



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: 122008-002 Project Number: 2008-08-001

Parent Company: Missouri Department of Corrections

Parent Company Address: P.O. Box 236, Jefferson City, MO 65102

Installation Name: Farmington Correctional Center

Installation Address: 1012 West Columbia, Farmington, MO 63640

Location Information: St. Francois County

Application for Authority to Construct was made for:
Installation of two (2) Miura dual-fuel boilers, each with a capacity of 300 boiler horsepower. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

DEC - 1 2008

EFFECTIVE DATE

Steven J. L...
for J. L. W. C.
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 departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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 source(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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Project No.	2008-08-001

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."

Farmington Correctional Center
St. Francois County

1. The operating hours for each emergency generator (EP-06, EP-08, EP-09, EP-10, EP-11, EP-12, EP-24) shall not exceed 500 hours in any consecutive 12-month period. To facilitate record keeping for this special condition, the emergency generators shall be equipped with non-resetable hour meters. Farmington Correctional Center shall maintain an operating log for each of the emergency generators to demonstrate compliance with this condition.
2. Oil combusted in the Cleaver-Brooks boilers (EP-21, EP-22, EP-23) and the Miura boilers (EP-25 and EP-26) shall be distillate oil (number 1 or number 2 fuel oil) and shall contain less than 0.05 percent sulfur by weight. To demonstrate compliance with this special condition Farmington Correctional Center shall obtain an oil supplier certification for each shipment of oil that is utilized in the boilers. The oil supplier certifications shall include the following information:
 - A. The name of the oil supplier;
 - B. A statement from the oil supplier indicating that the oil complies with ASTM Standard D396 for number 1 or number 2 fuel oil; and
 - C. The sulfur content of the oil.
3. Farmington Correctional Center shall maintain emergency generator operating logs and oil supplier certifications, as required by this permit, for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

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

Project Number: 2008-08-001
Installation ID Number: 187-0009
Permit Number:

Farmington Correctional Center
1012 West Columbia
Farmington, MO 63640

Complete: August 1, 2008

Parent Company:
Missouri Department of Corrections
2729 Plaza Drive
Jefferson City, MO 65102

St. Francois County

REVIEW SUMMARY

- Farmington Correctional Center has applied for authority to install two (2) Miura dual-fuel boilers, each rated at 300 boiler horsepower.
- Fuel combustion in existing and new boilers will create a small amount of hazardous air pollutant (HAP) emissions. Farmington Correctional Center also operates a dry-cleaner that is a source of perchloroethylene emissions.
- 40 CFR Part 60, Subpart Dc - *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* applies to the two new Miura boilers.
- No air pollution control equipment is being used in association with the new boilers.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions associated with the two new boilers are conditioned to below de minimis levels for sulfur dioxide based upon the sulfur content limit in the fuel. Potential emissions of nitrogen oxides, carbon monoxide and particulate matter with an aerodynamic diameter less than 10 microns (PM₁₀) from the new boilers are all below de minimis levels.
- This installation is located in St. Francois County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

- Emission testing is not required by this permit. Emission testing or fuel testing may be required by the new source performance standards applicable to the boilers.
- Since the installation-wide potential emissions of NO_x are greater than 100 tons per year an intermediate operating permit application is required for this installation within 90 days of equipment startup, or a part 70 operating permit application is required for this installation within 1 year of equipment startup if the applicant does not wish to limit NO_x emissions to less than 100 tons per year.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Farmington Correctional Center is a (C-2 & C-4) male facility with an operational capacity of 2,686 inmates and has been a correctional facility since 1986. Farmington Correctional Center is situated on the grounds of what used to be Farmington State (Mental Health) Hospital. A smaller mental health hospital has been constructed adjacent to Farmington Correctional Center. The Southeast Missouri Mental Health Center opened in 1987. There continues to be a relationship between Farmington Correctional Center and Missouri Department of Mental Health in that a small percentage of the steam generated by the Farmington Correctional Center boilers is used for space heat and domestic hot water heating for the Hctor and Blair buildings of the Missouri Sexual Offender Treatment Center (adjacent to the correctional center and within the secondary fence).

The main source of air pollutants at Farmington Correctional Center is fuel combustion in boilers, emergency generators and hot water heaters. Coal-fired boilers have been removed from the premises. The existing and new boilers combust natural gas and # 2 fuel oil. The emergency generators combust # 2 fuel oil. The hot water heaters combust natural gas. FCC also conducts dry-cleaning at this installation. Dry cleaning is a source of perchloroethylene emissions. According to a May 2002 inspection report there is one dry-to-dry machine (Series 345 Forenta) with a 45-pound load capacity. A refrigerated condenser and carbon adsorber are used to control emissions from dry-cleaning. As a result of the May 2002 inspection FCC was required to submit a basic permit application. The basic permit application indicates consumption of less than 140 gallons of perchloroethylene per year.

The following permits and no permit required letters have been issued to this installation from the Air Pollution Control Program.

Permit Number or Project Number	Description
0880-003	Coal-fired boiler permit issued to Farmington State Hospital. Note: This boiler has been removed from the premises.
OP 2003-008	Basic Operating Permit for Dry Cleaning (< 140 gallons per year perchloroethylene consumption), expiration date 2/9/2008.
2005-08-026	Applicant submitted a basic operating permit notification and was issued a basic operating permit renewal, expiration date 8/07/2010.

2007-10-003	No permit required for < 10 MMBTU/hr gas-fired boilers/hot-water heaters.
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PROJECT DESCRIPTION

Heat for the Farmington Correctional buildings is currently provided by a central steam plant located at the Building 34 Power House. The existing steam plant consists of three (3) Cleaver-Brooks dual-fuel fire tube boilers, each with a capacity of 1,000 boiler horsepower. To gain efficiency and flexibility two (2) new boilers will be installed. The new boilers are Miura EX-300 SGO floating header water tube boilers, each with a capacity of 300 boiler horsepower. The maximum hourly fuel consumption rate for each boiler is 11.96 MMBTU/hr (11,390 cubic feet per hour natural gas or 85.43 gallons per hour # 2 fuel oil). The new boilers will be equipped with economizers.

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the following sections of Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition:

- Section 1.3, Fuel Oil Combustion (9/98)
- Section 1.4, Natural Gas Combustion (7/98)
- Section 3.3, Gasoline and Diesel Industrial Engines (10/96)

With regard to the figures presented in Table 1 below; “Existing Potential Emissions” are based on around-the-clock operation of boilers, but only 500 hours per year operation of the emergency generators and default sulfur content in # 2 fuel oil of 0.5 percent; “Potential Emissions of the Application” and “New Installation Conditioned Potential” are based on the limitations of this permit.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2006 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	9.04	0.89	1.5	10.54
SO _x	40.0	279.65	0.49	5.31	33.97
NO _x	40.0	95.04	10.53	14.97	110.01
VOC	40.0	<< 40	1.23	N/D	<< 40
CO	100.0	50.8	8.60	8.38	59.18
HAPs	10.0/25.0	<< 10	N/D	N/D	<< 10

N/A = Not Applicable; N/D = Not Determined

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 associated with the two new boilers are conditioned to below de minimis levels for sulfur dioxide based upon the sulfur content limit for fuel oil. Potential emissions of nitrogen oxides, carbon monoxide and particulate matter with an aerodynamic diameter less than 10 microns

(PM₁₀) from the new boilers are all below de minimis levels.

APPLICABLE REQUIREMENTS

Farmington Correctional Center 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 10-3.090*

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Dc*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

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.

Steve Jaques, P.E.
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 31, 2008 received August 1, 2008 designating Missouri Department of Corrections as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Paul Neel
Plant Maintenance Engineer
Farmington Correctional Center
1012 West Columbia
Farmington, MO 63640

RE: New Source Review Permit - Project Number: 2008-08-001

Dear Mr. Neel:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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 amended 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 Steve Jaques, at the departments' 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

Kendall B. Hale
New Source Review Unit Chief

KBH:sjl

Enclosures

c: Southeast Regional Office
PAMS File: 2008-08-001

Permit Number: