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CONSTRUCTION PERMIT - REVISED
NSPS/ NESHAP SOURCE

PERMITTEE

Countryside Landfill, Inc.
Attn: Christopher G. Rubak
31725 North Route 83
Grayslake, Illinois 60030

Application No.: 98100039

I.D. No.: 097806AAG

Applicant's Designation:

Date Received: March 18, 2009

Subject: Enclosed Flare

Date Issued:

Location: Countryside Landfill, 31725 North Route 83, Grayslake, Lake County

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

1. Introduction

- a. This Permit covers the construction of an enclosed flare (the affected flare) that would be used to combust landfill gas (LFG) collected at the Countryside Landfill (the affected landfill). The affected flare would serve as a backup to the engines at the associated gas-to-energy facility operated by Countryside Genco, LLC (I.D. No. 097025AAR) to combust collected LFG when the flow of LFG is more than that facility can handle or that facility is not in service.

Note: The affected landfill and the associated gas-to-energy facility, are considered to be a single source pursuant to 40 CFR 52.21(b)(6), 35 IAC 203.112, 203.136, and 211.6130, and Section 39.5(1) of Illinois' Environmental Protection Act.

2-1. 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 flare shall be designed and operated to comply with all applicable requirements of the NSPS, including the following, as applicable to an "enclosed combustor" as defined by 40 CFR 60.751.
 - i. Design and operation of the flare to reduce emissions of nonmethane organic compound (NMOC) by 98 weight percent or to an outlet NMOC concentration of less than 20 ppm by volume (ppmv), dry basis as hexane at 3 percent oxygen. [40 CFR 60.752(b)(2)(iii)(B)]
 - ii. Operation of the flare at all times when collected LFG is routed it. [40 CFR 60.753(f)]
 - iii. In the event that the flare is inoperable and no other control system is operational, necessary steps are taken

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within 1 hour to shut down the gas mover system and close all valves at the flare that would contribute to venting of LFG into atmosphere. [40 CFR 60.753(e)]

- 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 AAAA and related provisions in 40 CFR 63 Subpart A, General Provisions. Pursuant to the NESHAP, 40 CFR 63.1960, the Permittee must meet 40 CFR 63.6(e)(3), which requires the development and implementation of a written plan for startup, shutdown, and malfunction of the landfill, including the affected flare.
- c. The Permittee shall at all times, to the extent practicable, maintain and operate the affected 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).

2-2. 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 the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit except as allowed by 35 IAC 212.123(b) and 212.124.
- 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 (SO₂) into the atmosphere from any process emission unit to exceed 2000 ppm.
- c. The affected flare is subject to 35 IAC 218.986(a), which provides that the owner or operator of a subject emission unit shall use emission capture and control technique(s) that achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent.

Note: The affected flare is subject to this control requirement of 35 IAC 218 Subpart TT, "Other Emission Units", pursuant to 35 IAC 218.980(b), as the affected source, i.e., a combination of the affected landfill and associated gas-to-energy, has the potential to emit 25 tons or more of VOM per year. Compliance with this requirement is addressed by applicability of the Landfill NSPS, as it addresses capture and control of LFG and emissions of NMOC from the source.

3. Non Applicability Provisions

This permit is issued based on this project not constituting a major modification for the purpose of Prevention of Significant Deterioration (PSD), 40 CFR 52.21, or Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203. This is a consequence of the emission limits and other conditions in this permit that ensure that the emissions from the source, i.e., the combination of the affected landfill and the associated gas-to-energy facility, do not trigger the applicability of PSD or MSSCAM, consistent with information provided in the application. (See Condition 5(a)(iii).)

4. Design and Operational Requirements

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- a. The design capacity of the affected flare shall not exceed 4,200 scfm of LFG.
- b. If the sulfur content of collected LFG as combusted in the affected flare would exceeds 2000 ppmv, LFG shall only be combusted in the flare in the event of a malfunction or breakdown that prevents LFG from being directed to the associated gas-to-energy facility or when the flow of LFG is more than the gas-to-energy facility can handle.

5. Emission Limitations

- a.
 - i. This permit is issued based on negligible emissions of HAPs from the affected flare. For this purpose, emissions of HAPs, in total, shall not exceed 0.1 pounds per hour and 0.44 tons per year.
 - ii. The emissions from the affected flare shall not exceed the following limits. These limits are based on information provided in the application.

Pollutant	Limits	
	Lbs/Hour	Tons/Year
Nitrogen Oxides (NO _x)	8.64	37.85
Carbon Monoxide (CO)	20.8	91.2
Particulate Matter (PM/PM ₁₀)	3.47	15.2
Volatile Organic Material(VOM)/ Nonmethane Organic Compounds (NMOC)	0.67	2.93

- iii. The total emissions of the source shall not exceed the following limits:

Pollutant	Emissions (Tons/year)
NO _x	245.0
CO	245.0
SO ₂	97.5

- b.
 - i. Compliance with the annual limits in this permit shall be determined from a running total of 12 months of data.
 - ii. Emissions shall be determined using appropriate emission factors which in order of preference shall be factors developed from on-site testing, manufacturer's emission data, and factors from USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42).

6. Testing Requirements

- a. Within 60 days after achieving the maximum production rate at which the affected flare will be operated, but not later than 180 days after initial startup of the control system, emissions from the control system shall be measured by an approved testing service, during conditions which are represent of maximum emissions. This testing may include measurement of the following:
 - i. The NMOC reduction efficiency or parts per million by volume emission rate shall be established by an initial

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performance test, required under 40 CFR 60.8 using the test methods specified in 40 CFR 60.754(d).

ii. Opacity and emissions of PM, NO_x, VOM, and CO.

Note: The Illinois EPA acknowledges that this requirement has been satisfied, as the Permittee has performed initial emission testing for the affected flare in 1999.

- b. Within 90 days of a written request from the Illinois EPA, the Permittee shall perform such other emissions and/or performance tests specified by the Illinois EPA. The 90 day time period will automatically be extended for an additional 60 days upon written request by the Permittee. The Illinois EPA may provide additional time for the performance of these tests upon written request by the Permittee.
- c. Unless otherwise specified, each test shall consist of three separate runs each of at least 60 minutes in duration. For the purpose of determining, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sampletrain, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Illinois EPA approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f)]
- d. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A.

Sample and Velocity Traverses	USEPA Method 1
Stack Gas Velocity and Flow Rate	USEPA Method 2
Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight	USEPA Method 3
Moisture Content in Stack Gases	USEPA Method 4
Particulate Matter Emissions	USEPA Method 5
Nitrogen Oxide Emissions	USEPA Method 7 or 19
Visual Determination of Opacity	USEPA Method 9
Carbon Monoxide Emissions	USEPA Method 10
Total Gaseous Nonmethane Organic Emissions as Carbon	USEPA Method 25 or 18

- e. At least 60 days prior to the actual date of testing a written test plan shall be submitted to the Illinois EPA for review and approval. This plan shall describe the specific procedures for testing, including as a minimum:
- i. The name and identification of the affected unit(s);
- ii. The person(s) who will be performing sampling and analysis and their experience with similar tests.
- iii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined.

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- iv. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
- v. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods.
- vi. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
- vii. Any proposed use of an alternative test method, with detailed justification.
- viii. The format and content of the Source Test Report.
- f. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five working days prior to the actual test date.
- g. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. The Final Report shall include as a minimum:
 - i. A summary of results.
 - ii. General information.
 - iii. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule
 - iv. Detailed description of test conditions, including:
 - A. Total flow of LFG to the facility;
 - B. LFG treatment operating parameters; and
 - C. Control system operating parameters, i.e., LFG flow to the affected flare, average flare combustion temperature, etc.
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
 - vi. The results of all quality control evaluations, including a copy of all quality control data.

7. Monitoring Requirements

- a. i. The Permittee shall comply with the applicable monitoring requirements of the NSPS, 40 CFR 60 Subpart WWW, by calibrating, maintaining, and operating according to the manufacturer's specifications, a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +1 percent of the temperature being

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measured expressed in °C or ± 0.5 °C, whichever is greater, for the affected flare. [40 CFR 60.756(b)(1)]

- ii. The Permittee shall maintain records for: 1) The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test and 2) The percent reduction of NMOC determined as specified in 40 CFR 60.752(b)(2)(iii)(B) achieved by the flare. [40 CFR 60.758(b)(2)(i) and (ii)]
 - b. i. If the bypass line valve to the atmosphere for the affected flare is not secured 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, the Permittee shall comply with the applicable monitoring requirements of the NSPS, 40 CFR 60 Subpart WWW, by calibrating, maintaining, and operating according to the manufacturer's specifications, a gas flow rate measuring device for the flare that records flow to the flare at least every 15 minutes. [40 CFR 60.756(b)(2)]
 - ii. If the Permittee complies with the NSPS monitoring requirement of 40 CFR 60.756(b)(2), by securing lines that would bypass the affected 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.
8. Sampling and Analysis of Landfill Gas
- a. i. The Permittee shall conduct sampling for the composition of LFG as combusted at the affected flare. The samples shall be analyzed for sulfur and NMOC content (ppmv) and heat content (Btu/cubic foot) of the LFG. This sampling and analysis shall be conducted using appropriate USEPA Methods, ASTM Methods or other established methods for analysis of LFG and may be conducted by an independent party. Written notification of testing or submittal of a testing protocol is not required for these tests.
 - ii. Sampling and analysis for NMOC and heat content shall be conducted on at least an annual basis.
 - iii. Sampling and analysis for sulfur content shall be conducted as follows:
 - A. Sampling and analysis shall be conducted on at least an annual basis unless a sample indicates that the sulfur content of the LFG combusted in the affected flare is more than 750 ppmv or more than 1500 ppmv, in which case sampling and analysis shall be conducted on at least quarterly or monthly basis, respectively, as provided in Condition 8(a)(iii)(B) or (C) below.
 - B. If sampling and analysis conducted pursuant to Condition 8(a)(iii)(A) indicate that the sulfur content of LFG combusted in the affected flare is between 750 ppmv and 1500 ppmv, subsequent sampling and analysis shall be conducted on at least a quarterly basis, until five required quarterly samples in a row indicate the sulfur content of the LFG combusted in the affected flare is no more than

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750 ppmv, at which time sampling and analysis may again be conducted on at least an annual basis, as provided by Condition 8(a)(iii)(A).

C. If sampling and analysis conducted pursuant to Conditions 8(a)(iii)(A) or (B) indicate that the sulfur content of LFG combusted in the affected flare is more than 1500 ppmv, subsequent sampling and analysis shall be conducted on at least a monthly basis, until five required monthly samples in a row indicate the sulfur content of the LFG combusted in the affected flare is no more than 1500 ppmv, at which time sampling and analysis may again be conducted on at least quarterly basis, as provided by Condition 8(a)(iii)(B).

iv. The Permittee shall keep records for this sampling and analysis activity, including both collected data and documentation for the sampling and analysis activities.

9. Recordkeeping Requirements

a. The Permittee shall comply with the applicable recordkeeping requirements of the NSPS and NESHAP for the affected flare, including the following:

i. A record of the design capacity report which triggered 40 CFR 60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. For this purpose, off-site records may be maintained if they are retrievable within 4 hours. [40 CFR 60.758(a)]

ii. Records of the vendor specifications, which shall be maintained until removal of the flare. [40 CFR 60.758(b)]

iii. Records for periods of operation during which flow occurred to the flare without a flame being present or the combustion chamber temperature established during the most recent performance test was exceeded, i.e., 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 40 CFR 60.752(b)(2)(iii) was determined. [40 CFR 60.758(c) and (e)]

iv. If monitoring for flow is not conducted pursuant to the NSPS, records for monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. [40 CFR 60.758(c)(2)]

b. The Permittee shall keep the following operating records for the affected flare:

i. A file containing the design specifications for the flare including capacity, scfm, and a demonstration that the flare is designed to comply with the requirements of 40 CFR 60.752(b)(2)(iii)(B).

ii. The LFG consumption of the flare, on a daily basis.

iii. An operating log that, at a minimum, shall include the following:

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- 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 similar occurrences in the future.
 - D. For each period when LFG with a sulfur content of more than 2000 ppmv is combusted in the flare, detailed information for such period, including date(s), the amount and sulfur content of the combusted LFG, the reason why the LFG could not be combusted in the gas-to-energy facility, and the actions taken to enable the LFG to be directed to that facility.
- 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 or repair performed.
- c. The Permittee shall keep the following records related to emissions of the affected 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 , CO, SO₂, PM, PM₁₀, VOM, and NMOC from the flare.
 - iii. Records of emissions of NO_x, CO, SO₂, PM, PM₁₀, VOM, and NMOC from the flare (tons/month and tons/year), with supporting calculations.
- d. The Permittee shall keep records of the emissions of NO_x, CO and SO₂ from the source (tons/month and tons/year), with supporting documentation and calculations. For this purpose, for the emissions from the associated gas-to-energy facility, the Permittee may, on a routine basis, obtain a copy of the emission data from the operator of that facility, with supporting documentation and calculations.

10. Retention of Required Records

Unless otherwise specified by rule, all 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

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office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.

11. Notification and Reporting Requirements

- a. The Permittee shall fulfill applicable notification and reporting requirements of the NSPS and NESHAP for the affected flare, including submittal of annual reports to the Illinois EPA of the information specified in 40 CFR 60.757(f)(1) through (f)(4). For this purpose, If there have been no exceedances involving the affected flare during the prior calendar year, the annual report shall include a statement to that effect. [40 CFR 60.757(f)]
- b. If there is any deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA as follows, unless otherwise specified in the CAAPP permit for the affected landfill. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the deviation or violation and efforts to reduce emissions and future occurrences.
 - i. Deviations from NSPS and NESHAP requirements shall be reported in accordance with the NSPS.
 - ii. Deviations from annual emission limits shall be reported within 30 days.
 - iii. Deviations from other requirements shall be reported in a semi-annual report unless more frequent reporting is required by the CAAPP permit for the landfill.
- c. Two copies of required reports and notifications shall be sent to the Illinois EPA 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
9511 West Harrison
Des Plaines, Illinois 60016

Telephone: 847/294-4000 Facsimile: 847-294-4018

12. Other Applicable Requirements

- a. Other than to increase permitted emissions of SO₂ and PM, 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.

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- b. 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.

13. Authorization to Operate

The Permittee may operate the affected flare pursuant to this revised construction permit until the CAAPP permit for the landfill is revised to address this permit. This condition supersedes Standard Condition 6.

Please note that this permit has been revised at the request of the Permittee to increase the permitted emissions of SO₂ and PM to addresses recent data collected for the sulfur content of the LFG, which is higher than the value provided in the original application. The revised permit also makes related changes to requirements for sampling and analysis of LFG, recordkeeping, and reporting requirements for the affected flare. Additionally, the revised permit more clearly addresses the applicability of the NSPS and NESHAP to the affected flare.

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: Illinois EPA, Region 1
Steve Laliberty, Countryside Genco, L.L.C.

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