

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - NSPS SOURCE

PERMITTEE

Department of Veterans Affairs Medical Center  
Attn: Andrew Green  
1900 East Main Street  
Danville, Illinois 61832

Application No.: 05010015

I.D. No.: 183804AAA

Applicant's Designation: HOSPITAL

Date Received: January 7, 2005

Subject:

Date Issued:

Expiration Date:

Location: 1900 East Main Street, Danville

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

- 3 - 41 mmBtu/Hr Natural Gas Boiler with Distillate Fuel Oil Used as Backup
- 1 - 21 mmBtu/Hr Natural Gas Boiler
- 1 - 8.4 mmBtu/Hr Natural Gas Boiler
- 2 - 1507 kW Diesel Emergency/Standby Electric Generators
- 1 - 1457 kW Diesel Emergency/Standby Electric Generator
- 1 - 4294 kW Diesel Emergency/Standby Electric Generator
- 281 kW Diesel Emergency/Standby Electric Generator
- 161 kW Natural Gas Emergency/Standby Electric Generator
- 2 ethylene Oxide Sterilizers
- 2 - 1,000 Gallon Gasoline Storage Tanks

pursuant to 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 NO<sub>x</sub>, CO and 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 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. This permit is issued based on the Hospital/Medical/Infectious Waste Incinerator (HMIWI) being permanently shutdown.
- b. Within 30 days after the issuance of this permit, the Permittee shall take the following affirmative steps to demonstrate that the HMIWI has been rendered permanently inoperable:

- i. Weld the primary chamber door shut;
  - ii. Dismantle the HMIWI; or
  - iii. Other means that reasonably demonstrate that the HMIWI is no longer functional.
- 3a. 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 those emissions. 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.
- 4a. 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 0.45 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu) pursuant to 35 Ill. Adm. Code 214.122(b) (2).
- b. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) in the boilers and generators with a sulfur content greater than the larger of the following two values pursuant to 35 Ill. Adm. Code 214:
  - i. 0.28 weight percent, or
  - ii. The weight percent given by the formula: Maximum weight percent sulfur =  $(0.000015) \times (\text{Gross heating value of oil, Btu/lb})$ .
- 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.
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/hr) to exceed 200 ppm, corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.121.

- 6a. Emissions and operation of the three 41 mmBtu/hour, one 21 mmBtu/hour and one 8.4 mmBtu/hour natural gas boilers combined shall not exceed the following limits:

Natural Gas Usage: 125 mmscf/month, 625 mmscf/year.

<u>Pollutant</u>	<u>Emission Factor</u> (Lb/mmscf)	<u>Emissions</u>	
		(Tons/Mo)	(Tons/Yr)
Nitrogen Oxide (NO <sub>x</sub> )	100.0	6.38	31.88
Carbon Monoxide (CO)	84.0	5.36	26.78
Sulfur Dioxide (SO <sub>2</sub> )	0.6	0.04	0.19
Particulate Matter (PM)	7.6	0.48	2.42
Volatile Organic Material (VOM)	5.5	0.36	1.75

These limits are based on the maximum boilers operations, standard emission factors AP-42, and maximum hours of operation. Compliance with annual limits shall be determined on a monthly basis from a running total of 12 months of data.

- b. Emissions and operation of the three 41 mmBtu/hour boilers combined using distillate fuel oil as backup shall not exceed the following limits:

Fuel Oil #2 Usage: 600,000 gallons/month, 600,000 gallons/year.

<u>Pollutant</u>	<u>Emission Factor</u> (Lb/1,000 Gal)	<u>Emissions</u>	
		(Tons/Mo)	(Tons/Yr)
Nitrogen Oxide (NO <sub>x</sub> )	20.0	6.01	6.01
Carbon Monoxide (CO)	5.0	1.50	1.50
Sulfur Dioxide (SO <sub>2</sub> )	42.6	12.79	12.79
Particulate Matter (PM)	2.0	0.60	0.60

The emissions from the boilers are based on maximum boiler operations and standard emission factors AP-42. Compliance with annual limit shall be determined on a monthly basis from a running total of 12 months of data.

- 7a. Diesel fuel shall be the only fuel fired in the diesel generators. The use of any other fuel shall require a revised permit.

- b. Emissions and operation of each unit of the two 1,507 kW, 1457 kW, 4294 kW and 281 kW emergency generators shall not exceed the following limits:

<u>Diesel Fuel Usage (Combined)</u>	
<u>(Gallons/Month)</u>	<u>(Gallons/Year)</u>
109,400	109,400

<u>Pollutant (Total Both Units)</u>	<u>(Lbs/1,000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxide (NO <sub>x</sub> )	604	33.04	33.04
Carbon Monoxide (CO)	130	7.11	7.11
Sulfur Dioxide (SO <sub>2</sub> )	39.76	2.17	2.17
Particulate Matter (PM)	42.5	2.32	2.32
Volatile Organic Material	49.3	2.70	2.70

These emissions are based on emission factors from USEPA Airs Facility Subsystems Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, the use of diesel fuel, and operating limit of 109,400 gallons per year for the total of all five units. Compliance with annual limits shall be determined from a running total of 12 months of data.

- c. This permit is issued based on negligible emissions of nitrogen oxide and carbon monoxide from the 161 kW natural gas emergency/standby electric generator. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
8. This permit is issued based on negligible emissions of volatile organic material from the ethylene oxide sterilizers. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
9. This permit is issued based on negligible emissions of particulate matter and volatile organic material from the gasoline storage tanks. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
10. 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 Permit (CAAPP), and Section 112(G) of the Clean Air Act.
11. The Permittee shall maintain monthly and annual records of the following items:
  - a. Natural gas usage (mmscf/month and mmscf/year);
  - b. Fuel oil usage (gallons/month and gallons/year);
  - c. Sulfur content of fuel oil (weight %);
  - d. Operating hours for each boiler, each generator, and sterilizer (hours/month and hours/year);
  - e. Ethylene oxide usage for the sterilizers (lb/month); and

- f. Emissions of CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, VOM and HAPs from the source with supporting calculations (tons/month and tons/year).
12. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA 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 request for records during the course of a source inspection.
13. If there is an exceedance of 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. 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 violation and efforts to reduce emissions and future occurrences.
14. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system 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  
2009 Mall Street  
Collinsville, Illinois 62234

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:GMK:psj

cc: Region 3

Attachment A - Emission 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>, CO, and SO<sub>2</sub> and 25 tons/year for volatile organic material 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.

<u>Emissions Unit</u>	<u>Fuel</u>	E M I S S I O N S (Tons/Year)					<u>Single HAP</u>	<u>Combined HAP</u>
		<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM</u>	<u>VOM</u>		
5 Boilers	Natural Gas	31.88	26.78	0.19	2.42	1.75		
3 Boilers (Back Up Fuel)	#2 Oil	6.01	1.50	12.79	0.60	0.06		
5 Generators	#2 Oil	33.04	7.11	2.17	2.32	2.70		
1 Generator	Natural Gas	0.44	0.44					
2 Ethylene Oxide Sterilizers						0.44		
2 1,000 Gallon Gasoline Storage Tanks					0.44			
Total		<u>71.37</u>	<u>35.83</u>	<u>15.15</u>	<u>5.78</u>	<u>4.95</u>	<u>&lt; 0.44</u>	<u>&lt; 0.44</u>

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## Project Summary

### I. INTRODUCTION

The Department of Veterans Affairs Medical Center has submitted an application for a federally enforceable state operating permit covering five boilers, six generators, two sterilizers and two storage tanks. This permit prevents the site from being classified as a major source of emissions under the Clean Air Act. Therefore, the facility does not have to obtain a federal permit under the Clean Air Act Permit Program. The permit contains limitations and accompanying recordkeeping and reporting requirements to assure that the site is operated as a non-major source.

### II. SOURCE DESCRIPTION

This is a medical facility which uses boilers for steam and generators for standby electricity.

### III. EMISSIONS

Air pollutants are generated when the boilers and/or generators are in operation. These emissions occur from the combustion of natural gas and diesel fuel.

The primary air pollutants from the boilers and generators are nitrogen oxides ( $\text{NO}_x$ ), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide ( $\text{SO}_2$ ), and particulate matter (PM).

$\text{NO}_x$  is formed thermally by the combination of oxygen and nitrogen in the air at the temperature at which the fuel is burned. CO, VOM, and PM are formed from incomplete combustion of the fuel. Emissions of  $\text{SO}_2$  are found in varying amounts from the combustion of diesel fuel, depending on the sulfur content of the oil.

The proposed permit includes limitations that restrict the potential annual emissions of  $\text{NO}_x$ , CO, VOM and  $\text{SO}_2$  to levels below major source thresholds.

### IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The Board has standards for sources of particulate matter, volatile organic material, and sulfur dioxide for reciprocating engines. This site readily complies with those Board standards.

### V. PROPOSED PERMIT

The conditions of the proposed permit contain limitations and requirements to assure that this site will be operated as a non-major source. The permit establishes limitations on the amount of fuel which may be burned. The City of Fairfield is committing to burn very low sulfur oil. This would allow an increase in the amount of

fuel which may be burned, without any increase in the allowed emissions.

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The permit conditions also establish appropriate compliance procedures, including record keeping requirements and reporting requirements. The city must carry out these procedures on a continual basis to demonstrate that the generators are operating within the limitations established by the permit.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that these generators meet all applicable state and federal air pollution control requirements, subject to the conditions of the draft permit. The Illinois EPA is therefore proposing to issue a permit with federally enforceable limits for the above referenced equipment to the City of Fairfield.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. Comments, questions, and information requests should be directed to Youra Benofamil at the Illinois Environmental Protection Agency, 1021 North Grand Avenue, East, P.O. Box 19506, Springfield, Illinois, 62794-9506: Phone 217/782-2113. If there is significant public interest in this matter, the Illinois EPA may hold a public hearing in accordance with 35 Ill. Adm. Code Part 166.

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