

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

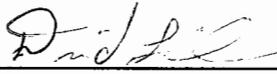
PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **01 2 0 1 7 - 0 1 3** Project Number: 2016-07-024
Installation Number: 121-0027
Parent Company: Advanced Disposal Services Midwest, LLC
Parent Company Address: 90 Fort Wade Dr, Ponte Vedra Beach, FL 32081
Installation Name: Advanced Disposal Services Maple Hill Landfill, Inc.
Installation Address: 31226 Intrepid Rd, Macon, MO 63552
Location Information: Macon County, S24/13, T57N, R15W

Application for Authority to Construct was made for:
Replacement flare, surface coating, and to correct installation-wide PTE. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.


Prepared by
David Little, PE
Environmental Engineer III
New Source Review Unit


Director or Designee
Department of Natural Resources

JAN 27 2017

Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Advanced Disposal Services Maple Hill Landfill, Inc.
Macon County, S24/13, T57N, R15W

1. LFG Flowrate
 - A. Landfill gas (LFG) flowrate to the flare (EP-02R) shall not exceed 1,822 scfm, on an hourly average.
 - B. Advanced Disposal Services Maple Hill Landfill, Inc. shall demonstrate compliance with the LFG flowrate limit by operating a flow meter to monitor and record the total flowrate of landfill gas (LFG) to the flare (EP-02R).
 - C. The flow meter shall be operated and maintained in accordance with the manufacturer's specifications, which shall be kept on site. The flow meter shall be located such that Department of Natural Resources' employees may easily observe it.
 - D. The LFG flowrate shall be recorded at least once every 15 minutes, and in units of scfm.
 - E. Advanced Disposal Services Maple Hill Landfill, Inc. shall maintain an operating and maintenance log for the flow meter which shall include the following:
 - 1) Incidents of malfunction, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
 - 3) Dates and times of the above.
2. Haul Road Watering
 - A. Advanced Disposal Services Maple Hill Landfill, Inc. shall water all waste roads and borrow/cover roads whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. Watering may be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
3. LFG Sulfur Content Testing
- A. Total sulfur content in the LFG prior to combustion shall not exceed 500 ppmv.
 - B. Advanced Disposal Services Maple Hill Landfill, Inc. shall test LFG collected from the common header pipe.
 - C. Test method ASTM D-5504, or an alternative method preapproved by the Air Pollution Control Program Compliance/Enforcement Section shall be used.
 - D. Initial testing shall be performed within 180 days after initial start-up of flare (EP-02R). Subsequent testing shall be performed according to the following schedule,
 - 1) If the test results indicate a concentration not exceeding 75% of the 500 ppmv limit (375 ppmv), then subsequent testing shall be performed once per calendar year. No two calendar year tests shall be performed with 3 months of each other.
 - 2) If the test results indicate a concentration exceeding 75% of the 500 ppmv limit (375 ppmv), then subsequent testing shall be performed at least once quarterly.
 - 3) If four consecutive quarterly tests indicate a concentration not exceeding 375 ppmv, then testing shall revert to D.1).
 - E. A completed Proposed Test Plan Form (enclosed) shall be submitted to the Air Pollution Control Program at least 30 days prior to the proposed initial test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and shall be approved by the Air Pollution Control Program Compliance/Enforcement Section prior to conducting the required initial emission testing. Subsequent tests do not require prior notification.
 - F. Two copies (one hardcopy, one electronic) of the full initial test report and results shall be submitted to the Air Pollution Control Program Compliance/Enforcement Section within 30 days of completion of the initial test. The report shall include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

from the required test method. Copies of subsequent test reports shall be kept onsite.

4. Permit Amendment

If at any time the LFG flowrate or LFG sulfur content exceed the respective limits in Special Conditions 1 and 3, then Advanced Disposal Services Maple Hill Landfill, Inc. shall submit an Application for Authority to Construct to the Permits Section within 90 days of the exceedance. The application shall account for the revised project emissions and ambient modeling.

5. Record Keeping and Reporting Requirements

A. Advanced Disposal Services Maple Hill Landfill, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.

B. Advanced Disposal Services Maple Hill Landfill, Inc. shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2016-07-024

Installation ID Number: 121-0027

Permit Number:

01 2017 - 013

Installation Address:

Advanced Disposal Services Maple Hill
Landfill, Inc.
31226 Intrepid Rd
Macon, MO 63552

Parent Company:

Advanced Disposal Services Midwest, LLC
90 Fort Wade Dr
Ponte Vedra Beach, FL 32081

Macon County, S24/13, T57N, R15W

REVIEW SUMMARY

- Advanced Disposal Services Maple Hill Landfill, Inc. has applied for authority to install a replacement LFG flare, permit dumpster surface coating, and correct installation-wide PTE.
- The application was deemed complete on September 9, 2016.
- HAP emissions are expected from the proposed equipment. HAP emissions are expected from the incomplete combustion of LFG. Also, HAPs are generated by the landfill and reduced by the flare. The dumpster surface coating does not emit HAPs.
- 40 CFR 60 Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills*, applies to the landfill. The design capacity is 14,211,908 cubic meters and 10,900,533 Mg, which exceeds 2.5 million for each. Tier 2 testing shows the landfill's uncontrolled NMOC emissions are below 50 Mg/yr. Subpart A, Section 60.18, *General Control Device Requirements*, does not apply to the new flare because Subpart WWW does not yet require the flare.
- 40 CFR 60 Subpart XXX, *Standards of Performance for Municipal Solid Waste Landfills*, does not apply. The landfill has not commenced construction, reconstruction, or modification per the NSPS definitions after July 17, 2014.
- 40 CFR 61 Subpart M, *National Emission Standards for Asbestos*, applies to the installation.
- 40 CFR 63 Subpart AAAA, *National Emission Standard for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, does not apply to the installation. The installation is not a major HAP source. Uncontrolled NMOC emissions are less than 50 Mg/yr.

- The flare will reduce VOC, NMOC, reduced sulfur compounds (RSC), total reduced sulfur (TRS), HAPs, and CH₄ collected from the landfill. The flare is an emission source of combustion products including but not limited to PM, PM₁₀, PM_{2.5}, SO₂, NO_x, CO, and CO₂. Surface coating emissions will not be controlled. Haul road emissions will be controlled by undocumented watering.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of SO₂ exceed the insignificant emission exemption level in 10 CSR 10-6.061(3)(A)3.A.
- This installation is located in Macon County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed as the potential emissions of the project are below de minimis.
- LFG flowrate and LFG sulfur species testing are required as a part of this permit.
- Submittal of an application to amend the Part 70 operating permit is required within 1 year of flare (EP-02R) startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Advanced Disposal Services Maple Hill Landfill, Inc. is a municipal solid waste landfill located near Macon that began operation in 1976. It is a NSR minor source of PM, PM₁₀, CO, TRS, RSC, and H₂S. It is a de minimis source of NMOC, PM_{2.5}, SO₂, NO_x, and VOC. Potential GHG CO₂e emissions exceed 75,000 tpy. It is an area HAP source. It holds a Part 70 operating permit due to NSPS WWW requirements.

The following NSR permits have been issued to Advanced Disposal Services Maple Hill Landfill, Inc. from the Air Pollution Control Program. Subsequent solid waste construction permit expansions were issued in 1979, 1987, 1995, and 1999. No air pollution construction permit applications were submitted prior to the 1976, 1979, 1987, and 1995 projects. New landfills and expansions are subject to air pollution construction permitting, however in this case permits were not needed. The 1976 and 1979 constructions predated state-only level permitting. The 1987, 1995, and 1999 constructions each had potential emissions less than permitting thresholds using the emission factors and practices of the time, as calculated for this review.

Table 1: NSR Permit History

Permit Number	Description
072000-003	Flare, Landfill PTE

As part of this permit application, the installation requested to update the design capacity and installation-wide PTE. It claimed previous permits contained errors. The updated design capacity is 14,211,908 cubic meters and 10,900,533 megagrams. This includes phase 4 from the 1999 solid waste construction permit. No new expansion is permitted in this project. Installation wide PTE has been updated using the latest emission factors and practices. The existing flare and proposed replacement flare are not required by NSPS or permits, therefore the installation-wide PTE reflects the worst case per pollutant, either with or without flare operation. The installation-wide PTE also includes haul road, cover and borrow pit activities, and dumpster surface coating.

PROJECT DESCRIPTION

The project is the replacement flare EP-02R. The flare is an open tip design. According to the applicant, the flare is rated at 1,822 scfm of LFG. The flowrate was calculated based upon NSPS requirements, however at the time of permit issuance the flare is not subject to the NSPS. This permit requires the flowrate to be monitored.

EMISSIONS/CONTROLS EVALUATION

Flare

The flare PTE was evaluated at its MHDR, not at the bottlenecked capacity based on available LFG. Conservatively, baseline actual emissions from the flare that is being replaced were not used. Emission factors were obtained from several references,

- EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 2.4, *Municipal Solid Waste Landfills*, November 1998.
- AP-42, Chapter 2.4, *Municipal Solid Waste Landfills*, October 2008 draft.
- Site specific NMOC concentration of 295.3 ppmv was used. The landfill existed prior to 1992, such that co-disposal of residential and non-residential wastes may have occurred during that time. However, at closure the majority of waste will be residential. Also, the NMOC concentration is below the no/unknown default value of 595 ppmv. Therefore, the no/unknown emission factors were used.
- The default LFG sulfur concentration was not used. Limited test data from other landfills shows much higher concentrations than the default. The highest value that would result in project SO₂ emissions less than the de minimis level was chosen, 500 ppmv. The AP-42 default concentrations for individual species were used, but ratioed by the total 500 value in order to calculate RSC, TRS, H₂S, and carbonyl sulfide. This permit requires testing to verify the LFG sulfur content, which will be used to verify the flare's SO₂ PTE.
- CO was obtained from 95% confidence of the draft AP-42 background document values. The resulting emission factor is 90 lbs/MMCF methane.

- Formaldehyde was obtained from an August 1999 San Diego County document for enclosed flares, referencing other EPA data. The D-rated AP-42 value was not used.
- Hydrogen fluoride was obtained from an August 2011 BAAQMD preliminary engineering evaluation.
- PAH and metallic HAPs was obtained from an April 2007 EPA document, *Field Test Measurements at Five Municipal Solid Waste Landfills with Landfill Gas Control Technology*.
- GHG was obtained from 40 CFR 98. CO₂ inherently part of the LFG prior to combustion was added to the CO₂ generated by combustion.

LFG

LFG production was calculated using the design capacity of the landfill and the EPA program LandGEM. The annual waste acceptance from 1976 to 2004 was obtained from the permit application. Waste acceptance from 2005 to 2015 was obtained from the department's Solid Waste Management Program website. Projected acceptance rates for 2016 and later assumed an annual 3% increase from 2015 tonnage. The 2015 tonnage from the SWMP website is higher than the value used in the permit application, and with compounding, this results in more LFG production than claimed in the permit application. The maximum LFG generation rate of 2,792 scfm is predicted in the year 2053, while the application predicts 2,174 scfm in the year 2063.

Two PTE calculation scenarios were run, with and without the flare, as flare operation is not federally enforceable at this time. The collection system was assigned 85% capture efficiency per the range in AP-42 and the NSPS XXX cost analysis referencing *Global Mitigation of Non-CO₂ Greenhouse Gases: 2010–2030, EPA-430-R-13-011*.

Haul Roads, Cover, Paint

Haul road PTE was calculated using AP-42 Chapter 13.2.2, *Unpaved Roads*, November 2006. Throughput and distances were based upon average values over the life of the landfill. Emissions are controlled with undocumented watering.

Cover activities were calculated using several references,

- AP-42 Chapter 13.2.4, *Aggregate Handling and Storage Piles*, November 2006.
- *WRAP Fugitive Dust Handbook*, Chapter 9.3, September 2006
- AP-42 Table 11.9-1, *Grading*, July 1998.

Painting emissions were calculated based upon actual usage with a factor of safety. The gun is an airless design, rated at 40% transfer efficiency per multiple references. The only coating evaluated, Sheboygan Paint Company 73-3675 Advanced Blue-Gray Premium Aqua Enamel, MSDS date January 21, 2016, does not contain HAPs. New coatings are subject to construction permit applicability.

The following table provides an emissions summary for this project and installation. *Project Emissions: Replacement Flare EP-02R* are described above. *LFG Emissions with Flare* represent the total LFG emissions with 85% being routed to the flare and the remainder emitting at the landfill itself. *LFG Emissions without Flare* represent the total LFG emissions without combustion. *Worst Case LFG PTE* represents the higher of the total LFG scenarios. The worst case is a theoretical hybrid, as the highest products of combustion don't occur simultaneously with the highest uncontrolled LFG emissions. Potential emissions from the waste receiving haul road, cover and borrow pit activities, and surface coating are represented in the last column.

Table 2: PTE Summary (tpy)

Pollutant	Project Emissions: Replacement Flare EP-02R	LFG Emissions with Flare	LFG Emissions without Flare	Worst Case LFG PTE	Haul Roads Cover Surface Coating
PM	0.90	0.90	N/A	0.90	59.11
PM ₁₀	3.59	3.59	N/A	3.59	18.15
PM _{2.5}	3.59	3.59	N/A	3.59	2.22
SO ₂	39.16	39.16	N/A	39.16	N/A
NO _x	9.34	9.34	N/A	9.34	N/A
VOC	0.10	2.89	18.59	18.59	0.07
CO	21.55	21.55	N/A	21.55	N/A
NMOC	0.25	7.40	47.68	47.68	N/A
TRS	0.04	3.91	25.81	25.81	N/A
RSC	0.03	2.85	18.82	18.82	N/A
Hydrogen Sulfide	0.03	2.80	18.50	18.50	N/A
GHG (CO ₂ e)	54,857	111,748	411,197	411,197	N/A
GHG (mass)	54,716	62,928	56,022	56,022	N/A
Combined HAPs	0.13	2.20	13.89	13.89	N/A
1,1-Dichloroethane	8.4E-05	0.39	0.39	0.39	N/A
Benzene	3.1E-05	0.05	0.35	0.35	N/A
Chloroethane	1.0E-04	0.07	0.48	0.48	N/A
Dichloromethane	2.1E-04	0.15	0.98	0.98	N/A
Ethyl benzene	8.4E-05	0.15	0.97	0.97	N/A
Formaldehyde	6.5E-02	0.07	6.6E-04	0.07	N/A
Hexane	4.4E-05	0.08	0.50	0.50	N/A
Hydrogen Chloride	5.1E-02	0.05	N/A	0.05	N/A
PAH Combined	3.2E-03	0.08	0.49	0.49	N/A
Perchloroethylene	1.4E-04	0.10	0.63	0.63	N/A
Toluene	4.4E-04	0.8	5.09	5.09	N/A
Xylenes	1.6E-04	0.28	1.84	1.84	N/A

Other HAPs exist associated with LFG. All project emissions are below de minimis and respective SMAL.

The following table provides an emissions summary for the installation. Existing potential emissions were not summarized as they have been recalculated. *Existing Actual Emissions* were obtained from the installation's 2015 EIQ. GHG emissions are reported in EPA's facility level information on greenhouse gases tool (flight) website. However, the flight website excludes biogenic CO₂, which is a large portion of what the landfill emits. The biogenic CO₂ deferral has expired and it is the program's current practice to include biogenic CO₂ in permitting. Therefore, the flight website values were not used. *Installation PTE* represents the summation of all emissions at the installation. It represents the worst case LFG emissions as described in Table 2. *Installation PTE Towards NSR Major and Title V* represents the installation PTE with fugitive emissions removed. The installation is not a named source, therefore fugitive emissions are not counted towards major source status for NSR and Title V. The installation is not required to operate the LFG collection system and flare at this time for NSPS or permit purposes. However, if the systems do not operate then the LFG they aren't collecting are not fugitive. According to a 1994 EPA memo, if a landfill is without a collection system then the emissions that would be captured are not fugitive. This permit assumed 85% collection efficiency. Therefore 15% of the LFG is fugitive for permit purposes. All HAP emissions are counted towards major source applicability, regardless of source type.

Table 3: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Actual Emissions	Installation PTE	Installation PTE Towards NSR Major and Title V
PM	25.0	N/D	60.01	1.01
PM ₁₀	15.0	2.75	21.74	3.70
PM _{2.5}	10.0	1.33	5.82	3.70
SO ₂	40.0	0.96	39.16	39.16
NO _x	40.0	2.76	9.34	9.34
VOC	40.0	1.99	18.66	15.87
CO	100.0	51.70	21.55	21.55
NMOC	50.0	N/D	47.68	40.52
TRS	10.0	N/D	25.81	21.93
RSC	10.0	N/D	18.82	15.99
Hydrogen Sulfide	10.0	N/D	18.50	15.73
GHG (CO ₂ e)	75,000	N/D	411,197	354,307
GHG (mass)	N/A	N/D	56,022	47,810
Combined HAPs	25.0	1.84	13.89	13.89

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of SO₂ exceed the insignificant emission exemption level in 10 CSR 10-6.061(3)(A)3.A.

APPLICABLE REQUIREMENTS

Advanced Disposal Services Maple Hill Landfill, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- 10 CSR 10-6.260 *Restriction of Emission of Sulfur Compounds*, was rescinded and replaced by 10 CSR 10-6.261 on November 30, 2015. However, 6.260 remains in the SIP and applies to the flare. SO₂ compliance is assumed using the following equation. Exhaust SCFM is an assumed value based upon testing of an enclosed flare. SO₃ and sulfuric acid compliance is assumed due to the low SO₂ concentration and also assuming most of the SO_x is SO₂.

$$\text{ppmv SO}_2 = \frac{\text{SO}_2 \text{ PTE } 8.949 \frac{\text{lb}}{\text{hr}}}{\text{flare exhaust rate } 13,481 \text{ scfm} * 1.56E - 07 \text{ constant} * 46.01 \text{ SO}_2 \text{ MW}}$$

= 92.79 ppmv SO₂

92.79 ppmv << 500 ppmv, therefore in compliance with a wide margin and testing is not required according to 10 CSR 10-6.260(3)(A)4.

- 10 CSR 10-6.261 *Control of Sulfur Dioxide Emissions*, applies to the flare. However, there is no applicable standard in the rule for combusting LFG in a flare.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 6, 2016, received July 13, 2016, designating Advanced Disposal Services Midwest, LLC as the owner and operator of the installation.
- Application addendum, *Information Request – Project 2016-07-024*. September 9, 2016.
- LandGEM calculations. *2016-07-024 landgem.xls*. September 28, 2016.
- PTE calculations. *2016-07-024.xlsx*. October 12, 2016.
- Emails among David Little, Tim Curry, Tia Jeter. July 26, 2016 to December 16, 2016.

The following documents are permit references:

- *AP-42 Compilation of Air Pollutant Emission Factors*, Fifth Edition. EPA.
- *Classification of Emissions from Landfills for NSR Applicability Purposes*. EPA. October 21, 1994.
- EPA flight website. <https://ghgdata.epa.gov/ghgp/main.do>
- *Field Test Measurements at Five Municipal Solid Waste Landfills with Landfill Gas Control Technology, Final Report*. EPA/600/R-07/043. April 2007.
- *Pollutant Emissions Test Report, Zinc Enclosed Flare Exhaust, BFI Waste Systems of North America, LLC*. Air Quality Specialist, Inc. May 18, 2016.
- WRAP Fugitive Dust Handbook. Countess Environmental. September 7, 2006.
- *Global Mitigation of Non-CO2 Greenhouse Gases: 2010–2030*. EPA-430-R-13-011.
- *F04 – Flare, Landfill Gas Fired, Enclosed*. San Diego County. August 23, 1999.
- *Preliminary Engineering Evaluation for BAAQMD Permit Application # 22636*. Bay Area Air Quality Management District. August 5, 2011.
- *US Air Force IERA, Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations*, December 2003, Table 30-1.
- *Transfer Efficiency and VOC Emissions of Spray Gun and Coating Technologies in Wood Finishing*. Pacific Northwest Pollution Prevention Research Center, Figure 1.
- *Pollution Prevention Opportunity Data Sheet*, Naval Facilities Engineering Service Center. May 1995

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu ...	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ..	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EIQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		



Eric R. Greitens, Governor • Carol S. Comer, Acting Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

JAN 27 2017

Mr. Tim Curry
Midwest Region Landfill Manager
Advanced Disposal Services Maple Hill Landfill, Inc. Advanced Disposal Services Midwest, LLC
232 Vance Rd, Suite 208
Valley Park, MO 63088

RE: New Source Review Permit - Project Number: 2016-07-024

Dear Mr. Curry:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oh.mo.gov/ahc.



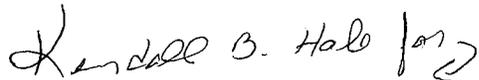
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Mr. Tim Curry
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If you have any questions regarding this permit, please do not hesitate to contact David Little, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Handwritten signature of Kendall B. Hale in cursive script.

Susan Heckenkamp
New Source Review Unit Chief

SH:dlj

Enclosures

c: Northeast Regional Office
PAMS File: 2016-07-024

Permit Number:

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