

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1791-AOP-R2 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:

Elliott Marshall

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Executive Offices
NAICS Code: 921110

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
12/19/2019	Renewal/Modification	-Updated LandGEM Testing results. (SN-01 and SN-02) -Updated road emissions (SN-03) and gas tank emissions (SN-04)

6. REVIEWER'S NOTES:

This permitting action is to renew the existing Title V permit. In addition to renewing the Title V permit, the following changes were made:

1. Combine all road emissions (Unpaved, Paved and Aggregate Handling) at SN-03.

2. Revise previous plantwide condition #14 (now plantwide Condition #11) to require Toluene testing to verify calculations. The condition previously required site-specific individual HAP testing using EPA method 320.
3. Update SN-01 and SN-02 emission rates based on current Tier II test results.
4. Updated calculations at SN-04 and added throughput limit.

Permitted emission rates are increasing/decreasing by 23.4 tpy PM/PM₁₀, 0.2 tpy VOC, -3.7 tpy CO, 3.6 tpy NO_x, 1.11 tpy Single HAP, 9.14 tpy Total HAPs and 0.28 tpy Hydrogen Sulfide (H₂S).

1,1,1-Trichloroethane (methyl chloroform), Dichloromethane (Methylene Chloride), Perchloroethylene (tetrachloroethylene) and Hydrochloric Acid (HCl) are “Chargeable Emissions” and are denoted as such on the fee sheet.

The threshold for installing Gas Collection Control System (GCCS), VOC (NMOC) below 55.2 tpy (<50 Mg/yr), was not exceeded. The facility is not required to install a GCCS or become subject to 40 CFR Part 63, Subpart AAAA – *National Emission Standards for Hazardous Air Pollutants – Municipal Solid Waste Landfills*.

The facility wanted to get rid of the site-specific individual HAP testing condition all together. However, to avoid being Major Source of HAPs, the facility changed user inputs in LandGEM for Toluene (ppmv values), making them an Area Source of HAPs. The user input data is based on facility Toluene Test results from 2014. The condition was modified to ensure compliance with the revised Toluene user input, instead of removing the HAP Testing condition all together.

7. COMPLIANCE STATUS:

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

There are no active or pending enforcement actions.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
If yes, were GHG emission increases significant? N

b) Is the facility categorized as a major source for PSD? N

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8(b), explain why this permit modification is not PSD.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility	VOC (NMOC), HAPs	NSPS Subpart WWW
SN-04	VOC	NESHAP Subpart CCCCCC

10. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N

(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Regulation 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? N
If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
N/A		

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the ADEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

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?
Mercury	0.025	0.00275	3.86E-05	Yes

c) H_2S Modeling:

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 H_2S Standards

N

If exempt, explain: _____

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H_2S	20 parts per million (5-minute average*)	9.76 ppm 1 hr = $8.2875 \mu\text{g}/\text{m}^3$	Y
	80 parts per billion (8-hour average) residential area	3.02 ppb 8 hr = $4.20602 \mu\text{g}/\text{m}^3$	Y
	100 parts per billion (8-hour average) nonresidential area	3.02 ppb 8 hr = $4.20602 \mu\text{g}/\text{m}^3$	Y

*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

t_m = 60 minutes

t_p = 5 minutes

13. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
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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 40.75 Mg/yr (2018) Projected NMOC 44.66 Mg/yr (2025)	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 200 ppmv as hexane (July 2019) User Specified input in LandGEM of 3.90 ppmv concentration of Toluene based on 2104 test data.
02 Flare	<u>PM</u> – AP-42 Table 2.4-5 footnote a (11/98) <u>SO₂</u> – AP-42 2.4.4.2 <u>NMOC</u> – Tier II testing <u>CO & NO_x</u> – AP-42 13.5-1 <u>HCl</u> – AP-42 2.4.2.2 <u>HAPs</u> – AP-42 2.4.3	<u>PM</u> = 17 lb/10-6 dscf Methane (0.0010 lb/hr/dscfm) <u>SO₂</u> = 46.9 ppmv Reduced S <u>NMOC</u> = 200 ppmv <u>CO</u> = 0.310 lb/MMBtu <u>NO_x</u> = 0.068 lb/MMBtu <u>C_{Cl}</u> = 42.0 ppmv Varies , see Table 2.4-1	Flares	NMOC – 98% HAPs - 98.0%	Open candlestick flare 2200 scfm @8760 hr/yr @1012 BTU/scf Methane @59% Methane Concentration for PM, SO ₂ & NO _x NMOC = 100% VOC
03	Unpaved	Silt content s =	Water	None	Silt Content for Arkansas

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Roads – AP-42, 13.2.2 Tables 13.2.2-1,-2,-3	3.9% 1 (20 ton) truck, 5 miles, PM = 5.23 lb/VMT	suppression as necessary		– AP 42 Section 13.2.2 Related Information
	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 = 1.72 lb/VMT			Silt loading for dirty paved roads – Air Pollution Engineering Manual-2000
	Aggregate Handling – AP-42	0.000168 lb PM ₁₀ /ton			
04	Liquid Storage Tanks – AP-42, 7.1	Vapor density = 0.0734 lb/ft ³ Vapor space expansion factor = 0.1326 Vented Vapor Saturation Factor = 0.4918			Emissions estimated using EPA Tanks 4.09

14. 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 (55.2 tpy), test every 5 years, next test	NSPS Subpart WWW

SN	Pollutants	Test Method	Test Interval	Justification
			due before July 18, 2024	
01	Toluene	TO-15	Test schedule coincides with NMOC testing.	Reg.18.1002

15. MONITORING OR CEMS:

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

16. 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

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01	NMOC SN-01	50 Mg/yr	Annually	Yes
04	Gasoline Throughput	24,000 gal/yr	Monthly	No

17. 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.

18. DELETED CONDITIONS:

Former SC	Justification for removal
PW #14	This condition was moved to PW#11 and now only requires testing of Toluene not all site-specific HAPs.

19. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

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			0.003				
3,000 Gallon Diesel Storage Tank 02	A3			0.001				

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20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1791-AOP-R1

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: City of Fort Smith Sanitary Landfill
 Permit Number: 1791-AOP-R2
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\$/ton factor	23.93	Annual Chargeable Emissions (tpy)	238.42
Permit Type	Modification	Permit Fee \$	1000

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)	32.6
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		121.1	144.5	23.4		
PM ₁₀		121.1	144.5	23.4	23.4	144.5
PM _{2.5}		0	0	0		
SO ₂		4.6	4.6	0	0	4.6
VOC		55.9	56.1	0.2	0.2	56.1
CO		122	118.3	-3.7		
NO _x		19.9	23.5	3.6	3.6	23.5
Single HAP	☐	2.62	3.73	1.11		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Total HAPs	☐	12.08	21.22	9.14		
Hydrochloric Acid (HCl)	☒	2.3	2.3	0	0	2.3
Dichloromethane (methylene chloride)	☒	0.03	3.46	3.43	3.43	3.46
Perchloroethylene (tetrachloroethylene)	☒	0.06	1.79	1.73	1.73	1.79
1,1,1 Trichloromethane (methyl chloroform)	☒	0.23	0.19	-0.04	-0.04	0.19
Hydrogen Sulfide (H2S)	☒	1.7	1.98	0.28	0.28	1.98