



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 082013-011

Project Number: 2013-04-042
Installation Number: 145-0069

Parent Company: Mercy Health

Parent Company Address: 14528 South Outer Forty, Suite 100, Chesterfield, MO 63017

Installation Name: Mercy Health of Joplin

Installation Address: 100 Mercy Way, Joplin, MO 64804

Location Information: Newton County, NW 1/4 of S26, T27N, R33W

Application for Authority to Construct was made for:

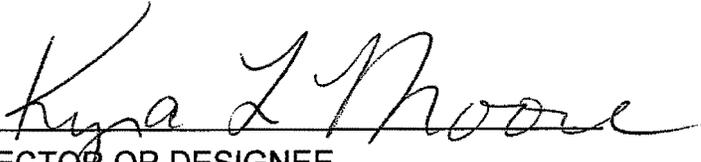
Installation of three boilers, three generators, three cooling towers, one underground fuel storage tank, and two aboveground fuel storage tanks. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

AUG 23 2013

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Mercy Health of Joplin
Newton County, NW 1/4 of S26, T27N, R33W

1. NO_x Emission Limitation
 - A. Mercy Health of Joplin shall emit less than 40.0 tons of NO_x in any consecutive 12-month period from the following equipment:
 - 1) The three boilers (EP-1a, EP-1b, and EP-1c) and
 - 2) The three generators (EP-2a, EP-2b, and EP-2c).
 - B. Attachment A or an equivalent form, such as an electronic form, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.A.
2. Control Device Requirement-Low NO_x Burners and Flue Gas Recirculation
 - A. Mercy Health of Joplin shall control emissions from the three boilers (EP-1a, EP-1b, and EP-1c) using low NO_x burners and flue gas recirculation.
 - B. Mercy Health of Joplin shall operate and maintain the three boilers (EP-1a, EP-1b, and EP-1c) in accordance with the manufacturer's specifications.
 - C. Mercy Health of Joplin shall maintain a copy of the boiler manufacturer's specifications for the three boilers (EP-1a, EP-1b, and EP-1c) on site.
 - D. Mercy Health of Joplin shall maintain an operating and maintenance log for the three boilers (EP-1a, EP-1b, and EP-1c) which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
3. Cooling Tower Requirements
 - A. The combined water circulation rate for the three cooling towers (EP-3) shall not exceed 3,240,000 gallons per hour. Verification of the circulation rates shall be by the maximum design rates on the manufacturer's specifications.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. The drift loss from the three cooling towers (EP-3) shall not exceed 0.0010 percent of the water circulation rate. Verification of drift loss shall be by the drift loss shown on the manufacturer's specifications.
 - C. The total dissolved solids (TDS) concentration in the circulated cooling water for the three cooling towers (EP-3) shall not exceed 5,000 parts per million (ppm). Mercy Health of Joplin shall collect a TDS sample for each tower each month and record the results to verify the TDS concentration.
 - D. If TDS sampling results demonstrate compliance for twenty-four (24) consecutive months, the requirements for monthly TDS sample collection frequency may be reduced after written approval by the Air Pollution Control Program.
 - E. Mercy Health of Joplin shall operate and maintain the three cooling towers (EP-3) in accordance with the manufacturer's specifications.
 - F. Mercy Health of Joplin shall maintain a copy of the manufacturer's specifications for the three cooling towers (EP-3) on site, and shall make it available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - G. Mercy Health of Joplin shall maintain an operating and maintenance log for the three cooling towers (EP-3) which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
4. Fuel Storage and Usage Limitations
- A. Mercy Health of Joplin shall burn only natural gas and fuel oil #2 in their boilers (EP-1a, EP-1b, and EP-1c). Mercy Health of Joplin shall burn only fuel oil #2 in their generators (EP-2a, EP-2b, and EP-2c). Mercy Health of Joplin shall store only fuel oil #2 in their underground storage tank (EP-5) and their small aboveground tank (EP-6). The fuel oil #2 burned in these boilers and generators and stored in these tanks shall have a sulfur content less than or equal to 0.05 percent by weight (500 ppm by weight.)
 - B. Mercy Health of Joplin shall demonstrate compliance with Special Condition 4.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 Reference Methods.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- C. Mercy Health of Joplin shall burn fuel oil #2 in their boilers only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a total of 48 hours for each boiler during any calendar year.
 - D. Attachment B or an equivalent form, such as an electronic form, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 4.C.
5. Emergency Generator Operation Restriction
- A. Mercy Health of Joplin shall operate the three generators (EP-2a, EP-2b, and EP-2c) so that at all times the engines meet the definition of emergency stationary internal combustion engine in 40 CFR §60.4219.
6. Performance Testing
- A. Mercy Health of Joplin shall conduct initial performance testing for NO_x on the three boilers (EP-1a, EP-1b, and EP-1c). Each boiler shall be tested when burning fuel oil #2. NO_x emission rate shall be tested using EPA Method 7.
 - B. These tests shall be performed within 60 days after achieving the maximum production rate of the boilers, but not later than 180 days after initial start-up for institutional operation and shall be conducted in accordance with the Stack Test Procedures outlined in Special Condition 5.A.
 - C. A completed proposed Performance Test Plan Form MO 780-2184 must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Performance Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing. The form template is available online at <http://dnr.mo.gov/forms/780-2184-f.pdf>.
 - D. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run on each boiler.
 - E. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- F. If the results of the performance testing show that the tested NO_x emission rate for any boiler when running on fuel oil #2 is greater than 6.17 lb/hr, then Mercy Health of Joplin shall evaluate what effects the higher emission rate would have had on the permit applicability and emission factor for compliance and emission inventory. Mercy Health of Joplin shall submit to the Air Pollution Control Program the results of any such evaluation in a completed Application for Authority to Construct within 30 days of submitting the Performance Test Results report required in Special Condition 5.D. of this permit.
- 7. Record Keeping and Reporting Requirements
 - A. Mercy Health of Joplin shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. Mercy Health of Joplin shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2013-04-042
Installation ID Number: 145-0069
Permit Number:

Mercy Health of Joplin
100 Mercy Way
Joplin, MO 64804

Complete: April 23, 2013

Parent Company:
Mercy Health
14528 South Outer Forty, Suite 100
Chesterfield, MO 63017

Newton County, NW 1/4 of S26, T27N, R33W

REVIEW SUMMARY

- Mercy Health of Joplin has applied for authority to install three boilers, three emergency generators, three cooling towers, one underground fuel storage tank, and two aboveground fuel storage tanks.
- Small amounts of HAP emissions are expected from the proposed equipment. The HAPs of concern emitted from this equipment (benzene, formaldehyde, naphthalene, and ethyl benzene) are a result of natural gas and diesel fuel combustion.
- 40 CFR 60 Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" applies to the boilers. 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the generators.
- 40 CFR 60 Subpart Kb, "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984" does not apply to storage tank EP-4 because it holds more than 151 cubic meters of liquid and the liquid has a maximum true vapor pressure less than 3.5 kiloPascals. It does not apply to storage tanks EP-5 or EP-6 because those tanks hold less than 75 cubic meters of liquid apiece.
- None of the NESHAPs apply to the proposed equipment.
- 40 CFR 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" applies to the generators.
- 40 CFR 63 Subpart Q, "National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers" and 40 CFR 63 Subpart DDDDD, "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and

Institutional Boilers and Process Heaters” do not apply because this installation is not major. 40 CFR 63 Subpart JJJJJJ, “National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers” does not apply to the boilers because they are gas-fired.

- 40 CFR 63 Subpart CCCCCC, “National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities” does not apply to dispensing from the storage tanks because they store jet fuel and diesel instead of gasoline.
- Some common specific requirements do not apply.

10 CSR 10-6.260, “Restriction of Emission of Sulfur Compounds” exempts the boilers and generators because they are regulated by NSPS Subparts Dc and IIII instead. It does not apply to the cooling towers or storage tanks because they do not emit sulfur.

10 CSR 10-6.400, “Restriction of Emission of Particulate Matter From Industrial Processes” provisions do not apply to the boilers because they burn fuel for indirect heating. Per 10 CSR 10-6.400(1)(B)16, the provisions of this rule do not apply to the generators and cooling towers because at MHDR their PTE is below the limits stated in the regulation. It does not apply to the storage tanks because they do not emit particulate matter.

10 CSR 10-6.405, “Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating” applies to the boilers; however, they are deemed in compliance because they are subject to NSPS Subpart Dc.

- The boilers have low NO_x burners and flue gas recirculation, and the PTE calculations used the appropriate emission factors for these. However, the actual factors will be determined by emissions testing and used for NO_x tracking. Drift control will be used to control PM emissions from the cooling towers and this was included in the calculations.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x are conditioned below the de minimis level.
- This installation is located in Newton County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned below de minimis levels.
- Emissions testing is required for the equipment.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Mercy Health of Joplin is a hospital located in Joplin, Missouri. The parent company, Mercy Health, has 32 hospitals and 300 outpatient locations in Arkansas, Kansas, Missouri and Oklahoma.

No permits have been issued to Mercy Health of Joplin from the Air Pollution Control Program.

PROJECT DESCRIPTION

The proposed equipment is:

- Three Babcock and Wilcox Model FM9-57 natural gas-fired boilers (with #2 fuel oil being the backup fuel), each rated at 36 MMBtu/hr, to be manufactured in 2013 (EP-1A, EP1B, and EP-1C);
- Three Caterpillar 2,500 kw, 3,633 hp Model 3516C-HD TA fuel oil-fired emergency generators, each with an input MHDR of 23.77 MMBtu/hr, to be manufactured in 2013 (EP-2A, EP-2B, and EP-2C);
- Three Evaptech Inc. Model EC330-430N mechanical draft counterflow cooling towers with a combined rating of 3,240 Mgal, to be manufactured in 2013 (EP-3);
- One Modern Welding Model Glasteel II 50,000 gallon underground fuel oil storage tank, to be manufactured in 2013 (EP-4);
- One existing 8,000 gallon, aboveground jet fuel tank, to be moved from old facility (EP-5); and
- One 250 gallon aboveground diesel tank (EP-6).

The boilers will normally burn natural gas, but can burn #2 fuel oil. The emergency generators burn #2 fuel oil to supply electricity to the hospital when public utility service is interrupted. The underground tank will store #2 fuel oil for use by the boilers and generators. The large aboveground tank will store jet fuel for the helicopters. The small aboveground tank will store #2 fuel oil for use by groundskeeping and maintenance.

EMISSIONS/CONTROLS EVALUATION

The boilers have low NO_x burners and flue gas recirculation. The cooling towers have drift control which restricts drift to 0.0010% of circulating water flow. Sulfur concentration in the diesel fuel used in the boilers and generators and stored in the underground tank and the small aboveground tank is restricted to 0.05 percent by weight (500 ppm).

The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Emissions from the boilers were calculated using emission factors from AP-42, Section 1.4 "Natural Gas Combustion," July 1998 and AP-42, Section 1.3, "Fuel Oil Combustion," September 1999. Separate calculations were done for natural gas combustion and diesel combustion, and the worst case was selected for each pollutant.

PM, NO_x, and CO emissions from the generators were calculated using Tier 2 limitations. Methane and nitrous oxide emission factors were taken from the EPA document *Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, Direct Emissions from Stationary Combustion Sources*, May 2008. The remaining emissions were calculated using emission factors from AP-42, Section 3.4 "Large Stationary Diesel and All Stationary Dual-fuel Engines," October 1996.

Emissions from the cooling towers were calculated using an equation for obtaining a conservatively high estimate for PM₁₀ which was suggested in AP-42 Section 13-4, "Wet Cooling Towers," January 1995. This equation is:

$$PM_{10} = \frac{\text{Gal of Water In}}{\text{Hr}} \times \frac{\text{Gal of Drift}}{\text{Gal of Water In}} \times \frac{8.34 \text{ Lb of Water}}{\text{Gal of Drift}} \times \frac{\text{Lb of Solids}}{\text{Lb of Water}}$$

The first factor (*Gal of Water In/Hr*) is the combined water circulation rate from the manufacturer's specifications. The second factor (*Gal of Drift/Gal of Water In*) is the drift loss converted from the percentage given in the manufacturer's specifications. The third factor is the standard factor for converting water from gallons to pounds. The last factor is the total dissolved solids (TDS) of 5,000 ppm. (Monitoring was included in the permit special conditions to ensure that TDS concentration does not exceed this figure.) Based on research by Riesman and Frisbie published by the California Energy Commission in 2001 under the title "Calculating Realistic PM₁₀ Emissions from Cooling Towers," this high estimate for PM₁₀ was then multiplied by 15 percent. To be conservative, PM and PM_{2.5} were assumed to equal PM₁₀.

Emissions from the tanks were calculated using the EPA's TANKS software. To be conservative, all tank losses were assumed to be VOCs. HAPs were identified from material data safety sheets (MSDS) for the jet fuel and #2 fuel oil stored in the tanks. The percentage of each of these HAPs in the emitted VOCs was assumed to be the same as their percentages in the liquid fuel.

The Table 2 on the next page provides an emissions summary for this project. Since this is the first permit for this installation, there are no existing emissions, either potential or actual. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year) of the boilers, cooling towers, and storage tanks, but only 500 hours operation per year of the emergency generators. Conditioned potential emissions show only the voluntary limitation on NO_x. Without knowing in advance how much the different equipment will be run or what it will burn, it is impossible to predict how the other emissions will be affected, except to say that some of them will also decrease.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> / SMAL Levels	Potential Emissions of the Application	Conditioned Potential Emissions of the Application
PM	25.0	8.55	8.55
PM ₁₀	15.0	9.83	9.83
PM _{2.5}	10.0	8.99	8.99
SO _x	40.0	25.85	25.85
NO _x	40.0	109.92	<40.00
VOC	40.0	4.39	4.39
CO	100.0	54.58	54.58
Pb	0.6	N/A	N/A
Single HAP (benzene)	10.0/2.0	0.014	0.014
Single HAP (Ethyl benzene)	10.0/10.0	5.45E-05	5.45E-05
Single HAP (Formaldehyde)	10.0/2.0	0.11	0.11
Single HAP (Naphthalene)	10.0/10.0	0.0025	0.0025
Total HAPs	25.0	0.91	0.91
CO _{2e}	100,000	78,383	78,383

N/A = Not Applicable

SMAL = Screening Model Action Level

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x are conditioned below the de minimis level.

APPLICABLE REQUIREMENTS

Mercy Health of Joplin shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070
 - *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Dc
 - *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, 40 CFR Part 60 Subpart IIII
- *Maximum Achievable Control Technology Regulations*, 10 CSR 10-6.075
 - *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63 Subpart ZZZZ
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Cheryl Steffan
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 10, 2013, received April 15, 2013, designating Mercy Health as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	
CFR	Code of Federal Regulations	National Emissions Standards for Hazardous Air Pollutants
CO	carbon monoxide	NO_x	nitrogen oxides
CO₂	carbon dioxide	NSPS	New Source Performance Standards
CO_{2e}	carbon dioxide equivalent	NSR	New Source Review
COMS	Continuous Opacity Monitoring System	PM	particulate matter
CSR	Code of State Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
dscf	dry standard cubic feet	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
EQ	Emission Inventory Questionnaire	ppm	parts per million
EP	Emission Point	PSD	Prevention of Significant Deterioration
EPA	Environmental Protection Agency	PTE	potential to emit
EU	Emission Unit	RACT	Reasonable Available Control Technology
fps	feet per second	RAL	Risk Assessment Level
ft	feet	SCC	Source Classification Code
GACT	Generally Available Control Technology	scfm	standard cubic feet per minute
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Attachment A – NO_x Compliance Worksheet

Mercy Health of Joplin
 Newton County, NW 1/4 of S26, T27N, R33W
 Project Number: 2013-04-042
 Installation ID Number: 145-0069

Permit Number: _____

This sheet covers the month of _____ in year _____.

COL→	1	2	3	4	5
ROW V	Unit/Fuel	Emission Factor (lbs/MMscf)	Monthly Fuel Usage (MMscf)	Monthly Emissions (lbs)	Monthly Emissions (tons)
0	<i>Example</i>	<i>32.0</i>	<i>27.6</i>	<i>883.2</i>	<i>0.44</i>
1	Boiler 1/ Natural Gas				
2	Boiler 2/ Natural Gas				
3	Boiler 3/ Natural Gas				
COL→	1	2	3	4	5
ROW V	Unit/Fuel	Emission Factor (lbs/10 ³ gal)	Monthly Fuel Usage (10 ³ gal)	Monthly Emissions (lbs)	Monthly Emissions (tons)
4	Boiler 1/ Diesel				
5	Boiler 2/ Diesel				
6	Boiler 3/ Natural Gas				
7	Generator 1/ Diesel				
8	Generator 2/ Diesel				
9	Generator 3/ Diesel				
Monthly Total					
Twelve-Month Total					

Instructions:

- (A) Use the latest performance test results for the respective equipment to determine the emission factors in pounds per million standard cubic feet for natural gas and pounds per thousand gallons for diesel. Enter these factors into Column 2 of the respective rows. Until first test, use 32.0 lbs/MMscf for boiler burning natural gas, 20 lbs/10³ gal for boiler burning diesel, and 222 lbs/10³ gal for generator burning diesel.
- (B) Enter the number of million standard cubic feet of natural gas used this month in each of the boilers into Column 3 of rows 1, 2, and 3. If no natural gas was used for a particular boiler this month, enter zero in that row.
 Enter the number of thousand gallons of diesel used this month in each of the boilers into Column 3 of rows 4, 5, and 6. If no diesel was used for a particular boiler this month, enter zero in that row.
 Enter the number of thousand gallons of diesel used this month in each of the generators into Column 3 of rows 7, 8, and 9. If no diesel was used for a particular generator this month, enter zero in that row.
- (C) For each row 1 through 9, multiply the number in Column 2 by the number in Column 3 and enter the result into Column 4.
- (D) For each row 1 through 9, divide the number in Column 4 by 2,000 and enter the result into Column 5.
- (E) Total the numbers in Column 5 for rows 1 through 9 (but not row 0). Enter the result into the "Monthly Total" box.
- (F) Add the monthly total from this month and the previous eleven months. Enter the sum into the "Twelve-Month Total" box. This total must be less than **40.0** for compliance.

Mr. Gerald Lawrence
Facilities Director
Mercy Health of Joplin
2817 St. John's Blvd.
Joplin, MO 64804

RE: New Source Review Permit - Project Number: 2013-04-042

Dear Mr. Lawrence:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Cheryl Steffan, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:csl

Enclosures

c: Southwest Regional Office
PAMS File: 2013-04-042

Permit Number: