

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Winnebago Energy Center, LLC.
c/o Integrys Energy Services
Attn: Charles Koontz
1716 Lawrence Drive
DePere, Wisconsin 54115

Application No.: 07030094

I.D. No.: 201801AAN

Applicant's Designation: --

Date Received: March 5, 2007

Subject: Landfill Gas to Energy Facility

Date Issued: May 25, 2007

Location: Pagel Landfill, 8403 Lindenwood Road, Rockford, Winnebago 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 four landfill gas (LFG) fired reciprocating internal combustion engines (affected engines) for the Pagel Landfill, 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 four LFG fired combustion engines (Caterpillar Model 3520C) for a new gas-to-energy facility that will utilize LFG collected from the Pagel Landfill, owned and operated by Winnebago Reclamation Services, to generate electricity.
- b. This permit is issued based on the flares operated by Winnebago Reclamation Services under CAAPP permit 99020102 remaining in service as a backup to the affected engines, to control LFG when engines are not in service or the flow of LFG is more than the facility can handle.
- 2a. The emission of smoke or other particulate matter from the affected engines shall not exceed an opacity greater than 30 percent, pursuant to 35 IAC 212.123(a).
- b. The emission of sulfur dioxide from the affected engines shall not to exceed 2000 ppm pursuant to 35 IAC 214.301.
- 4a. i. This permit is issued based on the Permittee or the operator of the landfill treating the LFG that is combusted in the affected engines in accordance with a facility specific determination made by USEPA in a letter dated April 30, 2007 that the engines are not subject to the NSPS for Municipal Solid Waste Landfills, 40 CFR 60 Subpart WWW,. In particular, the collected LFG will be processed prior to combustion by compression, de-watering and filtration with at least a 10 micron filter so as to be considered to have been treated in accordance with 40 CFR

60.752(b)(2)(iii)(c). Hence, compliance with NSPS, 40 CFR 60 Subpart WWW is not dependent upon the control efficiency for non-methane organic matter (NMOC) achieved by the engine and emission testing pursuant to NSPS is not required.

Note: Emissions from any atmospheric vent from the LFG treatment system, including any compressor, are subject to the requirements of the NSPS, 40 CFR 60.752(b)(2)(iii)(A) and (B).

- ii. If the affected engines are relied upon in the future to comply with the control requirements of NSPS, 40 CFR 60, Subpart WWW (e.g., the LFG treatment system is removed), the Permittee shall conduct timely performance test for the affected engines as required pursuant to the NSPS.
- 4a. The affected engines shall be operated in a manner consistent with good air pollution control practice including practices to minimize emissions and opacity during startup. The Permittee shall operate affected engines in accordance with the manufacturer's written instructions for operation and maintenance of the engines.
- b. i. 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.
 - ii. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions for the facility as may be needed to eliminate 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 effective capture and control of LFG at the source.
5. This permit is issued based on the affected engines not being subject to the control requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ. This is because the engines (1) are not located at major source of HAP emissions and (2) are being fired on landfill gas, as provided by 40 CFR 63.6590(b)(2).

Note: If these engines were located at a major source of HAP emissions, they would be subject to the procedural requirements of 40 CFR 63.6625(c), 63.6645(d), 63.6650(g), and 63.6655(c).

- 6a. LFG shall be the principle fuel fired in the affected engines.
- b. The emissions from the affected engines shall not exceed the following limits. The hourly limits shall not apply during startup of an engine:

Pollutants	Emissions		
	Lbs/Hour	Tons/Year	
		(Each)	(Total)
NO _x	2.5	10.8	43.1
CO	12.3	53.9	200.0
SO ₂	0.28	1.23	4.94
PM/PM ₁₀	0.86	3.8	15.1
VOM	0.3	1.26	5.1
Individual HAP*	0.16	0.7	2.8
Total HAP*	0.31	1.4	5.4

* Emissions of HAP, e.g., hydrogen chloride, xylenes, toluene

These limits are based on information provided in the application, including standard USEPA AP-42 emissions factors, maximum landfill gas firing rate, and continuous operation.

- c. i. Compliance with the above annual limits and other 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 from on-site emission testing, manufacturer's emission data, and emission factors from USEPA's Compilation of Air Pollutant Emission Factors (AP-42).

Note: These and other annual limits in this permit are intended to ensure that the construction and operation of the affected engines do not constitute a major project for the purpose of Prevention of Significant Deterioration (PSD). For this purpose, this permit is issued based on the existing landfill and gas-to-energy facility as a single source and not being a major source for the purpose of PSD.

- 7a. This permit is issued based on the source, including the landfill, existing flares, and new gas-to-energy facility, not being a major source of HAPs emissions. For this purpose HAPs emissions from the source shall not exceed 8 tons/year for any individual HAP and 20 tons/year of any combination of HAPs.
- b. This permit is issued based on the source, including the landfill, existing flares, and this new gas-to-energy facility, not being a major source of emissions for purposes of PSD, 40 CFR 52.21. For this purpose, total emissions of the source shall not exceed the following limits:

Pollutants	Emissions (Tons/year)
NO _x	225
CO	225

- 8a. The Permittee shall conduct observations of operation and opacity of the affected engines upon written request of the Illinois EPA. The Permittee may schedule these observations to take place during normal operation of the affected engines.
 - b. The Permittee shall have emission tests conducted for affected engine(s) for NMOC/VOM, HAPs, 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.
 - c. The Permittee shall sample and analyze LFG representative of the LFG received by the facility at least once per year. This analysis shall include determinations for the following: heat, NMOC, and methane content. If USEPA Method 18 is used to determine NMOC content, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). These analyses may be performed by the operator of the associated landfill or an independent company.
- 9a. The Permittee shall maintain a file for each affected engine containing the following:
 - i. Manufacturer's data for the engine including emissions guarantees, horsepower or rated heat input capacity (mmBtu/hour), and operating and maintenance procedures suggested by the manufacturer.
 - ii. The maximum hourly emission rates (lbs/hour), with supporting engineering calculations.
 - b. The Permittee shall maintain operating records for the facility as necessary for:
 - 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 facility has been properly treated and any period when engines were relied upon or should have been relied upon for compliance, with explanation.
 - ii. Determination of emissions, including monthly landfill gas throughput to the engines, and heat content and composition of the landfill gas, based on representative sampling and analysis.

- c. The Permittee shall maintain a file of the written instructions being followed by the Permittee as good combustion practices and good air pollution control practice to minimize emissions in accordance with Condition 4(a).
- d. The Permittee shall maintain an operating log for each affected engine, that at a minimum include the following records related to startup of the engine:
 - i. Date, time and duration of each startup; and
 - ii. Description of the startup, if written operating procedures are not followed during the startup or significant problem occurs during the startup including detailed explanation.
- e. The Permittee shall keep inspection, maintenance and repair logs with dates and the nature of such activities for the engines.
- f. The Permittee shall maintain records of NO_x, CO, SO₂, VOM, PM and HAP emissions (tons/month and tons/year) of the affected engines based on actual fuel consumption for the affected engines and the appropriate emission factors with supporting calculations, which shall be compiled on at least a quarterly basis.
- 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.
- 10. 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.
- 11a. 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. 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.
 - b. i. The Permittee shall notify the Illinois EPA with its semi-annual compliance reports if affected engine have been relied upon for

compliance with NSPS, 40 CFR 60 Subpart WWW during outages of the LFG treatment system, with identification of each such outage and explanation.

- ii. The Permittee shall notify the Illinois EPA within 10 days if affected engines are being relied upon for routine compliance with NSPS, 40 CFR 60 Subpart WWW (rather than treatment of LFG), with explanation.
 - c. If affected engines are being relied upon for routine compliance with NSPS, 40 CFR 60 Subpart WWW, the Permittee shall notify the Permittee for the associated landfill (i.e., Winnebago Reclamation Services) and the Illinois EPA as soon as it becomes aware that the gas-to-energy facility will not or is not controlling collected landfill gas so as to comply with requirements for control of LFG as applicable rather than treatment of LFG.
12. 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

Tel: 217/782-5811

Fax: 217/782-6348

and one (1) copy shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University Avenue
Peoria, Illinois 61614

Tel: 309-693-5461

Fax: 309-693-5467

13. The Permittee shall take appropriate measures to allow the Permittee for the associated landfill to assure applicable requirements related to control of LFG are being met, if any, including:
- a. Keeping all required records.
 - b. Keeping copies of the required reports and notifications.
 - c. Allowing access to such records.
- 14a. This permit authorizes installation of manufacturer supplied replacement engine and engine components for the affected engines that takes place either as part of scheduled maintenance of the engines or in the event of malfunction or unscheduled outage and subsequent repairs. This authorization does not address activities for which a

construction permit is not required, such as routine preventive maintenance, minor replacement of engine components or assemblies, or activities that do not involve, either directly or indirectly, emission-related components or assemblies of the engines.

- b. This authorization is limited to activities that can be accommodated by the original installation of the affected engines and that are performed in conjunction with an ongoing program of maintenance, repair, and replacement, so as to not constitute a modification with respect to PSD. This authorization does not extend to installation of a replacement engine that is a different make and model than the original engine or to activities that are intended to, or would have the result of, increasing the design capacity of an engine.
- c. This authorization also does not excuse the Permittee from any new regulatory requirements that are adopted and applicable to the engines.
- d. The Permittee shall expeditiously have performance testing conducted on an engine following replacement of components or assemblies, if requested by the Illinois EPA.
- e.
 - i. The Permittee shall maintain following records at the source for the replacement activities authorized by this permit:
 - A. A file containing the paperwork for original and replacement engine components or engines, including documentation for engine model numbers and serial numbers and copies of the specifications for the engines.
 - B. Details of activities performed pursuant to this permit including the date that the engine is removed from the service and the date the engine is returned to service.
 - ii. The records required by Condition 14(e)(i) shall be retained for at least five years after the date that the engine is permanently removed from the service.
- f. The Permittee shall notify the Illinois EPA prior to carrying out activities pursuant to this Condition 14. This notification shall be submitted at least 15 days in advance or as soon as it is practicable to do so, e.g., in the event of engine failure. This notification shall include:
 - i. The source's determination whether the activities involve installation of a new or reconstructed engine, and identification of the current status of the source with respect to emissions of HAPs, i.e., major or non-major, with explanation.
 - ii. A description of the activities that are to be performed and the expected schedule for the activities.

- iii. A confirmation that the activities fall within the authorization provided by this permit, the replacement is or will be in good operating conditions, and the outage of a engine will not prevent or interfere with compliance with applicable requirements for control of emissions, with supporting information.
- iv. The source's determination whether the activities involve installation of a new or reconstructed engine, and identification of the current status of the source with respect to emissions of HAPs, i.e., major or non-major, with explanation.
- g. The authorization provided by Condition 14 for the affected engines will terminate when the engine is permanently removed from service or 30 days after notification from the Illinois EPA that this authorization is being terminated, whichever occurs first. As related to the replacement activities authorized by this permit, this condition supersedes Standard Condition 1.
- 15. The Permittee may operate the affected engines pursuant to this construction permit until a CAAPP permit is issued for the facility provided that a complete application for CAAPP permit is timely submitted to the Illinois EPA.

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

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

ECB:CPR:KMP:psj

cc: Region 2