

STATE OF MISSOURI

PERMIT BOOK



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: 112008-002 Project Number: 2008-07-025

Parent Company: Jefferson City Landfill, LLC

Parent Company Address: 5605 Moreau River Access, Jefferson City, MO 65101

Installation Name: Jefferson City Landfill, LLC

Installation Address: 5605 Moreau River Access, Jefferson City, MO 65101

Location Information: Cole County, S23, T44N, R11W

Application for Authority to Construct was made for:

The construction of a vertical landfill expansion of 3,569,193 cubic yards that will increase the total capacity to 10,368,726 cubic yards and a new paint booth for maintaining the appearance of waste containers. The expansion will utilize the air space between the closed and active landfills. 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.

NOV 12 2008

EFFECTIVE DATE

*Steven J. Jellison* for JLR

DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## 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 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 departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources 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 this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

|             |             |
|-------------|-------------|
| Page No.    | 3           |
| Permit No.  |             |
| Project No. | 2008-07-025 |

**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."*

Jefferson City Landfill, LLC  
Cole County, S23, T44N, R11W

1. Operation Emission Limitation
  - A. Jefferson City Landfill, LLC shall consume less than 5,000 gallons of paint used in the paint booth (EP-15) in any consecutive 12-month period.
  - B. Attachment A or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A Jefferson City Landfill, LLC shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used in this equipment.
  - C. Jefferson City Landfill, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.B indicate that the source exceeds the limitation of Special Conditions Number 1.A.
2. Jefferson City Landfill, LLC shall keep the paint, solvents, and cleaning solutions in sealed containers whenever the materials are not in use. Jefferson City Landfill, LLC shall provide and maintain suitable, easily read, permanent markings on all paints, solvents and cleaning solution containers used with this equipment.

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

Project Number: 2008-07-025  
Installation ID Number: 051-0058  
Permit Number:

5605 Moreau River Access Rd.  
Jefferson City, MO 65101

Parent Company:  
Jefferson City Landfill, LLC  
5605 Moreau River Access Rd.  
Jefferson City, MO 65101

Cole County, S23, T44N, R11W

## REVIEW SUMMARY

- Jefferson City Landfill, LLC has applied for authority to construct a vertical expansion of 3,569,193 cubic yards to a total landfill capacity of 10,368,726 cubic yards that will utilize the air space between the closed and active landfills and a new paint booth operation for maintaining the appearance of waste containers.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed landfill expansion.
- Subpart WWW of the New Source Performance Standards (NSPS), Standards of Performance for Municipal Solid Waste Landfills, applies to the landfill. Subpart A, Section 60.18, General Control Device Requirements, applies to the flare.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, applies to the installation. None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to the installation.
- A gas collection system and flare are being installed to control landfill emissions.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Cole County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations. [10 CSR 10-6.020(3)(B), Table 2].
- Emissions testing is required as outlined in NSPS, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. Other testing may be required per other applicable NSPS or MACT requirements.
- A revision to your Part 70 Operating Permit is required for this installation within one year of startup of the landfill expansion or the paint booth whichever event occurs first.

- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

The Jefferson City Landfill, LLC is an existing Municipal Solid Waste (MSW) landfill (ID number 051-0058) located in Jefferson City, Missouri (Cole County). On February 16, 1999, the Air Pollution Control Program issued a permit for a horizontal and vertical expansion to the existing landfill with a resultant capacity of 4.55 million Megagrams. This permit was later amended to account for an additional horizontal expansion. The facility subsequently became a major installation for operating emissions (i.e., greater than 2.5 million Megagram (Mg) capacity), under Title V, Part 70. A major source operating permit was issued in January of 2005 (Permit Number OP2005-002).

In addition to submitting a Part 70 operating permit application, the facility performed analytical testing for the gas collection system pursuant to NSPS, Subpart WWW. Jefferson City Landfill performed non-methane organic compound (NMOC) projected emissions. Results revealed that the facility exceeded an NMOC emission rate of fifty Mg per year; as such a gas collection and control system was required. The landfill has been operating a 2,000 scfm open flare since June 29, 2006. The current gas collection and control system consists of 61 gas extraction wells and associated header piping.

As an alternative to flaring the landfill gas (LFG), it will be routed from both landfills and the vertical expansion areas to an off site utilization project. Ameresco Jefferson City, LLC received Permit Number 032008-010 in March of this year to allow for construction and operation of three reciprocating internal combustion engines that can generate 3.2 megawatts of electricity at the Jefferson City Corrections Center, located at 8416 No More Victims Road.

The following construction permits have been issued to Jefferson City Landfill, LLC from the Air Pollution Control Program.

**Table One : Previously Issued Permits**

| Permit Number | Description   |
|---------------|---|
| 012008-005A   | Amendment to Correct Special Conditions             |
| 012008-005    | Section 5 Haul Road and Container Yard              |
| 052006-019    | Section 6 permit issued to add flare                |
| 0299-011A     | Capacity, flare changes and reduction in haul roads |
| 0299-011      | Section 6 permit issued for landfill expansion      |

### PROJECT DESCRIPTION

The landfill consists of a pre-Subtitle D waste disposal area that is now closed and an active Subtitle D landfill. A vertical expansion is planned for the area located between the pre-Subtitle D waste disposal area and the currently operating landfill. Additionally, Jefferson City landfill is proposing to construct a paint booth on-site. This coincides with the relocation of the maintenance aspects of their container business to the landfill site. The refuse containers are periodically in need of repairing to maintain an attractive appearance. Intermittent use of the paint booth will become part of Jefferson City Landfill's regular maintenance procedures.

The peak flow rates for LFG, NMOC, CH<sub>4</sub> and CO<sub>2</sub> were calculated for the site both prior and subsequent to the vertical expansion using the Environmental Protection Agency's EPA "Landfill Air Emissions Estimation Model" (LANDGEM) with historical refuse acceptance rates through 2005 and a projected three percent annual growth rate from 2006 until the sites achieves capacity. AP-42 default values for the CH<sub>4</sub> generation rate constant (k=0.04 per year) and the CH<sub>4</sub> generation potential (Lo=100 m<sup>3</sup>/Mg) were used instead of the Clean Air Act Tier I default values as the preamble of New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, Section VI.G. does not recommend that the Tier 1 default values be used for estimating landfill emissions for purpose other than NSPS. Potential to Emit (PTE) computations assume continuous operation of the gas collection system achieving seventy five percent collection efficiency of the predicted LFG generation. The LANDGEM calculations were provided for in the application.

To make the most conservative effort in determining PTE of this project, therefore, the emissions increase is based on the difference in maximum LFG generation both before and after vertical expansion. Table Two shows the PTE using maximum generation prior to the vertical expansion and after the vertical expansion.

**Table Two: Emissions from Landfill PTE.**

| <b>Pollutant</b> | <b>PTE using maximum LFG generation <u>prior to</u> the vertical expansion = 1434 SCFM</b> | <b>PTE using maximum LFG generation <u>after</u> the vertical expansion = 1998 SCFM</b> | <b>Landfill PTE (Column 3 minus Column 2)</b> |
|------------------|--|---|---|
| <b>PM</b>        | 2.40   | 3.35  | 0.95  |
| <b>SOx</b>       | 2.24   | 3.12  | 0.88  |
| <b>NOx</b>       | 5.65   | 7.88  | 2.23  |
| <b>CO</b>        | 105.99   | 147.68  | 41.69   |
| <b>VOC</b>       | 0.74   | 1.03  | 0.29  |
| <b>HAP</b>       | 0.07   | 0.13  | 0.06  |

The site will be using the spray booth on an intermittent basis to improve the appearance of a variety of waste containers. As the painting of the containers is not expected to occur on a continual basis, calculation of PTE is neither based upon capacity of the spray gun nor on a time per container basis assuming continuous operation. The application PTE was determined based on historical paint usage rates, with a 2,400 percent increase in usage in paint from previous years. Basing the PTE in this manner does not reflect the true PTE of the process and is limiting the paint quantity to a time period. This limit will be reflected in the permit special conditions. A 5,000 gal per year limit is placed in the permit based on the 2,400 percent increase above the expected amount of paint usage. No gun cleaners or paint thinners are accounted for in the PTE evaluation. In the event gun cleaners or thinners that contain volatile organic compounds (VOC) are used, they should be counted as a portion of the 5,000 gallon paint total. That portion based on the VOC

content of the thinners and cleaners. Emissions of VOC and PM<sub>10</sub> are expected from the paint booth. However, the paint used for the containers contain no regulated HAPs. A summary of Paint Booth PTE is found in Table Three.

**Table Three: Paint Booth PTE.**

| <b>Pollutant</b>       | <b>Paint Booth PTE (tons per year)</b> |
|------------------------|--|
| <b>VOC</b>             | 6.90                                   |
| <b>PM<sub>10</sub></b> | 2.11                                   |

### EMISSIONS/CONTROLS EVALUATION

The type and amount of air pollutants emitted from landfills vary over the life of the landfill depending on the composition of the waste, the landfill design and management, the current anaerobic state of the waste and the length of time the waste has been in place in the landfill. Air emissions are caused by the decomposition of the waste, due to the action of microorganisms on the municipal solid waste (MSW) material. The primary constituents of LFG are CH<sub>4</sub> and CO<sub>2</sub>, which are not currently considered regulated air pollutants. In addition to the CH<sub>4</sub> and CO<sub>2</sub> emissions, some NMOCs will also be emitted. The NMOC often contains various HAPs and volatile organic compounds (VOCs). The amount of HAP/VOC emissions will vary over the life and closure activities of the landfill.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year). Existing potential emissions of PM<sub>10</sub>, VOC, SO<sub>x</sub>, NO<sub>x</sub>, CO, HAPs and NMOC from Jefferson City Landfill, LLC are assumed to be below major levels. Existing actual emissions were taken from the applicant's 2007 Emissions Inventory Questionnaire (EIQ) submittal. The following table provides an emissions summary for this project.

**Table Four: Emissions Summary (tons per year)**

| <b>Pollutant</b> | <b>Regulatory<br/>De Minimis<br/>Levels</b> | <b>Existing<br/>Potential<br/>Emissions<br/>(PTE of Flare)</b> | <b>Existing<br/>Actual<br/>Emissions<br/>(2007 EIQ)</b> | <b>Potential<br/>Emissions<br/>of the<br/>Application</b> | <b>New<br/>Installation<br/>Conditioned<br/>Potential</b> |
|------------------|---|--|---|---|---|
| PM <sub>10</sub> | 15.0  | 4.47   | 2.45  | 3.06  | N/A   |
| SO <sub>x</sub>  | 40.0  | 4.16   | 1.26  | 0.88  | N/A   |
| NO <sub>x</sub>  | 40.0  | 10.51  | 3.61  | 2.23  | N/A   |
| VOC              | 40.0  | 1.37   | 2.41  | 7.19  | N/A   |
| CO               | 100.0                                       | 197.10   | 67.68   | 41.69   | N/A   |
| HAPs             | 10.0/25.0                                   | 0.14   | 0.92  | 0.06  | N/A   |
| NMOC             | 50.0  | N/A  | N/A   | 4.19  | N/A   |

N/A = Not Applicable

#### 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 PM<sub>10</sub>, SO<sub>x</sub>, NO<sub>x</sub>, VOC, CO, HAPs and NMOC for this project at Jefferson City Landfill, LLC are below de minimis levels .

#### APPLICABLE REQUIREMENTS

Jefferson City Landfill, LLC 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

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *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 10-3.090*

#### SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, 40 CFR Part 60, Subpart WWW*
- *New Source Performance Regulations, 10 CSR 10-6.070 –General Provisions, 40 CFR Part 60, Subpart A, Section 60.18, General Control Device Requirements*
- *Maximum Achievable Control Technology (MACT) Regulations, 10 CSR 10-6.075, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, 40 CFR Part 63, Subpart AAAA*

#### 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*, I recommend this permit be granted with special conditions.

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Timothy Paul Hines  
Environmental Engineer

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Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 08, 2008, received July 10, 2008, designating Jefferson City Landfill, LLC as the owner and operator of the installation.
- Supplemental HAP calculation sheet, received September 16, 2008.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated 07/15/2008.



Mr. Brad Zimmerman  
Environmental Manager  
Jefferson City Landfill, LLC  
5605 Moreau River Access  
Jefferson City, MO 65101

RE: New Source Review Permit - Project Number: 2008-07-025

Dear Mr. Zimmerman:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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.

If you have any questions regarding this permit, please do not hesitate to contact Timothy Paul Hines at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH:tphk

Enclosures

c: Northeast Regional Office  
PAMS File: 2008-07-025

Permit Number: