Chargeable Emissions (tpy) 188.37

Initial Title V Permit Fee Chargeable Emissions (tpy)

HAPs not included in VOC or PM: Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants: All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM	<input checked="" type="checkbox"/>	5.3	119.5	114.2	114.2	119.5
PM ₁₀	<input type="checkbox"/>	5.3	27.2	21.9		
SO ₂	<input checked="" type="checkbox"/>	0	4.6	4.6	4.6	4.6
VOC	<input checked="" type="checkbox"/>	1.8	55.4	53.6	53.6	55.4
CO	<input type="checkbox"/>	87.6	108.3	20.7		
NO _x	<input checked="" type="checkbox"/>	16.2	19.9	3.7	3.7	19.9
Hydrochloric Acid (HCl)	<input checked="" type="checkbox"/>	0	2.3	2.3	2.3	2.3
1,1,2-Tetrachloroethane	<input type="checkbox"/>	0	0.62	0.62		
1,1-Dichloroethane (ethylidene dichloride)	<input type="checkbox"/>	0	0.79	0.79		
1,1-Dichloroethene (vinylidene chloride)	<input type="checkbox"/>	0	0.08	0.08		
1,2-Dichloroethane (ethylene dichloride)	<input type="checkbox"/>	0	0.15	0.15		
Acrylonitrile	<input type="checkbox"/>	0	1.15	1.15		
Benzene	<input type="checkbox"/>	0	0.49	0.49		
Carbon disulfide	<input type="checkbox"/>	0	0.16	0.16		
Dichloromethane	<input checked="" type="checkbox"/>	0	3.91	3.91	3.91	3.91
Ethylbenzene	<input type="checkbox"/>	0	1.62	1.62		
Hexane	<input type="checkbox"/>	0	1.88	1.88		
Perchloroethylene (tetrachloroethyle)	<input checked="" type="checkbox"/>	0	2.02	2.02	2.02	2.02
Toluene	<input type="checkbox"/>	0	11.79	11.79		



PERMIT TO OPERATE

EASTERN KERN AIR POLLUTION CONTROL DISTRICT

Administrative Office: 2700 "M" Street Suite 302, Bakersfield, CA 93301
Phone: (661) 862-5250 • Fax: (661) 862-5251 • ekapcd@co.kern.ca.us
Tehachapi Field Office: Phone: (661) 823-9264 • Fax: (661) 823-0167

PERMIT NUMBER: **0274001**

PERMIT TO OPERATE IS HEREBY GRANTED TO: **CLEAN ENERGY LNG, LLC.**

FOR EQUIPMENT LOCATED AT: **14436 CONTRACTOR ROAD, BORON**

EQUIPMENT OR PROCESS DESCRIPTION: **LIQUEFIED NATURAL GAS PRODUCTION FACILITY**

OPERATIONAL CONDITIONS LISTED BELOW.

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR LOCATION, OR ANY ALTERATION. EQUIPMENT MODIFICATION REQUIRES AN APPLICATION FOR AUTHORITY TO CONSTRUCT.

TESTING: Permittee may be required to provide adequate sampling and testing facilities.

GLEN E. STEPHENS, P.E.
AIR POLLUTION CONTROL OFFICER

REVOCABLE: This permit does not authorize emission of air contaminants in excess of those allowed by Rules and Regulations of EKAPCD.

By:  _____

For Period: 09-30-13 To 09-30-14

CONDITIONS OF APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware all conditions of approval imposed by any applicable Authority to Construct remain in effect for life of project, unless modified by application.

EQUIPMENT DESCRIPTION: Liquefied Natural Gas Production Facility, including following equipment:

A. Amine System:

1. Amine Contactor (2-T-600) 36" O.D x 63'-0"H;
2. Amine Regenerator (2-T-610) 30" O.D. x 52'-0" H;
3. 2.446 MM BTU/hr Lean/Rich Amine Exchanger (2-E-400) 22" OD x 16'-0" H;
4. 0.9 MM BTU/hr Amine Cooler (2-A-800) 18" OD x 16"0" L;
5. 2.7 MM BTU/hr Amine Reboiler (2-E-410) 24" OD x 29'-0" L;
6. 1.26 MM BTU/hr Reflux Condenser (2-A-801);
7. Amine Particulate Filter (2-F-500) 20" OD x 5';
8. Amine Charcoal Filter (2-F-510) 16" OD x 4'-0";
9. 50-hp (44-gpm) Lean Amine Circulation Pump #1 (2-P300 A);
10. 50-hp (44-gpm) Lean Amine Circulation Pump #2 (2-P300 B);
11. 7.5-hp (50-gpm) Amine Booster Pump #1 (2-P-330 A);
12. 7.5-hp (50-gpm) Amine Booster Pump #2 (2-P-330 B);

CLEAN ENERGY LNG, LLC

Permit #0274001

Page 2

13. 1-hp (5-gpm) Water/Amine Make-Up Pump (2-P-235);
14. 1.5-hp (1.7-gpm) Amine Reflux Pump #1 (2-P-320 A);
15. 1.5-hp (1.7-gpm) Amine Reflux Pump #2 (2-P-320 B);
16. Amine Make-Up Tank (2-T-235A) 30" OD x 8';
17. Sweet Gas After-Scrubber (2-V-110) 6'-0 x 6';
18. Amine Flash Separator (2-V-120) 42" OD x 8'; and
19. Reflux Accumulator (2-V-140) 30" OD x 5'-0" LG.

B. LNG Liquefaction System:

1. Natural Gas Water Cooling Heat Exchanger (3-HE-601) 18" OD x 15'-0" L (capacity to be determined);
2. G-S Liquid Separator G/S-26-F8C 950;
3. 295 cu. ft. Moisture Adsorber Bed #1 (3-D-301) 5'-0" OD x 15'-0" H;
4. 295 cu. ft. Moisture Adsorber Bed #2 (3-D-302) 5'-0" OD x 15'-0" H;
5. 12.6 cu. ft. Adsorption Bed Dust Filter (3-F-302) 24" OD x 48" H;
6. 50 cu. ft. Regeneration Heater (3-HE-303) 30" OD x 10" L;
7. 7 cu. ft. Regeneration Gas Cooler (3-HE-306) 10" OD x 12'-0" L;
8. Regeneration Gas Separator (3-SP-305) (size to be determined); and
9. Heavy Hydrocarbon Reboiler (3-HE-502) (size to be determined).

10. Train 1:

- a. 5,000-hp Nitrogen Recycle Compressor (3-C-151) 8'-8" x 18'-0" L;
- b. 6.5 cu. ft. Compressor After Cooler (3-HE-(TBD)) 10" OD x 12"-0";
- c. Cold Turbo Expander w/ Booster (3-TBX-400) 10" OD x 8'-0" L;
- d. Warm Turbo Expander w/ Booster (3-TBX-410) 10" OD x 8'-0" L;
- e. 3.5 cu. ft. Cold Turbo Booster After Cooler (3-HE-430) 8" OD x 12'-0" L;
- f. 3.5 cu. ft. Warm Turbo Booster After Cooler (3-HE-440) 8" OD x 12'-0" L;
- g. 5-hp Compressor Lube Oil Pump #1 (3-M-301);
- h. 5-hp Compressor Lube Oil Pump #2 (3-M-301A);
- i. 3-kW Compressor Lube Oil Heater(3-H-301);
- j. 125-hp Natural Gas Chiller Compressor (3-R-1651) 7'-6" x 14'-0";
- k. 2-hp Chiller Lube Oil Pump #1 (3-M- 201);
- l. 2-hp Chiller Lube Oil Pump #2 (3-M- 201A);
- m. 2-kW Chiller Lube Oil Heater (3-H-201);
- n. 5-kW Thaw Heater (3-H-102);
- o. Cold Box (size to be determined) 10'-0" x 8'-6" x 63'-0"H;
- p. Main Heat Exchanger (3-HE-501) 42" x 83" OD x 166" L; and
- q. Fractionation Column (3-C-501) (size to be determined).

11. Train 2:

- a. 5,000-hp Nitrogen Recycle Compressor (3-C-151) 8'-8" x 18'-0" L;
- b. 6.5 cu. ft. Compressor After Cooler (3-HE-(TBD)) 10" OD x 12"-0";
- c. Cold Turbo Expander w/ Booster (3-TBX-400) 10" OD x 8'-0" L;
- d. Warm Turbo Expander w/ Booster (3-TBX-410) 10" OD x 8'-0" L;
- e. 3.5 cu. ft. Cold Turbo Booster After Cooler (3-HE-430) 8" OD x 12'-0" L;
- f. 3.5 cu. ft. Warm Turbo Booster After Cooler (3-HE-440) 8" OD x 12'-0" L;
- g. 5-hp Compressor Lube Oil Pump #1 (3-M-301);
- h. 5-hp Compressor Lube Oil Pump #2 (3-M-301A);
- i. 3-kW Compressor Lube Oil Heater(3-H-301);
- j. 125-hp Natural Gas Chiller Compressor (3-R-1651) 7'-6" x 14'-0";
- k. 2-hp Chiller Lube Oil Pump #1 (3-M- 201);
- l. 2-hp Chiller Lube Oil Pump #2 (3-M- 201A);
- m. 2-kW Chiller Lube Oil Heater (3-H-201);
- n. 5-kW Thaw Heater (3-H-102);
- o. Cold Box (size to be determined) 10'-0" x 8'-6" x 63'-0"H;

- p. Main Heat Exchanger (3-HE-501) 42" x 83" OD x 166" L; and
- q. Fractionation Column (3-C-501) (size to be determined).

C. Heavy Hydrocarbon Removal:

- 1. LP Separator (3-V-101) 4'-0" x 10'-0" L;
- 2. HP Separator (3-V-102) 5'-0" X 12'-6" L; and
- 3. 30,000 Gallon Heavy Hydrocarbon Storage Tank (3-V-103) 8'-0" OD x 24'-0" L (shared with 0274004).

D. LNG Storage, Boil-Off Compressor, and Regeneration Gas Compressor:

- 1. 1.5 MM Gallon LNG Storage Tank (4-TK-1) 88'-6" OD x 51'-0" H (shared with Permit 0274007);
- 2. 3.42 MM Btu/hr Preheater (4-E-6) 18" OD x 10'-0";
- 3. 0.1370 MM Btu/hr C2/C3 Aftercooler (4-E-8);
- 4. 200-hp (0.795 MM SCFD) Boil-Off /Flash Gas Compressor #1 (4-C -2 A);
- 5. 150-hp Boil-off/ Flash Gas Compressor # 2 (4-C-2 B);
- 6. 200-hp (0.795 MM SCFD) Boil-Off /Flash Gas Compressor #3 (4-C-3 A);
- 7. 150-hp Boil- Off/ Flash Gas Compressor #4 4-C- 3B;
- 8. 5-hp Boil-Off /Flash Gas Compressor Oil Pump #1 (4-P-4 A);
- 9. 5-hp Boil-Off /Flash Gas Compressor Oil Pump #2 (4-P-4 B);
- 10. 5-hp Boil-off/ Flash Gas Compressor Oil Pump #3 (4-P-5 A);
- 11. 5-hp Boil-Off/ Flash Gas Compressor Oil Pump #4 (4-P-5 B);
- 12. 25-hp (3.6 MM SCFD) Regeneration Gas Compressor (4-C -4);
- 13. 5-kW Regeneration Gas Heater #1 (4-E-9); and
- 14. 15-hp (100-gpm) Trailer Unloading LNG Pump (4-P-6).

OPERATIONAL CONDITIONS:

- 1. Liquefied natural gas (LNG) storage vessel shall be gas tight and vent to vapor recovery system or to flare. (Rule 210.1 BACT Requirement)
- 2. Permittee shall establish an inspection and maintenance program consistent with District Rules 414.1 and 414.5, and requirements described below. Where there are differences in the requirements, the more stringent requirement shall apply. (Rules 414.1, 414.5, 419 and 210.1 BACT Requirement)
 - a. All accessible pumps, compressors and pressure relief devices (pressure relief valves or rupture disks) shall be audio-visually inspected once during every eight-hour operating period.
 - b. All accessible valves, fittings, pressure relief devices (PRDs), hatches, pumps, compressors, etc. shall be inspected quarterly using a leak detection device such as a Foxboro OVA 108 calibrated for methane.
 - c. All inaccessible components shall be inspected annually using a leak detection device calibrated for methane.
 - d. Gas leak for all components shall be defined as follows:
VOC concentration greater than 100 ppmv as methane, as determined by EPA Method 21, or equivalent
 - e. Inspection frequency for accessible components, except pumps and compressors, may change to quarterly if all accessible components at the facility have operated for five consecutive quarters with no leaks.
 - f. All leaks over 100-ppmv shall be repaired within one calendar day.
 - g. Any leak over 100-ppmv detected by District inspection(s) in any 24-hour period shall constitute a violation of this Authority to Construct (ATC)/Permit to Operate (PTO).
- 3. The following component count shall be utilized to determine fugitive emissions:

Valves	Gas	550
Compressor Seals	Gas	4
Connectors	All	610
Pressure Relief Valve	Gas	69
Open-ended Lines	All	5
- 4. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 210.1 and 209)

CLEAN ENERGY LNG, LLC

Permit #0274001

Page 4

5. Compliance with all operational conditions shall be verified by appropriate record keeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 210.1)
6. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC Sec 41700)
7. The District shall be notified of any breakdown conditions in accordance with Rule 111 (Equipment Breakdown). (Rule 111)
8. Clean Energy shall consult with the Kern County Roads Department regarding improvements necessary to Gephart Road. Any requirements for improvements to Gephart Road required by the Road Department shall be completed prior to implementation of this Authority to Construct (ATC) and ATC No. 0274007. (Rule 208.2)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with hourly and concentration emission limits for VOC shall be verified pursuant to Rule 108.1 and EKAPCD Guidelines for Compliance Testing, within 45 days of District request.

EMISSION LIMITS:

Emissions rate of each air contaminant from this unit shall not exceed following limits:

<u>Volatile Organic Compounds (VOC):</u>	0.56 lb/hr
	13.38 lb/day
	2.44 ton/yr

(Emissions limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and record keeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)