

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- NSPS SOURCE -- REVISED

PERMITTEE

Lutheran General Hospital
Attn: Greg Edwards
1775 Dempster Street
Park Ridge, Illinois 60068

Application No.: 73050040

I.D. No.: 031246AAA

Applicant's Designation:

Date Received: January 28, 2011

Subject: Boilers, Generators, and ETO

Date Issued:

Expiration Date:

Location: 1775 Dempster Street, Park Ridge, Cook County, 60068

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of four (4) natural gas/distillate fuel oil-fired boilers (Boilers #1 & #2 rated at 24.5 mmBtu/hr (each) and Boilers #3 & #4 rated at 32.7 mmBtu/hr (each)), thirty-six (36) other smaller natural gas-fired boilers (including two rated at 13.4 mmBtu/hr, and one rated at 14.5 mmBtu/hr), other natural gas-fired units (furnaces, unit heaters, and domestic hot water heaters), five (5) large diesel-powered standby generator sets totaling 1,010 kW (1,353HP), six (6) diesel-powered standby generator sets totaling 4,370 kW (5,856 HP), three (3) 1,500 kW (2,012 HP) diesel-powered emergency generator sets, and four (4) ethylene oxide sterilizers 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 Carbon Monoxide (CO), 100 tons/year for Nitrogen Oxides (NO_x), 100 tons/year for Sulfur Dioxide (SO₂), and 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs). 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. Boilers #1, #2, #3, and #4 are subject to the New Source Performance Standards (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

- b. Pursuant to 40 CFR 60.42c(d), on and after the date on which the initial performance test is completed or required to be completed under 40 CFR 60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/mmBtu) heat input; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that combusts greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.
 - c. Pursuant to 40 CFR 60.42c(h)(1), for distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 mmBtu/hour), compliance with the emission limits or fuel oil sulfur limits under 40 CFR 60.42c may be determined based on a certification from the fuel supplier, as described under 40 CFR 60.48c(f), as applicable.
 - d. Pursuant to 40 CFR 60.43c(c), on and after the date on which the initial performance test is completed or required to be completed under 40 CFR 60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 mmBtu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.
- 3a. The three (3) 1,500 kW diesel-powered emergency generator sets are subject to the New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subparts A and I. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. Pursuant to 40 CFR 60.4205(b), owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for their 2007 model year and later emergency stationary CI ICE.
 - c. Pursuant to 40 CFR 60.4202(a)(2), stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and greater than or equal to 37 KW (50 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines, to the emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.
 - d. Pursuant to 40 CFR 60.4206, owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 according to the manufacturer's written instructions or procedures developed by the owner or operator

that are approved by the engine manufacturer, over the entire life of the engine.

- 4a. Pursuant to 40 CFR 89.112(a), exhaust emission from nonroad engines to which 40 CFR 89 Subpart B is applicable shall not exceed the applicable exhaust emission standards contained in Table 1, as follows:

Table 1 – Emission Standards (g/kW-hour)

Rated Power (kW)	Tier	Model Year ¹	NO _x	HC	NMHC + NO _x	CO	PM
kW>560	Tier 1	2000	9.2	1.3	---	11.4	0.54
	Tier 2	2006	---	---	6.4	3.5	0.20

¹ The model years listed indicates the model years for which the specified tier of standards take effect.

- b. Pursuant to 40 CFR 89.112(d), in lieu of the NO_x standards, NMHC + NO_x standards, and PM standards specified in 40 CFR 89.112(a), manufacturers may elect to include engine families in the averaging, banking, and trading program, the provisions of which are specified in 40 CFR 89 Subpart C. The manufacturer must set a family emission limit (FEL) not to exceed the levels contained in Table 2. The FEL established by the manufacturer serves as the standard for that engine family. Table 2 follows:

Table 2 – Upper Limit for Family Emission Limits (g/kW-hour)

Rated Power (kW)	Tier	Model Year ¹	NO _x FEL	NMHC + NO _x FEL	PM FEL
kW>560	Tier 1	2000	14.6	---	---
	Tier 2	2006	---	10.5	0.54

¹ The model years listed indicates the model years for which the specified tier of standards take effect.

- c. Pursuant to 40 CFR 89.112(e), naturally aspirated nonroad engines to which 40 CFR 89 Subpart B is applicable shall not discharge crankcase emissions into the ambient atmosphere, unless such crankcase emissions are permanently routed into the exhaust and included in all exhaust emission measurements. This provision applies to all Tier 2 engines and later models. This provision does not apply to engines using turbochargers, pumps, blowers, or superchargers for air induction.
- d. Pursuant to 40 CFR 89.113(a), exhaust opacity from compression-ignition nonroad engines for which 40 CFR 89 Subpart B is applicable must not exceed:
- i. 20 percent during the acceleration mode;
 - ii. 15 percent during the lugging mode; and

- iii. 50 percent during the peaks in either the acceleration or lugging modes.
- 5a. Pursuant to 35 Ill. Adm. Code 212.123(a), 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 other than those emission units subject to 35 Ill. Adm. Code 212.122.
 - b. Pursuant to 35 Ill. Adm. Code 212.123(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.
 - c. Pursuant to 35 Ill. Adm. Code 212.206, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hour of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.10 lbs/mmBtu).
- 6a. Pursuant to 35 Ill. Adm. Code 214.122(b)(2), 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/hr), burning liquid fuel exclusively to exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu).
 - b. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
 - c. Pursuant to 35 Ill. Adm. Code 214.304, the emissions from the burning of fuel at process emission sources located in the Chicago or St. Louis (Illinois) major metropolitan areas shall comply with applicable 35 Ill. Adm. Code 214 Subparts B through F (i.e., 35 Ill. Adm. Code 214.122(b)(2)).
- 7. Pursuant to 35 Ill. Adm. Code 216.121, 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/hr) to exceed 200 ppm, corrected to 50 percent excess air.
- 8. 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.

9. This permit is issued based on the three 1,500 kW diesel-powered standby generator sets not being subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c)(1), a new or reconstructed stationary RICE located at an area source must meet the requirements of 40 CFR Part 63 by meeting the requirements of 40 CFR 60 Subpart IIII, for compression ignition engines or 40 CFR 60 Subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under 40 CFR Part 63.
10. Pursuant to 40 CFR 89.113(c)(3), constant-speed engines are exempt from the requirements of 40 CFR 89.113.
11. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hr (25 mph). Determination of wind speed for the purposes of this rule shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.
- 12a. Pursuant to 40 CFR 60.11(c), the opacity standards set forth in 40 CFR Part 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.
- b. Pursuant to 40 CFR 60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- 13a. Pursuant to 40 CFR 60.4206, owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.
- b. Pursuant to 40 CFR 60.4207(a), beginning October 1, 2007, owners and operators of stationary CI ICE subject to 40 CFR 60 Subpart IIII that

use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

- c. Pursuant to 40 CFR 60.4207(b), beginning October 1, 2010, owners and operators of stationary CI ICE subject to 40 CFR 60 Subpart IIII with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.
- d. Pursuant to 40 CFR 60.4211(a), if you are an owner or operator and must comply with the emission standards specified in 40 CFR 60 Subpart IIII, you must operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.
- e. Pursuant to 40 CFR 4211(b)(1), if you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in 40 CFR 60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to 40 CFR 60 Subpart IIII and must comply with the emission standards specified in 40 CFR 60.4205(c), you must demonstrate compliance by purchasing an engine certified according to 40 CFR part 89 or 40 CFR Part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.
- f. Pursuant to 40 CFR 60.4211(c), if you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in 40 CFR 60.4204(b) or 40 CFR 60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to 40 CFR 60 Subpart IIII and must comply with the emission standards specified in 40 CFR 60.4205(c), you must comply by purchasing an engine certified to the emission standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications.
- g. Pursuant to 40 CFR 60.4211(e), emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone may petition the Illinois EPA or USEPA for approval of additional hours to be used

for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. For owners and operators of emergency engines meeting standards under 40 CFR 60.4205 but not 40 CFR 60.4204, any operation other than emergency operation, and maintenance and testing as permitted in 40 CFR 60.4011, is prohibited.

14a. Pursuant to 40 CFR 80.510(a), beginning June 1, 2007. Except as otherwise specifically provided in 40 CFR 80 Subpart I, all NRLM diesel fuel is subject to the following per-gallon standards:

i. Sulfur content. 500 parts per million (ppm) maximum.

ii. Cetane index or aromatic content, as follows:

A. A minimum cetane index of 40; or

B. A maximum aromatic content of 35 volume percent.

b. Pursuant to 40 CFR 80.510(b), beginning June 1, 2010. Except as otherwise specifically provided in 40 CFR 80 Subpart I, all NR and LM diesel fuel is subject to the following per-gallon standards:

i. Sulfur content 15 ppm maximum for NR diesel fuel.

ii. Cetane index or aromatic content, as follows:

A. A minimum cetane index of 40; or

B. A maximum aromatic content of 35 volume percent.

15a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.

b. Boilers #1, #2, #3, and #4 shall only be operated with natural gas or distillate fuel oil as the fuel. The use of any other fuel in the Boilers #1, #2, #3, or #4 requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.

c. The three 1,500 kW diesel-powered emergency generator sets, the five large diesel-powered standby generator sets, and the six standby generator sets shall only be operated with distillate fuel oil as the fuel. The use of any other fuel in the 1,500 kW diesel-powered emergency generator sets, the five large diesel-powered standby generator sets, and the six standby generator sets requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.

- d. The other 36 other natural gas-fired boilers, furnaces, unit heaters, and domestic hot water heaters shall only be operated with natural gas as the fuel. The use of any other fuel in these other 36 boiler, furnaces, unit heaters, and domestic hot water heaters requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.
 - e. The Permittee shall not keep, store, or use 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 wt. percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).
 - f. Organic liquid by-products or waste materials shall not be used as fuel in any emission unit at this source without written approval from the Illinois EPA.
 - g. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 16a. Emissions and operation of the four boilers (#1, #2, #3and #4) combined shall not exceed the following limits:

- i. Natural Gas Usage: 51.48 mmscf/month, 514.8 mmscf/year
- ii. Emissions from the combustion of natural gas:

<u>Pollutant</u>	Emission Factor		Emissions	
	(lb/mmscf)	(Tons/Mo)	(Tons/Yr)	
Carbon Monoxide (CO)	84.0	2.16	21.62	
Nitrogen Oxide (NO _x)	100.0	2.57	25.74	
Particulate Matter (PM)	7.6	0.20	1.96	
Sulfur Dioxide (SO ₂)	0.6	0.02	0.15	
Volatile Organic Material (VOM)	5.5	0.14	1.42	

These limits are based on the maximum firing rate of the boilers (114.4 mmBtu/hr), the maximum operating hours (4,500 hour/year), and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- iii. Distillate fuel oil usage: 122,571 gallons/month, 1,225,714 gallons/year.
- iv. Emissions from the combustion of distillate fuel oil:

<u>Pollutant</u>	Emission Factor		Emissions	
	(lb/1,000 Gal)	(Tons/Mo)	(Tons/Yr)	
Carbon Monoxide (CO)	5.0	0.03	3.06	
Nitrogen Oxide (NO _x)	20.0	1.23	12.26	

Particulate Matter (PM)	2.0	0.12	1.23
Sulfur Dioxide (SO ₂)	7.1	0.44	4.35
Volatile Organic Material (VOM)	0.34	0.02	0.21

These limits are based on the boilers maximum firing rate, 1,500 hr/yr of operation, a heat content of 140,000 Btu/gal for No. 2 fuel oil, 0.05% sulfur content in the fuel, and standard emission factors ((Tables 1.3-1 and 1.3-3, AP-42, Fifth Edition, Volume I, Supplement E, September 1998).

- b. Emissions and operation of the thirty six (36) other boilers, furnaces, unit heaters, and water heaters combined shall not exceed the following limits:

- i. Natural Gas Usage: 18.59 mmscf/month, 185.9 mmscf/year.
- ii. Emissions from the combustion of natural gas:

<u>Pollutant</u>	Emission Factor	Emissions	
	(lb/mmscf)	(Tons/Mo)	(Tons/Yr)
Carbon Monoxide (CO)	84.0	0.68	7.81
Nitrogen Oxide (NO _x)	100.0	0.81	9.29
Particulate Matter (PM)	7.6	0.06	0.71
Sulfur Dioxide (SO ₂)	0.6	0.01	0.06
Volatile Organic Material (VOM)	5.5	0.05	0.51

These limits are based on the maximum firing rate of the units combined, 4,500 hour/year of operation, and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42).

- c. Emissions and operation of the five (5) large diesel-powered standby generator sets with a combined 1010 kW (1353 HP) rating shall not exceed the following limits:

- i. Distillate fuel oil usage: 760 gallons/month and 7,600 gallons/year.
- ii. Emissions from the combustion of distillate fuel oil:

<u>Pollutant</u>	Emission Factor	Emissions	
	(lbs/mmBtu)	(Tons/Mo)	(Tons/Yr)
Carbon Monoxide (CO)	0.95	0.05	0.51
Nitrogen Oxides (NO _x)	4.41	0.24	2.35
Particulate Matter (PM)	0.31	0.02	0.16
Sulfur Dioxide (SO ₂)	0.29	0.02	0.15
Volatile Organic Material (VOM)	0.35	0.02	0.19

These limits are based on the maximum fuel usage, the maximum operating hours of 100 hr/yr, a heat content of 140,000 Btu/gallon for No. 2 fuel oil, a sulfur content of 0.05% by weight, and standard emission factors (Table 3.3-1, AP-42, Volume I, Fifth Edition, Supplement B, October 1996).

d. Emission and operation of the six (6) standby generator sets with a combined 4370kW (5856 HP) rating shall not exceed the following limits:

- i. Distillate fuel oil usage: 3,170 gallons/month and 31,700 gallons/year.
- ii. Emissions from the combustion of distillate fuel oil:

<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
	<u>Factor</u> (lbs/mmBtu)	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Carbon Monoxide (CO)	0.85	0.19	1.89
Nitrogen Oxides (NO _x)	3.20	0.71	7.10
Particulate Matter (PM)	0.10	0.02	0.22
Sulfur Dioxide (SO ₂)	0.05	0.01	0.11
Volatiles Organic Material (VOM)	0.09	0.02	0.20

These limits are based on the maximum fuel usage, the maximum operating hours of 100 hr/yr, a heat content of 140,000 Btu/gallon for No. 2 fuel oil, a sulfur content of 0.05% by weight, and standard emission factors (Table 3.4-1, AP-42, Volume I, Fifth Edition, Supplement B, October 1996).

e. Emissions and operation of the three (3) 1,500 kW diesel-powered emergency generators set shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(lbs/Hp-hr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Carbon Monoxide (CO)	0.00575	0.87	8.67
Nitrogen Oxides (NO _x)	0.00999	1.51	15.09
Particulate Matter (PM)	0.00033	0.05	0.51
Sulfur Dioxide (SO ₂)	0.00040	0.06	0.60
Volatiles Organic Material (VOM)	0.00053	0.08	0.78

These limits are based on the rated output of the diesel engine powering the generator (2,012 HP), 500 hours/year of operation for each unit, and emission factors derived from table 1 to 40 CFR 60 Subpart IIII and the Tier 1 limits in 40 CFR 89.112 and 40 CFR 89.113. Sulfur dioxide emissions are based on the standard emission factor (Table 3.4-1, AP 42, Fifth Edition, Volume I, Supplement B, October 1996) and the allowable fuel sulfur content (0.05%). Emission totals shall be calculated by multiplying the number of diesel generators, the diesel generator rating power, the diesel generator set runtime and the emission factors for each pollutant.

f. Emissions and operation of the four (4) ethylene oxide sterilizers shall not exceed the following limits:

<u>VOM/ETO Usage</u>		<u>VOM/ETO Emission</u>	
<u>(lbs/Month)</u>	<u>(Ton/Year)</u>	<u>(lbs/Month)</u>	<u>(Ton/Year)</u>

268 1.61 268 1.61

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.

- g. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from the source shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- h. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 17. This permit is issued based on the three 1,500 kW diesel-powered emergency generator sets having a displacement of less than 30 liters per cylinder and had been certified by the manufacturer to meet the standards of 40 CFR 60 60.4202(a) through (d). As a result, this permit is issued based on the diesel-powered generator not being subject to the testing requirements of 40 CFR 60.8.
- 18a. Pursuant to 40 CFR 60.8(a), at such other times as may be required by the Illinois EPA or USEPA under section 114 of the Clean Air Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Illinois EPA or USEPA a written report of the results of such performance test(s).
- b. Pursuant to 40 CFR 60.8(b), performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart of 40 CFR Part 60 unless the Illinois EPA or USEPA:
 - i. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology;
 - ii. Approves the use of an equivalent method;
 - iii. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance;
 - iv. Waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Illinois EPA's or USEPA's satisfaction that the affected facility is in compliance with the standard; or
 - v. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Illinois EPA's

or USEPA's authority to require testing under section 114 of the Clean Air Act.

- c. Pursuant to 40 CFR 60.8(c), performance tests shall be conducted under such conditions as the Illinois EPA or USEPA shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Illinois EPA or USEPA such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.
- d. Pursuant to 40 CFR 60.8(d), the owner or operator of an affected facility shall provide the Illinois EPA or USEPA at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Illinois EPA or USEPA the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Illinois EPA or USEPA as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Illinois EPA or USEPA by mutual agreement.
- e. Pursuant to 40 CFR 60.8(e), the owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:
 - i. Sampling ports adequate for test methods applicable to such facility. This includes:
 - A. Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test 1 methods and procedures; and
 - B. Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.
 - ii. Safe sampling platform(s).
 - iii. Safe access to sampling platform(s).
 - iv. Utilities for sampling and testing equipment.
- f. Pursuant to 40 CFR 60.8(f), unless otherwise specified in the applicable subpart of 40 CFR Part 60, each performance test shall consist of three separate runs using the applicable test method. Each

run shall be conducted for the time and under the conditions specified in the applicable standard under 40 CFR Part 60. For the purpose of determining compliance with an applicable standard under 40 CFR Part 60, 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 sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Illinois EPA's or USEPA's approval, be determined using the arithmetic mean of the results of the two other runs.

- 19a. Pursuant to 40 CFR 60.11(b), compliance with opacity standards in 40 CFR Part 60 shall be determined by conducting observations in accordance with Method 9 in appendix A of 40 CFR Part 60, any alternative method that is approved by the Illinois EPA or USEPA, or as provided in 40 CFR 60.11(e)(5). For purposes of determining initial compliance, the minimum total time of observations shall be 3 hours (30 6-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard).
- b. Pursuant to 40 CFR 60.11(e)(2), except as provided in 40 CFR 60.11(e)(3), the owner or operator of an affected facility to which an opacity standard in 40 CFR Part 60 applies shall conduct opacity observations in accordance with 40 CFR 60.11(b), shall record the opacity of emissions, and shall report to the Illinois EPA or USEPA the opacity results along with the results of the initial performance test required under 40 CFR 60.8. The inability of an owner or operator to secure a visible emissions observer shall not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.
- 20a. Pursuant to 40 CFR 60.44c(g), for oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under 40 CFR 60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under 40 CFR 60.46c(d)(2).
- b. Pursuant to 40 CFR 60.44c(h), for affected facilities subject to 40 CFR 60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, the performance test shall consist of the certification, the certification from the fuel supplier, as described under 40 CFR 60.48c(f), as applicable.
- c. Pursuant to 40 CFR 60.45c(a)(8), the owner or operator of an affected facility subject to the PM and/or opacity standards under 40 CFR 60.43c shall conduct an initial performance test as required under 40 CFR

60.8, and shall conduct subsequent performance tests as requested by the Illinois EPA, to determine compliance with the standards using the following procedures and reference methods, except as specified in 40 CFR 60.45c(c). Method 9 of appendix A of 40 CFR Part 60 (6-minute average of 24 observations) shall be used for determining the opacity of stack emissions.

- 21a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
- i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.
- b. Testing required by Condition 22 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
22. Pursuant to 35 Ill. Adm. Code 212.110(c), 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.
23. Pursuant to 40 CFR 60.46c(d)(2), as an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be

collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less.

24. Pursuant to 40 CFR 60.4209(a), if you are an owner or operator, you must meet the monitoring requirements of 40 CFR 60.4209. In addition, you must also meet the monitoring requirements specified in 40 CFR 60.4211. If you are an owner or operator of an emergency stationary CI internal combustion engine, you must install a non-resettable hour meter prior to startup of the engine.
- 25a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- b. Pursuant to 40 CFR 60.7(f), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.
- 26a. Pursuant to 40 CFR 60.48c(e)(11), the owner or operator of each affected facility subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR 60.42c shall keep records including the following information, as applicable. If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under 40 CFR 60.48c(f)(1), (2), (3), or (4), as applicable.
- b. Pursuant to 40 CFR 60.48c(f)(1), fuel supplier certification shall include the following information for distillate oil:
 - i. The name of the oil supplier;

- ii. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c; and
 - iii. The sulfur content of the oil.
 - c.
 - i. Pursuant to 40 CFR 60.48c(g)(1), except as provided under 40 CFR 60.48c(g)(2) and (g)(3), the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.
 - ii. Pursuant to 40 CFR 60.48c(g)(2), as an alternative to meeting the requirements of 40 CFR 60.48c(g)(1), the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in 40 CFR 60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.
 - iii. Pursuant to 40 CFR 60.48c(g)(3), as an alternative to meeting the requirements of 40 CFR 60.48c(g)(1), the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to 40 CFR 60 Subpart Dc) at that property are natural gas, wood, distillate oil meeting the most current requirements in 40 CFR 60.42c to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.
 - d. Pursuant to 40 CFR 60.48c(i), all records required under 40 CFR 60.48 shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.
- 27. Pursuant to 40 CFR 60.4214(b), if the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to 40 CFR 60 Subpart IIII, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.
- 28. 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.

29. 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.
- 30a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. Natural gas usage in the Boilers #1-#4, (mmscf/month and mmscf/year);
 - ii. No. 2 fuel oil usage in the Boilers #1-#4, (gallons/month and gallons/year);
 - iii. No. 2 fuel oil usage for the eleven diesel engines generators and the three emergency generators, (gallons/month and gallons/year);
 - iv. Hours of operation of the three the eleven diesel engines generators and the three diesel emergency generators, (hours/month and hours/year);
 - v. Natural gas usage in the 36 boilers and space/water heaters, (mmscf/month and mmscf/year);

- vi. The sulfur content of the distillate fuel oil used at the source (% weight), this shall be recorded for each shipment of oil delivered to the source;
 - vii. Sulfur content of No. 2 fuel oil;
 - viii. Ethylene oxide and usage (pounds/month and tons/year); and
 - ix. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM and HAPs from the source, with supporting calculations (tons/month and tons/year).
- b. 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 storage device) 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.
- 31a. Pursuant to 40 CFR 60.48c(b), the owner or operator of each affected facility subject to the SO₂ emission limits of 40 CFR 60.42c, or the PM or opacity limits of 40 CFR 60.43c, shall submit to the Illinois EPA or USEPA the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and/or COMS using the applicable performance specifications in appendix B of 40 CFR Part 60.
- b. Pursuant to 40 CFR 60.48c(d), the owner or operator of each affected facility subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR 60.42c shall submit reports to the Illinois EPA or USEPA.
- c. Pursuant to 40 CFR 60.48c(j), the reporting period for the reports required under 40 CFR 60 Subpart Dc is each six-month period. All reports shall be submitted to the Illinois EPA or USEPA and shall be postmarked by the 30th day following the end of the reporting period.
32. 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.
- 33a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or 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 exceedances or deviation and efforts to reduce emissions and future occurrences.

- b. 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

It should be noted that this permit has been revised so as to include the operation of two (2) 25 mmBtu/hour natural gas/distillate fuel oil-fired boilers, two (2) 32.7 mmBtu/hour natural gas/distillate fuel oil-fired boilers, and three (3) 1,500 kW diesel-powered emergency generator sets.

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

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

Date Signed: _____

ECB:GB:jws

cc: Illinois EPA, 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 No. 2 oil. The resulting maximum emissions are below the threshold levels (e.g., 100 tons/yr for NO_x, 100 tons/year for SO₂, 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>Emission Source</u>	E M I S S I O N S (Tons/Year)						Single	Combined
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>	<u>HAP</u>	<u>HAPs</u>	
Boilers #1, 2, 3, and 4 Nat. Gas	21.62	25.74	1.96	0.15	1.42			
Boilers #1, 2, 3, and 4 No.2 Fuel Oil	3.06	12.26	1.23	4.35	0.21			
Other 36 Boilers, Furnaces, Heaters	7.81	9.29	0.71	0.06	0.51			
5 - Industrial Engine Generators	0.51	2.35	0.16	0.15	0.19			
6 - Stationary Engine Generators	1.89	7.10	0.22	0.11	0.20			
3- 1,500kW diesel Generators	8.67	15.09	0.51	0.60	0.78			
4- Ethylene Oxide Sterilizer	--	--	--	--	<u>1.61</u>	--	--	
Totals:	43.56	71.83	4.79	5.42	4.92	9.0	22.5	