217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Industrial Power Generating Company, L.L.C. (INGENCO)
Attn: Robert L. Greene
2250 Dabney Road
Richmond, VA 23230

Application No.: 08100056 I.D. No.: 197445AAI
Applicant's Designation: Date Received: October 27, 2008
Subject: Landfill Gas to Energy Facility
Date Issued:
Location: CDT Landfill, 2851 Mound Road, Joliet, Will County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a landfill gas-to-energy facility, including a landfill gas (LFG) treatment system and twelve landfill gas and distillate fuel oil fired compression ignition engines, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This permit authorizes construction of a landfill gas-to-energy facility, including a landfill gas (LFG) treatment system and twelve compression ignition engines (Detroit Diesel Series 60, rated nominal capacity 350kW). The gas-to-energy facility will be located at the closed CDT Landfill facility, owned and operated by CDT Landfill, Inc (Illinois EPA BOA I.D. No. 197045AIX). The affected engines are fired with LFG produced from the CDT Landfill and diesel fuel oil to generate electricity.

For the purpose of this permit, the LFG treatment system is referred as the "affected system" and twelve engines are referred to as the "affected engines."

Note: This permit is issued based on the gas-to-energy facility and the existing closed CDT landfill facility, which supplies LFG for the affected engines, not being a single source for purpose of permitting, 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. This is because the gas-to-energy facility is not dependent upon LFG to operate. In addition, the CDT Landfill can operate independently of an gas-to-energy facility, as it has done for the preceding two years in order to comply with the control requirements of the NSPS, 40 CFR 60 Subpart WWW. Finally, the gas-to-energy facility and landfill are operated by separate companies and are not considered under "common control."

b. This permit is issued based on the flare at the CDT Landfill, which is subject to an operating permit issued to CDT Landfill (CAAPP Permit 99060100), remaining in service as a backup to the gas-to-energy facility, to control LFG when affected system or engines are not in service or the flow of LFG is more than the gas-to-energy facility can handle.

2a. The emissions of smoke or other particulate matter from each affected engine shall not exceed an opacity greater than 30 percent, into the atmosphere from the affected engines, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.

b. The emission of sulfur dioxide into the atmosphere from each affected engine shall not exceed 2000 ppmv, pursuant to 35 IAC 214.301.

c. i. On an annual average basis, diesel fuel with a sulfur content greater than 0.05 weight percent shall not be fired in any of the affected engines, pursuant to the Permittee’s representation that the affected engines are exempt from the Acid Rain Program by meeting the new units exemption requirement of 40 CFR 72.7(a). The affected engines are subject to the Acid Rain Program provisions of 40 CFR 72.2 through 72.7 and 72.10 through 72.13.

ii. The Permittee shall use the methodology specified by 40 CFR 72.7(d)(3) or other methodology approved by the USEPA to address compliance with the above sulfur limit.

iii. The Illinois EPA shall be allowed to sample all fuels stored at the facility.

3a. Pursuant to 40 CFR 60.4200(a)(2)(i), the Permittee shall comply with the applicable requirements of the New Source Performance Standards (NSPS) for Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart IIII for each affected engines that meets the applicability provisions of these rules, e.g., the engines is manufactured after April 1, 2006. Pursuant to the NSPS, each such engine being subject to 40 CFR 60 Subpart IIII with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the applicable emission standards in 40 CFR 94.8(a)(1).

b. This permit is issued based on affected engines not being subject to the emissions standards of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ. This is because, as defined in 40 CFR 63.6590(a)(1)(iii), the engines manufactured prior to April 1, 2006 are termed existing engines and pursuant to 40 CFR 63.6590(b)(3),.such engines are not subject to the requirements of the NESHAP, Subpart IIII.

c. i. This permit is issued based on Permittee treating the LFG that is combusted in the affected engines (i.e., processing the LFG with compression, de-watering and filtration, with a system designed and operated to remove non-methane organic compounds (NMOC) from the collected LFG in accordance with 40 CFR

60.752(b)(2)(iii)(C)), so that the affected engines are not subject to the NSPS for Municipal Solid Waste Landfills, 40 CFR 60 Subpart WWW, pursuant to the site-specific determination made by the USEPA for a similar facility. Accordingly, compliance with the NSPS, 40 CFR 60 Subpart WWW, and the NESHAP, 40 CFR 63 Subpart AAAA, is not dependent upon the control efficiency for NMOC achieved by the engines.

ii. If the affected engines are relied upon in the future to comply with the control requirements of the NSPS, 40 CFR 60, Subpart WWW (e.g., the LFG treatment system is removed or unable to treat all LFG being used at the gas-to-energy facility), the Permittee shall comply with the applicable requirements of the NSPS for the affected engines, including:

A. For purposes of compliance with this NSPS, each affected engine shall be considered to be a control system utilizing enclosed combustor type control devices, as defined under 40 CFR 60.751.

B. Pursuant to 40 CFR 60.752(b)(2)(iii)(B), each affected engine shall be operated to reduce NMOC emissions by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume (ppmv), dry basis as hexane at 3 percent oxygen.

C. The Permittee shall also operate each affected engine so as to comply with the provisions of 40 CFR 60.753, including:

I. Operation such that collected LFG delivered to the facility is routed to the affected system or engines. [40 CFR 60.753(e)]

II. In the event that the affected engine(s) are inoperable, take necessary steps to prevent venting of LFG to the atmosphere, including closing all valves that contribute to venting the LFG into atmosphere within 1 hour. [40 CFR 60.753(e)]

III. Operation of the affected engines at all times when the collected LFG is routed to the engines. [40 CFR 60.753(f)]

D. The Permittee shall fulfill all applicable operating, monitoring, testing, recordkeeping, and reporting requirements of NSPS, 40 CFR 60 Subpart WWW, including conducting timely performance tests for the engines.

4a. The Permittee shall at all times specifically, maintain and operate the affected system and the emission units at this gas-to-energy facility in accordance with good air pollution control practice to minimize emissions.

b. The Permittee shall not take actions that would interfere with the associated landfill’s compliance with applicable requirements or prolong noncompliance with the applicable requirements.

5a. i. Distillate fuel oil (including biodiesel) and LFG shall be the only fuels fired in the affected engines.

ii. The maximum firing rate of each affected engine in dual fuel mode shall not exceed 3.7 million Btu per hour.

iii. The total operating hours for all affected engines shall not exceed 27,400 hours per year, in a distillate fuel oil only firing mode.

b. i. A. The emissions from the affected engines shall not exceed the following limits. These limits are based on information provided in the application, including maximum firing rate, and continuous operation.

Pollutant	Hourly Limits for Each Engine (Lbs/hour)	Annual Limits (Tons/year)	
		(Each)	(Total)
NO_x	7.8	34.2	98.7
CO	6.5	28.5	97.6
SO_2	0.2	2.4	11.0
VOM	0.4	1.8	20.0
Single HAP	0.4	1.8	9.8
Total HAPs	0.4	1.8	20.0

B. 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), with appropriate adjustments to reflect any deficiencies in the operation of a unit. Compliance with the annual limits annual limits shall be determined from a running total of 12 months of data.

ii. This permit is issued based on negligible emissions of particulate matter from the affected engines. For this purpose, emissions from each engine shall not exceed 0.1 pounds per hour and 0.4 tons per year.

6a. Upon written request from the Illinois EPA, the Permittee shall conduct observations of operation and opacity of the affected engines. The Permittee may schedule these observations to take place during normal operation of the affected engines.

b. The Permittee shall have performance tests conducted for the affected engines for NMOC/VOM, NO_x, and CO by an approved independent testing service during conditions that are representative of maximum emissions:

i. Within 60 days of the date that the engines are first relied upon as a control system for compliance with NSPS, 40 CFR 60 Subpart WWW or if the engines are relied upon periodically for compliance with NSPS, 40 CFR 60 Subpart WWW, within 60 days of relying on engines for compliance for more than 15 days in a calendar year.

ii. Within 90 days of a written request from the Illinois EPA, or the date agreed upon by the Illinois EPA, whichever is later.

7. The Permittee shall conduct sampling and analysis for the composition of landfill gas fired in the affected engines, at least once per year. The samples shall be analyzed for sulfur content (ppmv) and net heat content (Btu/cubic foot) of the LFG. These analyses may be performed by the Permittee or an independent company. Written notification of testing or submittal of a formal testing protocol is not required for these tests.

8a. The Permittee shall maintain a file for each affected engine containing the following:

i. A demonstration that the engine is not subject to the NSPS, 40 CFR 60 Subpart IIII, if the Permittee considers these rules not to be applicable and is not carrying measures to comply with them.

ii. Manufacturer’s data for each engine including emissions guarantees, horsepower rating or rated heat input capacity (million Btu/hour), and operating and maintenance procedures recommended by the manufacturer or site specific operating procedures established by the Permittee.

b. The Permittee shall maintain following records for the affected engines:

i. Demonstration of compliance with NSPS, 40 CFR 60 Subpart WWW, including actions taken by the Permittee to verify that the LFG supply to the engines has been properly treated and any period when engines were relied upon or should have been relied upon for compliance, with explanation.

ii. Records of distillate fuel oil and LFG throughput, on a daily basis, for each affected engine.

iii. Records of heat content and composition of treated and if applicable, untreated LFG, based on representative sampling and analysis.

c. The Permittee shall maintain a file containing the written procedures that are being followed as good combustion practices and good air pollution control practice to minimize emissions in accordance with

Condition 4, which procedure may incorporate procedures provided by the manufacturer and be combined with other procedures maintained by the Permittee for the affected system and emission units at this facility.

d. The Permittee shall maintain an operating log or other records for each affected engine that at a minimum includes:

   i. The operating schedule of each engine, with identification of any period when an engine operated on a single fuel mode during normal operation, e.g. fired only with distillate fuel oil.

   ii. Identification of any period when an engine operated with LFG that was not properly treated, with date, duration, and description for why LFG was not properly treated.

   iii. Identification of any period when an engine continued to operate after a malfunction or breakdown of the engine's combustion system, with date, time, duration and description.

e. The Permittee shall keep inspection, maintenance and repair logs with dates and the nature of such activities for the LFG treatment system and affected engines.

f. The Permittee shall keep the following records related to emissions of the affected engines:

   i. Records for the sulfur content of the distillate fuel oil fired in the engines, including the average sulfur content of this fuel oil on each calendar year (weight percent).

   ii. A file containing: 1) The emission factors used by the Permittee for calculating the emissions; and 2) Engineering calculations for the maximum hourly emissions from the engines, with supporting documentation.

   iii. Emissions of NO_x, CO, SO_2, VOM, and HAPs (tons/month and tons/year) for each affected engine, with supporting calculations.

g. The Permittee shall maintain records for all opacity measurements made in accordance with USEPA Method 9 for the affected engines that the Permittee conducts or that are conducted on its behest by individuals who are qualified to make such observations. For each occasion on which such observations are made, these records shall include the identity of the observer, a description of the various observations that were made, the observed opacity, and copies of the raw data sheets for the observations.

9. 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 or USEPA 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 or USEPA request for records during the course of a source inspection.

10a. 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 source. 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 annual emission limits shall be reported within 30 days.

ii. Deviations from other requirements shall be reported in a quarterly report unless more rapid reporting is required by other regulating agencies.

b. The Permittee shall notify the Illinois EPA, when an affected engine is permanently removed from service. This notification shall include, a demonstration that the flare at the CDT landfill continue to be sufficient to all LFG being generated from the landfill.

11. Two copies of all reports, notifications, and correspondence required by this permit shall be sent to:

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

<u>and</u> one copy shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Tel: 847-294-4000 Fax: 847-294-4018

12. 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 this gas-to-energy facility as may be need to minimize air pollution, including nuisance due to odors, such as implementation of additional measures to assure that the operation of the facility does not interfere with the effective capture and control of LFG at the CDT Landfill.

13. The Permittee may operate the LFG treatment system and emission units at this gas-to-energy facility pursuant to this construction permit

until a CAAPP or FESOP permit for the source is issued to the source, provided that a complete timely application for the CAAPP permit is submitted to the Illinois EPA.

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

Edwin C. Bakowski, P.E.   Date Signed: ___________________
Manager, Permit Section
Division of Air Pollution Control

ECB:CPR:KMP:jws

cc: Region 1