

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

P064062842

FACILITY: MDOC Chippewa Complex		SRN / ID: P0640
LOCATION: 4269 W. M-80, KINCHELOE		DISTRICT: Marquette
CITY: KINCHELOE		COUNTY: CHIPPEWA
CONTACT: Jerry Thurmes , Physical Plant Supervisor		ACTIVITY DATE: 05/03/2022
STAFF: Lauren Luce	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Targeted Inspection FY22		
RESOLVED COMPLAINTS:		

Facility: MDOC Chippewa (SRN: P0640)

Location: 4269 West M-80, Kincheloe, Chippewa County, MI, 49788

Contact(s): Jerry Thurmes, Physical Plant Supervisor

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

Chippewa Correctional Facility consists of an East and West side; the East side consists of three Level II housing units with 240 beds each; one Level IV housing unit with 192 beds; a Level I unit with 120 beds; a 96-bed segregation unit and a 22-bed detention unit. The West side of the facility, formerly Straits Correctional Facility, has dormitory-style Level II housing. There are eight Level II Housing Units which have 140 beds each. The facility includes an administration building, maintenance department, and warehouse. There is a Health Care unit, Food Service unit, and a Programs/School building location on both the East and West sides of the facility. The area surrounding the facility is forested. It is also located nearby an industrial area on the site of the former Kincheloe Air Force Base.

There are three identical natural gas fired boilers (see Image 1) located at the facility which can burn fuel oil as a back-up fuel. The boilers are Cleaver Brooks model CB-200-600-150 with an input of 24,494,000 BTU/hr. Emissions from each boiler is exhausted through vertical stacks to the atmosphere.

Three diesel emergency engines are also located at the facility. Each of these units are fuel oil-fired reciprocating internal combustion engines (RICE) that are coupled to generators. EU-EMGRICE1 (Unit East 1) is a Cummins engine coupled to a Kohler generator with a rated power output of 550 HP and provides up to 410 kW of electrical output, EU-EMGRICE2 (Unit West 2) is a Cummins engine coupled to an Onan generator with a rated power output of 335 HP and provides up to 250kW of electrical output, and EU-EMGRICE3 (Unit New KCF HTF 3) is a Cummins engine coupled to an Onan generator with a rated power output of 335 HP and provides up to 250 kW of electrical output. East 1 and West 2 are located at the MDOC Chippewa facility

(Kincheloe) and Unit New KCF HTF 3 is located at the nearby Hiawatha Correctional Facility (Kinross).

Emissions

Emissions from natural gas-fired boilers include nitrogen oxides (NO_x), carbon monoxide (CO), and carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO₂), and particulate matter (PM). Emissions from diesel emergency engines include NO_x, SO₂, PM, and CO. Sulfur oxides emissions are directly related to the sulfur content of the fuel. The formation of nitrogen oxides is related to the combustion temperature in the engine cylinder, and CO and VOC emissions are primarily a result of incomplete combustion. PM emissions can include trace amounts of metals and condensable, semi-volatile organics which result from incomplete combustion, volatilized lubricating oil, and engine wear.

Emissions Reporting

MDOC Chippewa is considered a synthetic minor source and has obtained an Opt-Out Permit to Install (PTI) No. 206-15 for NO_x, CO, and SO₂. The facility is required to report annual emissions to Michigan Air Emissions Reporting System (MAERS). The following table lists the source total emissions for the reporting year 2020.

Pollutant	Emissions (TPY)
CO	4.09
PM	<1
NO _x	5.43
SO ₂	<1
VOC	<1

Regulatory Analysis

MDOC Chippewa was issued PTI No. 206-15 for the three natural gas fired steam boilers and three emergency engine units, described above. Each engine at the facility is subject to 40 CFR Part 63, Subpart ZZZZ, the National Emissions Standards for Reciprocating Internal Combustion Engines (RICE NESHAP). The boilers are also subject to 40 CFR Part 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units and 40 CFR Part 63, Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.

Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in December 2016 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

Inspection

On May 3, 2022, AQD Staff (Lauren Luce and Michael Conklin) conducted a targeted inspection of MDOC Chippewa. AQD Staff arrived at the facility and met with Physical Plant Supervisor, Jerry Thurmes. It was explained to Supervisor Thurmes that the purpose of the inspection was to ensure compliance with PTI No. 206-15 and all other applicable air pollution control rules and federal regulations.

The inspection began with Supervisor Thurmes providing a tour of the facility and reviewing permitted equipment. Electronic records on fuel specifications, fuel usage, and emissions were provided.

FG-BOILERS

Emissions from each Cleaver Brooks boiler is exhausted through its individual vertical stack to the atmosphere. EU-BOILER3 was down for repairs at the time of the inspection. During the inspection, both EU-BOILER1 and EU-BOILER2 were online and operating on natural gas. The boilers are operated on a cycle with typically only one boiler operating at a time. A steam PSI of 101.2 was recorded at the time of the inspection. SC.II.2 limits the sulfur content of the fuel oil used to not exceed 500ppm by weight. Records were provided on the Crystal Flash Ultra Low Sulfur Diesel that is used showing sulfur content of 15ppm. The last fuel delivery was received on December 19, 2019. SC.III.2 restricts fuel oil usage to not more than 500 hours per 12-month rolling time period. Fuel usage records were provided. The boilers are primarily fired on natural gas and records provided show the facility is well under the 500 hour limit. A gas meter is located outside the building to monitor usage. The meter is operational but in need of repairs which the facility has requested.

FG-EMGGENS

Nameplate specifications were provided on each unit. SC.III.1 limits operation of each engine to not more than 500 hours per year on a 12-month rolling time period. SC.IV.1 requires each engine be equipped with a non-resettable hours meter. The records provided for the 12-month rolling time period May 2021-April 2022, EU-EMGRICE1 (Unit East 1) showed the rolling average was 30.4 hours and the hours meter reading was 1697.5. For EU-EMGRICE2 (Unit West 2) the rolling average was 34.2 hours and the hours meter reading was 344.3. For EU-EMGRICE3 (Unit New KCF HTF 3) the rolling average was 31.8 hours and the hours meter reading was 925.7.

FG-FACILITY

Electronic records were provided on each fuel used for FG-FACILITY on a monthly basis. Emissions records were also provided on monthly and 12-month rolling time period emissions of NO_x, SO₂, and CO. PTI No. 206-15, 12-month rolling time period emission limits for NO_x are 89 tpy, for SO₂

are 89 tpy, and for CO are 70 tpy. As shown in the emissions table above, all emissions were well below the permitted limits.

Miscellaneous

During the inspection, a temporary boiler was on site while work is being completed in the steam conversion room. The temporary boiler provides steam so that steam and hot water service is not interrupted while work is being completed. This boiler operates 15 minutes per hour, 6 hours per day since April 19, 2022, though it was brought onsite in February. It should be removed by the end of May

The unit is a Cleaver Brooks labeled Model CBL 200 800 150 and is natural gas-fired with a maximum heat input of 33.5 mmbtu/hr. It was manufactured in 1997. The boiler meets the Rule 282(2)(b)(i) exemption. The facility's consultant is providing an exemption analysis.

Compliance

Based on this inspection, it appears that MDOC Chippewa is in compliance with PTI No. 206-15 and all other applicable regulations.

WARNING

DO NOT touch or use this equipment unless you have read the operators manual and thoroughly understand the equipment before touching any materials or components. Read and understand all instructions and warnings that accompany the replacement material.

Failure to follow all instructions and warnings could result in serious personal injury.

Cleaver Brooks
CB PACKAGED BOILER

MODEL NO. [] SERIAL NO. []
 MAX WORKING PRESS. [] PSI DATE []
 INPUT [] BTU/HR [] GAS [] GPM OIL []
 GAS PRESS. AT MANIFOLD [] OR IN C. (SEA LEVEL)

ELECTRICAL REQUIREMENTS
MAIN POWER SUPPLY
 [] VOLTS [] PH [] HZ [] AMP
 MINIMUM CIRCUIT CAPACITY [] AMP
 MAX. RATING OF CIRCUIT PROTECTION [] AMP

BLOWER MOTOR [] HP
 AIR COMPRESSOR MOTOR [] HP
 OIL HEATER [] AMV
CONTROL CIRCUIT
 120 VOLTS 1 PH [] HZ AMP
OIL PUMP MOTOR
 [] VOLTS [] PH [] HZ [] AMP

111000 BAKERS SERVICE
 4000 CUMMINS
 WILSONVILLE, MISSOURI

MICHIGAN DEPT. OF LEO
 BUREAU OF CONSTRUCTION, SAFETY & FIRE PREVENTION
 M 411114 M
 STATE BOILER NUMBER

OneCS Insurance Company
CNA Insurance
 Boiler/Pressure Vessel
 Certificate Inspection
 Justin Swap 219-260-1359

Date 5/11/22
 Internal External

Inspector Name	Inspector ID No.	Inspector Exp. Date	Exp. Exp. Date
JSW	20220007	01/22/2024	06/22/2024

B-1C
 BOILERS

Image (1): EUBOILER1 NAME PLATE.

NAME Jan Jan

DATE 5/11/22

SUPERVISOR ELH