

217/782-2113

CONSTRUCTION PERMIT  
NSPS/NESHAP SOURCE

PERMITTEE

Veolia ES Orchard Hills Landfill, Inc.  
Attn: Chris Peters, General Manager  
8290 Highway 251 South  
Davis Junction, Illinois 61020

Application No.: 09060048

I.D. No.: 141017AAC

Applicant's Designation:

Date Received: June 25, 2009

Subject: Sulfur Removal System and New Enclosed Flare

Date Issued:

Location: Orchard Hills Landfill, 8290 Highway 251 South, Davis Junction

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a sulfur removal system and an enclosed flare for the Orchard Hills Landfill, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1. Introduction

- a. This permit authorizes installation of two new emission control devices for the landfill gas (LFG) collected at the Orchard Hills Landfill (the affected landfill). First, this permit authorizes installation of a system to remove hydrogen sulfide) from collected LFG before the LFG is combusted (affected sulfur removal system). Second, this permit authorizes installation of an enclosed flare (affected enclosed flare) that would be used along with an existing open flare to combust LFG collected at the affected landfill.

2. Other Applicable Requirements

- a.
  - i. This permit does not relax or otherwise revise any requirements and conditions that apply to the operation of the affected landfill and associated control systems, including applicable monitoring, testing, recordkeeping, and reporting requirements pursuant to the Clean Air Act Permit Program (CAAPP) permit issued for the source.
  - ii. This permit does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions at the source as may be needed to eliminate air pollution, including nuisance due to odors, such as implementation of additional work

practices for handling of waste or enhancements to the gas collection system.

3. Applicable Federal Emission Standards

- a. The affected landfill is subject to the federal New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, 40 CFR 60, Subparts WWW and related provisions in 40 CFR 60 Subpart A, General Provisions. Pursuant to the NSPS, the affected enclosed flare shall be designed and operated in accordance with 40 CFR 60.752(b)(2)(iii)(B), 60.753(f), and 60.756(b).
- b. The affected landfill is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills, 40 CFR 63, Subpart AAAAA and related provisions in 40 CFR 63 Subpart A, General Provisions. Pursuant to the NESHAP, 40 CFR 63.1960, the Permittee must meet the requirements of 40 CFR 63.6(e)(3) related to a startup, shutdown, and malfunction plan for the landfill, including the affected treatment system and enclosed flare.
- c. The Permittee shall at all times, to the extent practicable, maintain and operate the affected enclosed flare in a manner consistent with good air pollution control practice for minimizing emissions, as required pursuant to 40 CFR 60.11(d) and 40 CFR 63.6(e)(3).

4. Applicable State Emission Standards

- a. The affected flare is subject to 35 IAC 212.123(a), which provides that no person shall cause or allow emissions of smoke or other particulate matter from any emission unit to exceed 30 percent opacity.
- b. The affected flare is subject to 35 IAC 214.301, which provides that no person shall cause or allow the emissions of sulfur dioxide (SO<sub>2</sub>) into the atmosphere from any process emission unit to exceed 2000 ppm.

5. Design and Operational Requirements for the Sulfur Removal System

- a. The affected sulfur removal system shall be designed to achieve a nominal sulfur removal efficiency of at least 90 percent, determined as hydrogen sulfide (H<sub>2</sub>S), considering the expected sulfur content of LFG to be processed and typical operation of the system.
- b. The design capacity of the affected sulfur removal system shall be at least 10,000 scfm of LFG.
- c. The affected sulfur removal system shall be designed so that routine maintenance of the system, including replacement of adsorption media, can be conducted without bypassing unprocessed LFG around the system.
- d. If the system is a disposable media type system, used media shall be sent off-site for disposal or regeneration unless on-site disposal is authorized by the Illinois EPA, Bureau of Land.

- e. The Permittee shall at all times maintain and operate the affected sulfur removal system in a manner consistent with good air pollution control practice for minimizing emissions.
6. Design and Operational Requirements for the Enclosed Flare
- a. The design capacity of the affected enclosed flare shall not exceed 6,000 scfm of LFG.
  - b. The emissions from the affected flare shall not exceed the following limits. These limits are based on information provided in the application. Compliance with these limits shall be determined using appropriate emission factors which in order of preference shall be factors from on-site emission testing, manufacturer's emission data, and emission factors from USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42. Compliance with the annual limits shall be determined from a running total of 12 months of data.

| Pollutant           | Limits   |           |
|---------------------|----------|-----------|
|                     | Lbs/Hour | Tons/Year |
| NOx                 | 10.8     | 47.4      |
| CO                  | 55.9     | 245.0     |
| PM/PM <sub>10</sub> | 3.4      | 14.8      |

Note: Limits for emissions of VOM and SO<sub>2</sub> from the affected landfill, with associated compliance procedures, are set in Construction Permit 05020039, which addresses the expansion of the landfill.

7. Nonapplicability Provisions
- a. This permit is issued based on this project not constituting a major construction for the purposes of federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.
    - i. For the affected sulfur removal system, this is because this system is an emission control project that will act to reduce emissions of SO<sub>2</sub> from the landfill.
    - ii. For the affected enclosed flare, this is because this flare is an emission control project that will act to control LFG collected at the affected landfill, as addressed in revised Construction Permit 05020039.
8. Testing Requirements
- a. i. The Permittee shall conduct an initial performance test in accordance with 40 CFR 60.754, for the affected enclosed flare to demonstrate compliance with the requirements of 40 CFR 60.752(b)(2)(iii)(B).

- ii. In conjunction with this testing, the Permittee shall have observations of the opacity from the affected enclosed flare conducted in accordance with USEPA Method 9.
  - b. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these measurements. Notification of the expected date of the measurements shall be submitted to the Illinois EPA a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of measurement shall be submitted a minimum of five working days prior to the actual date of the measurement. The Illinois EPA may, at its discretion, accept notification with shorter advance notice provided that such notifications do not interfere with the Illinois EPA's ability to observe the measurements.
  - c. The Permittee shall submit the report for this testing to the Illinois EPA no later than 60 days after the testing is conducted.
9. Sampling and Analysis of LFG Processed by the Sulfur Removal System
- a.
    - i. Within 45 days of initial startup of the affected sulfur removal system, the Permittee shall conduct sampling and analysis of the raw LFG entering the system and the processed LFG from the system. The samples shall be analyzed for sulfur content (percent by volume) of the LFG and the sulfur removal efficiency of the system determined.
    - ii. For this sampling and analysis of LFG associated with the affected sulfur removal system, the Permittee shall submit notifications and reports to the Illinois EPA in accordance with Conditions 8(b) and (c).
  - b. After initial sampling and analysis is completed, the Permittee shall repeat this sampling and analysis on at least an annual basis. Written notification for this subsequent activity or advance submittal of a written protocol for review is not required for this activity. The results from this activity, i.e., the sulfur content of processed LFG and sulfur removal efficiency of the system, shall be reported with the Annual Emission Report for the affected landfill.
10. Operational Monitoring Required by the NSPS
- a. For the affected enclosed flare, the Permittee shall comply with the applicable monitoring requirements of NSPS, 40 CFR 60 Subpart WWW, including the following:
    - i. The Permittee shall install, calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. [40 CFR 60.756(b)(1)]
    - ii. Pursuant to 40 CFR 60.756(b)(2), the Permittee shall record flow to the flare or bypass of the flare to the atmosphere by either installing, calibrating, maintaining, and operating a gas flow

rate measuring device for the flare that records flow to the flare at least every 15 minutes or securing the bypass line valve for the flare in the closed position with a car-seal or lock-and-key configuration to ensure that the gas flow is not diverted through the bypass line. [40 CFR 60.756(b)(2)]

11. Operational Monitoring for Flow of Landfill Gas (LFG)
  - a. If the Permittee complies with the NSPS monitoring requirement of 40 CFR 60.756(b)(2), by securing lines that would bypass the flare and send LFG directly to the atmosphere, the Permittee shall install, operate, and maintain instrumentation to measure the total flow of the LFG to the flare system.
  - b. If the affected sulfur removal system would not process all LFG collected at the affected landfill, the Permittee shall install, operate and maintain instrumentation to measure the flow of LFG that is not processed by this system.
12. Instrumentation or Analysis for Sulfur Content of Landfill Gas (LFG)
  - a. i. If the affected sulfur removal system would use a media for collection of sulfur that would be disposed of or regenerated off-site when spent:
    - A. The Permittee shall conduct sampling and analysis of the processed LFG exiting from the system. The samples shall be analyzed for sulfur content, by weight, of the LFG.
    - B. At a minimum, this sampling and analysis shall be conducted each time the media in the system is replaced, with a sample taken prior to replacement and after replacement of the media.
    - C. The Permittee shall keep records for this sampling and analysis activity, including both collected data and documentation for the sampling and analysis activities.
    - D. Written notification for this activity or advance submittal of a written protocol for review is not required.
  - ii. As an alternative to the regular sampling and analysis of LFG as provided above, the Permittee may install, operate and maintain instrumentation to measure the sulfur (H<sub>2</sub>S) content of the processed LFG exiting the system as provided in Condition 12(b) below. In this case, the sampling and analysis of LFG specified by Condition 12(a)(i) is only required on an annual basis.
  - b. If the affected sulfur removal system would not use a media that would be disposed of or regenerated off-site, the Permittee shall install, operate and maintain instrumentation to measure the sulfur (H<sub>2</sub>S) content of the processed LFG exiting the system.

Note: Requirements for the sampling and analysis of LFG combusted in the affected enclosed flare are set in Construction Permit 05020038.

13. Recordkeeping Requirements for the Sulfur Removal System
  - a. For the affected sulfur removal system, the Permittee shall keep a file containing the manufacturer's specifications for the system, i.e., design sulfur removal efficiency, and the recommended operating and maintenance procedures for the system.
  - b. The Permittee shall keep the following operating records for the affected sulfur removal system:
    - i. The total amount of LFG processed, on a daily basis.
    - ii. An operating log/records which shall include the following:
      - A. Status of the system, including recorded operating parameters of the system.
      - B. Adjustments of settings for any operating parameters.
      - C. Identification of any period when the system was not operated or operated improperly with a detailed explanation.
    - iii. Records of monitored operating parameters for the system.
    - iii. Records for all measurements for sulfur content of the raw and processed LFG with type of analysis method used, and if contemporaneous measurements are made, the LFG flow rate and calculated sulfur removal efficiency of the system.
  - c. The Permittee shall keep the following records related to inspection/maintenance of the affected sulfur removal system:
    - i. Date of inspection and observed condition of the system.
    - ii. Date and description of maintenance performed including each time when sulfur removal media is replaced or supplemented.
14. Recordkeeping Requirements for the Affected Enclosed Flare
  - a. For the affected enclosed flare, the Permittee shall comply with the applicable recordkeeping requirements of NSPS, 40 CFR 60 Subpart WWW and NESHAP, 40 CFR 63 Subpart AAAAA.
  - b. The Permittee shall keep the following operating records for the affected enclosed flare:
    - i. A file containing the design specifications for the flare including capacity, scfm, and a demonstration that the flare complies with the requirements of 40 CFR 60.752(b)(2)(iii)(B).
    - ii. The total LFG consumption, on a daily basis.
    - iii. An operating log that shall include the following:

- A. Status of the flare.
  - B. Adjustments of the flare's operating parameters.
  - C. Identification of any period when the flare was to be in service but was out of service with a detailed explanation of the cause and an explanation of actions taken to prevent or reduce the likelihood of future occurrences.
- iv. An inspection/maintenance log which shall include the following:
- A. Date of inspection and observed condition of the flare.
  - B. Date and description of maintenance performed.
- c. The Permittee shall keep the following records related to emissions of the affected enclosed flare:
- i. A file identifying the maximum level(s) of sulfur in LFG at which compliance with 35 IAC 214.301 is maintained, with supporting documentation and analysis.
  - ii. A file containing: 1) The emission factors used by the Permittee for calculating emissions from the flare, with supporting documentation; and 2) Engineering calculations for the maximum hourly emissions of NO<sub>x</sub>, CO and PM/PM<sub>10</sub> from the flare.
  - iii. Emissions of NO<sub>x</sub>, CO, and PM/PM<sub>10</sub> from the flare (tons/month and tons/year), with supporting calculations.
15. Retention of Required Records
- a. Unless a longer retention period is specified by the NSPS or NESHAP for particular records, records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
16. Notification and Reporting Requirements
- a. For the affected enclosed flare, the Permittee shall comply with the applicable notification and reporting requirements of NSPS.
  - b. The Permittee shall notify the Illinois EPA of the type of sulfur removal system that will be installed, which notification shall, at a minimum, include the following information for the affected sulfur removal system. This notification shall be submitted 30 days in advance of installation of the system.

- i. Type of the sulfur removal system, i.e., re-generative or disposable media type system.
- ii. A description of the system, including: manufacturer and model; design capacity of the system (scfm or LFG); process flow diagram; manufacturer's guarantee for sulfur removal and other performance specifications provided by the manufacturer, with supporting documentation.
- iii. Proposed dates for beginning installation and operation of the system.
- iv. If the system would be a disposal media type system, the expected schedule for replacement of media and plans for handling of spent media

Note: The issuance of this permit does not relieve the Permittee from obtaining any necessary permit from the Illinois EPA, Bureau of Land, to dispose of the used sulfur removal media on-site.

- c. If there is any deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA, within 30 days after the deviation or such other time period specified in the source's CAAPP permit. The report shall include a description of the deviation, the probable cause of the deviation, the corrective actions taken, and any actions taken to prevent future occurrences.

17. Addresses for Notifications and Reports

Two copies of required reports and notifications shall be sent to the Illinois EPA's compliance section at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address:

Illinois Environmental Protection Agency  
Division of Air Pollution Control/ Regional Office  
5415 North University  
Peoria, Illinois 61614

Telephone: 309/693-5461      Facsimile: 309/693-54675

18. Authorization to Operate

The Permittee may operate the affected landfill with the affected sulfur removal system and enclosed flare pursuant to this construction permit until the CAAPP permit for the source is revised to address these control devices. This condition supersedes Standard Condition 6.

If you have any questions on this permit, please call Kunj Patel at 217/782-2113.

Edwin C. Bakowski, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

Date Signed: \_\_\_\_\_

ECB:CPR:KMP:

cc: Region 2