

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT  
RENEWAL

PERMITTEE

Lutheran General Hospital  
Attn: Ode Keil  
1775 Dempster Street  
Park Ridge, Illinois 60068

Application No.: 73050040

I.D. No.: 031246AAA

Applicant's Designation:

Date Received: July 18, 2005

Subject: Boilers, Generators, and ETO

Date Issued: June 6, 2007

Expiration Date: June 6, 2012

Location: 1775 Dempster Street, Park Ridge, Cook County

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of three boilers (two 39 mmBtu/hour, and one 23 mmBtu/hour), thirty-six other boilers, furnaces, unit heaters and domestic hot water heaters, two ethylene oxides sterilizers, and eleven standby engine generators as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO)). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes the current permit(s) issued for this location.
- 2a. 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, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.
- b. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period, pursuant to 35 IAC 212.123(b).

- 3a. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 73.2 MW (250 mmBtu/hour), burning liquid fuel exclusively to exceed 0.46 kg of sulfur dioxide per MW-Hour of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu), pursuant to 35 IAC 214,122(b)(2).
- b. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, pursuant to 35 IAC 214.301.
- c. Pursuant to 35 IAC 214.304 the emissions from the burning of fuel at process emission units located in the Chicago major metropolitan area shall comply with 35 IAC Part 214 Subparts B through F.
4. No person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hour) to exceed 200 ppm, corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.121.
5. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material.
- 6a. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) at this source with a sulfur content greater than the larger of the following two values:
  - i. 0.28 weight percent, or
  - ii. The wt. percent given by the formula: Maximum weight percent sulfur = (0.00015) x (Gross heating value of oil, Btu/lbs).
- b. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources.
- c. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 7a. Fuel combustion emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM) shall not exceed the following limits:
  - i. Natural Gas Usage: 61.6 mmscf/month, 256 mmscf/year

<u>Pollutant</u>	<u>Emission Factor</u> (Lbs/mm scf)	<u>Emissions</u>	
		(Tons/Month)	(Tons/Year)
Nitrogen Oxides (NO <sub>x</sub> )	100	3.08	12.80
Carbon Monoxide (CO)	84	2.59	10.75
Particulate Matter (PM)	1.9	0.06	0.25
Volatile Organic Material (VOM)	5.5	0.17	0.71
Sulfur Dioxide (SO <sub>2</sub> )	0.6	0.02	0.08

These limits are based on the maximum fuel usage, and Standard AP-42 emission factors, tables 1.4-1 and 1.4-2.

- ii. Total fuel Oil Usage: 12,500 gallons/month, 75,000 gallons/year

<u>Pollutant</u>	<u>Emission Factor</u> (Lbs/1,000 Gal)	<u>Emissions</u>	
		(Tons/Month)	(Tons/Year)
Nitrogen Oxides (NO <sub>x</sub> )	20.0	0.13	0.75
Carbon Monoxide (CO)	5.0	0.32	1.88
Particulate Matter (PM)	2.0	0.02	0.08
Volatile Organic Material (VOM)	0.34	0.01	0.01
Sulfur Dioxide (SO <sub>2</sub> )	42.6	0.27	1.60

These limits are based on the maximum fuel usage, and Standard AP-42 emission factors, tables 1.3-1 and 1.3-3 emission factors.

- b. Operation of the nine standby engine generators fired on #2 fuel oil shall not exceed the following limits:

- i. Emission of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter (PM), volatile organic material (VOM) from six standby Industrial engine generators shall not exceed the following limits:

<u>Pollutant</u>	<u>#2 Fuel Oil</u>		
	<u>Usage</u> (Gallons/Year)	<u>Emission Factor</u> (Lbs/mmBtu)	<u>Emission</u> (Tons/Year)
NO <sub>x</sub>	7,600	4.41	2.35
SO <sub>2</sub>	7,600	0.29	0.16
CO	7,600	0.95	0.51
VOM	7,600	0.36	0.20
PM	7,600	0.31	0.17

This table defines the potential emissions of the six Industrial engine generators and is based on maximum emissions determined by standard emission factors, AP 42 table 3.3-1, 140,000 btu/gallon, and the generators operating at 100% load.

- ii. Emission of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter (PM), volatile organic material (VOM) from

five standby Large Stationary engine generators shall not exceed the following limits:

<u>Pollutant</u>	#2 Fuel Oil		
	<u>Usage</u> (Gallons/Year)	<u>Emission Factor</u> (Lbs/mmBtu)	<u>Emission</u> (Tons/Year)
NO <sub>x</sub>	31,700	3.2	7.10
SO <sub>2</sub>	31,700	0.28	0.63
CO	31,700	0.85	1.89
VOM	31,700	0.09	0.20
PM	31,700	0.1	0.23

This table defines the potential emissions of five standby large stationary engine generators and is based on maximum emission determined by Standard emission factors, AP 42 table 3.4-1, 140,000 Btu/gallon, and the generators operating at 100% load.

- 8a. Emissions of the two ethylene oxide sterilizers shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(Lbs/Month)</u>	<u>(Tons/Year)</u>
Volatile Organic Material (VOM)	268	1.61

- b. These limits define the potential emissions of the ethylene oxide sterilizers operation and are based on the actual emissions determined from maximum production capacity and material balance.
9. The emissions of Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act shall be less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program (CAAPP) Permit.
10. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months.
- 11a. Pursuant to 35 Ill. Adm. Code 212.107, 212.109, and 212.110, testing for particulate matter emissions shall be performed as follows:
- i. For both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, incorporated by reference in 35 Ill. Adm. Code 212.113, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This Condition shall not apply to 35 Ill. Adm. Code 212.301, pursuant to 35 Ill. Adm. Code 212.107.

- ii. Except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, incorporated by reference in 35 Ill. Adm. Code 212.113, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged, pursuant to 35 Ill. Adm. Code 212.109.
  - iii. Measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E, pursuant to 35 Ill. Adm. Code 212.110(a).
  - iv. The volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4, pursuant to 35 Ill. Adm. Code 212.110(b).
  - v. Upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA, pursuant to 35 Ill. Adm. Code 212.110(c).
- b. Testing required by Condition 11(a) shall be performed by a qualified independent testing service.
- 12a. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person

making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

- b. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- c. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
  - i. Monthly and annual natural gas usage (scf/month and scf/year);
  - ii. Ethylene oxide and usage (pounds/month and tons/year);
  - iii. #2 fuel oil usage for the nine engine generators (gallons/month and gallons/year);
  - iv. #2 fuel oil usage for the three boilers and 36 heating units (gallons/month and gallons/year);
  - v. Sulfur content of #2 fuel oil; and
  - vi. Monthly and annual emissions of CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, VOM and HAPs, with supporting calculations (tons/month and tons/year).
13. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) 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.
14. If there is an exceedance of or deviation from the requirements of this permit as determined by the record required by this permit, the

Permittee shall submit a report to the Agency's Compliance Section in Springfield, Illinois within 30 days after the exceedance/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 exceedance or deviation and efforts to reduce emissions and future occurrences.

15. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
16. Two (2) copies of required reports and notifications shall be sent to:

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

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

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

If you have any questions on this, please call George Kennedy at 217/782-2113.

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

ECB:GMK:psj

cc: IEPA, FOS Region 1  
Lotus Notes

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emissions of the combustion units, generators, and sterilizers operating in compliance with the requirements of this construction permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from the source. These maximum emissions from the boilers and generators utilize annual fuel usage with natural gas, and #2 oil. The resulting maximum emissions are below the threshold levels (e.g., 100 tons/yr for NO<sub>x</sub>, 100 tons/year for SO<sub>2</sub>, 100 tons/year for CO, and 100 tons/year for PM) at which this project would be considered a new major source or a major modification for the purposes of 40 CFR 52.21, Prevention of Significant Deterioration (PSD). Actual emissions from this source will be less than predicted in this summary to the extent that the hours of operation are less than that allowed in this permit.

<u>Emissions Unit</u>	<u>Fuel</u>	E M I S S I O N S				
		<u>(Tons/Year)</u>				
		<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM</u>	<u>VOM</u>
Combustion Units	Natural Gas	12.80	10.75	0.08	0.25	0.71
	#2 Oil	0.75	1.88	1.60	0.08	0.01
Small Generators	#2 Oil	2.35	0.51	0.16	0.17	0.20
Large Generators	#2 Oil	7.10	1.89	0.63	0.23	0.20
2 Ethylene Oxide Sterilizers						<u>1.61</u>
	Totals	<u>23.00</u>	<u>15.03</u>	<u>2.47</u>	<u>0.73</u>	<u>2.73</u>

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