

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- NSPS/ NESHAP SOURCE  
REVISION

PERMITTEE

Advocate Illinois Masonic Medical Center  
Attn: Steven R. Verzi  
836 West Wellington Avenue  
Chicago, Illinois 60657-5193

Application No.: 73040048

I.D. No.: 031600DAU

Applicant's Designation:

Date Received: March 23, 2009

Subject: Medical Center

Date Issued: May 27, 2009

Expiration Date: April 24, 2011

Location: 836 West Wellington Avenue, Chicago, Cook County, 60657

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of two (2) 51 mmBtu/hour gas-fired boilers with #2 fuel oil backup, one (1) 21 mmBtu/hour gas-fired boiler, four (4) emergency generators rated 230 kW, 400 kW, 600 kW, and 900 kW, one (1) 12,000 gallon storage tank, one (1) 6,000 gallon storage tank, 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), Nitrogen Oxides (NO<sub>x</sub>), and Sulfur Dioxide (SO<sub>2</sub>)). 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 initial 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. The 21 mmBtu/hour boiler constructed, modified or reconstructed after June 9, 1989, and that have maximum design heat input capacity of 29 MW (100 million Btu per hour) or less, but greater than or equal to 2.9 MW (10 million Btu per hour), are subject to a New Source Performance Standard (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The Permittee shall fulfill applicable notification and recordkeeping requirements of the NSPS, 40 CFR 60.7 and 60.48c.

- c. At all times, the Permittee shall maintain and operate the boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, as required by the NSPS, 40 CFR 60.11(d).
- 3a. The four ethylene oxide sterilizers are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hospital Ethylene Oxide Sterilizers, 40 CFR 63, Subparts A and WWWW. The Illinois EPA is administering the NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.
    - b. Pursuant to 40 CFR 63.10390, you must sterilize full loads of items having a common aeration time, except under medical necessary circumstances, as that term is defined in 40 CFR 63.10448.
    - c. Pursuant to 40 CFR 63.10400(a), except as provided in 40 CFR 63.10400(b) and (c), you must demonstrate initial compliance with the management practice standard in 40 CFR 63.10390 by submitting an Initial Notification of Compliance Status certifying that you are sterilizing full loads of items having a common aeration time except under medically necessary circumstances.
    - d. Pursuant to 40 CFR 63.10400(b), if you operate your sterilization unit(s) with an air pollution control device pursuant to a State or local regulation, you may demonstrate initial compliance with 40 CFR 63.10390 by submitting an Initial Notification of Compliance Status certifying that you are operating the sterilization unit in accordance with your State or local regulation and following control device manufacturer's recommended procedures.
    - e. Pursuant to 40 CFR 63.10400(c), if you operate your sterilization unit(s) with an air pollution control device but are not subject to any State or local regulation, you may demonstrate initial compliance with 40 CFR 63.10390 by submitting an Initial Notification of Compliance Status certifying that you are venting the ethylene oxide emissions from each sterilization unit to an add-on air pollution control device. You must certify that you are operating the control device during all sterilization processes and in accordance with manufacturer's recommended procedures.
  - 4a. No person shall cause or allow visible emissions of smoke or other particulate matter with an opacity greater than 30 percent, into the atmosphere from any emission unit other than fuel combustion emission units. 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 such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within 1,000 foot radius from 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 24 hour period pursuant to 35 Ill. Adm. Code 212.123.

- b. 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-hr of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.10 lbs/mmBtu) pursuant to 35 Ill. Adm. Code 212.206.
- 5. 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.
- 6. 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.
- 7a. 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. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) in the boilers 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).
- c. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources.
- d. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 8a. Emissions and operation of the two 51 mmBtu/hour and one 21 mmBtu/hour natural gas boilers combined shall not exceed the following limits:

Natural Gas Usage: 41.7 mmscf/month, 250 mmscf/year.

Pollutant	Emission Factor	Emissions	
	(Lb/mmscf)	(Tons/Mo)	(Tons/Yr)
Nitrogen Oxide (NO <sub>x</sub> )	100.0	2.09	12.50
Carbon Monoxide (CO)	84.0	1.75	10.50
Volatile Organic Material (VOM)	5.5	0.12	0.69
Sulfur Dioxide (SO <sub>2</sub> )	0.6	0.02	0.08
Particulate Matter (PM)	7.6	0.16	0.95

These limits are based on the maximum fuel usage and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- b. Emissions and operation of the two 51 mmBtu/hour boilers combined using distillate fuel oil as backup shall not exceed the following limits:

Fuel Oil #2 Usage: 16,700 gallons/month, 100,000 gallons/year.

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lb/1,000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxide (NO <sub>x</sub> )	20.0	0.17	1.01
Carbon Monoxide (CO)	5.0	0.05	0.25
Sulfur Dioxide (SO <sub>2</sub> )	42.8	0.36	2.14
Particulate Matter (PM)	2.0	0.02	0.10

The emissions from the boilers are based on maximum fuel usage and standard emission factors (Tables 1.3-1 and 1.3-3, AP-42, Fifth Edition, Volume I, Supplement E, September 1998).

- c. Emissions and operation of the generators shall not exceed the following limits:

- i. Units 1 and 2 fuel oil #2 usage 1,080 gallons/month and 6,480 gallons/year

	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lbs/1000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxides (NO <sub>x</sub> )	617.28	0.333	2.00
Carbon Monoxide (CO)	132.72	0.072	0.43
Volatile Organic Material (VOM)	49.38	0.027	0.16
Sulfur Dioxide (SO <sub>2</sub> )	40.12	0.022	0.13
Particulate Matter (PM)	43.21	0.023	0.14

- ii. Units 3 and 4 fuel oil #2 usage 2,675 gallons/month and 16,050 gallons/year

	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lbs/1000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxides (NO <sub>x</sub> )	448.60	0.600	3.60
Carbon Monoxide (CO)	118.38	0.158	0.95
Volatile Organic Material (VOM)	12.46	0.017	0.10
Sulfur Dioxide (SO <sub>2</sub> )	42.37	0.057	0.34
Particulate Matter (PM)	13.71	0.018	0.11

- iii. These limits are based on the maximum fuel usage and standard emission factors AP-42.

- d. This permit is issued based on negligible emissions of volatile organic material (VOM) from the storage tanks. For this purpose, total emissions from the storage tanks shall not exceed nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.

- e. The four ethylene oxide (EtO) sterilizers shall not exceed the following limits:

	<u>EtO Usage</u> <u>(Lbs/Hour)</u>	<u>Operation</u> <u>(Hours/Year)</u>	<u>VOM Emissions</u>	
			<u>(Lbs/Hour)</u>	<u>(Tons/Year)</u>
Each Unit	0.19	4368	0.19	0.41

The emissions from the sterilizers are based on 0.19 lbs/hour and maximum hours of operation (4,368 hours/year).

9. 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).
10. This permit is issued based on the Potential to Emit (PTE) for Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act from the source being less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result, 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.
- 11a. 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 40 CFR 63.10402, you must demonstrate initial compliance with 40 CFR 63.10390 upon startup or no later than 180 calendar days after your compliance date, whichever is later.
  - c. Pursuant to 40 CFR 63.10420, for each sterilization unit not equipped with an air pollution control device, you must demonstrate continuous compliance with the management practice standard in 40 CFR 63.10390 by recording the date and time of each sterilization cycle, whether each sterilization cycle contains a full load of items, and if not, a statement from a hospital central services staff, a hospital administrator, or a physician that it was medically necessary.
- 12a. Pursuant to 40 CFR 63.10432, you must keep the records specified in 40 CFR 63.10432(a) and (b).
- i. A copy of the Initial Notification of Compliance Status that you submitted to comply with 40 CFR 63 Subpart WWWW.
  - ii. Records required by 40 CFR 63.10420 for each sterilization unit not equipped with an air pollution control device.
- b. Pursuant to 40 CFR 63.10434(a), your records must be in a form suitable and readily available for expeditious review.
  - c. Pursuant to 40 CFR 63.10434(b), you must keep each record for 5 years following the date of each record.
  - d. Pursuant to 40 CFR 63.10434(c), you must keep each record onsite for at least 2 years after the date of each record. You may keep the records offsite for the remaining 3 years.
- 13a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
- i. The amount of natural gas burned in the boilers (mmscf/month and mmscf/year);
  - ii. The amount of #2 fuel oil burned in the boilers (gallons/month and gallons/year);
  - iii. The amount of #2 fuel oil burned in each emergency generator (gallons/month and gallons/year);
  - iv. The amount of ethylene oxide used in each sterilizer (lb/month and lb/year); and
  - v. 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).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (4) 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.

14a. Pursuant to 40 CFR 63.10430(a), you must submit an Initial Notification of Compliance Status that includes the information required in 40 CFR 63.10430(a)(1) through (5) and the applicable certification in 40 CFR 63.10400.

- i. The name and address of the owner or operator.
- ii. The address (i.e., physical location) of the affected source.
- iii. An identification of the standard and other applicable requirements in this subpart that serve as the basis of the notification and the source's compliance date.
- iv. A brief description of the sterilization facility, including the number of ethylene oxide sterilizers, the size (volume) of each, the number of aeration units, if any, the amount of annual ethylene oxide usage at the facility, the control technique used for each sterilizer, and typical number of sterilization cycles per year.
- v. A statement that the affected source is an area source.

b. Pursuant to 40 CFR 63.10430(b), you must submit the Initial Notification of Compliance Status to the appropriate authority(ies) specified in 40 CFR 63.9(a)(4). In addition, you must submit a copy of the Initial Notification of Compliance Status to EPA's Office of Air Quality Planning and Standards. Send your notification via e-mail to CCG-ONG@EPA.GOV or via U.S. mail or other mail delivery service to U.S. EPA, Sector Policies and Programs Division, Coatings and Chemicals Group (E143-01), Attn: Hospital Sterilizers Project Leader, Research Triangle Park, NC 27711.

c. Pursuant to 40 CFR 63.10430(c), you must submit the Initial Notification of Compliance Status no later than 180 calendar days after your compliance date, consistent with 40 CFR 63.10402.

15a. 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 exceedance 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 to include replacement of six existing ethylene oxide sterilizers with four new ethylene oxide sterilizers.

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

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

Date Signed: \_\_\_\_\_

ECB:GMK:jws

cc: Region 1  
Lotus Notes

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emissions from this facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels (e.g., 100 tons/year NO<sub>x</sub>, SO<sub>2</sub>, and VOM) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

		E M I S S I O N S (Tons/Year)					
<u>Emissions Unit</u>	<u>Fuel</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM</u>	<u>VOM</u>	
3 Boilers	Natural Gas (3)	12.50	10.50	0.08	0.95	0.69	
	#2 Oil (2)	1.01	0.25	2.14	0.10	----	
4 Generators	Units 1 & 2	2.00	0.43	0.13	0.14	0.16	
	Units 3 & 4	3.60	0.95	0.34	0.11	0.10	
2 Storage Tanks						0.44	
4 Ethylene Oxide Sterilizers		-----	-----	-----	-----	<u>1.64</u>	
Total Emissions		19.11	12.13	2.69	1.30	3.03	

ECB:GMK:jws