

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Records Review (In office)

N295553772

FACILITY: KINROSS CORRECTIONAL FACILITY		SRN / ID: N2955
LOCATION: 16770 South Watertower Drive, KINCHELOE		DISTRICT: Upper Peninsula
CITY: KINCHELOE		COUNTY: CHIPPEWA
CONTACT: Trever LaBarre , Manager of Environmental Health		ACTIVITY DATE: 05/21/2020
STAFF: Michael Conklin	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Self initiated inspection for FY 20.		
RESOLVED COMPLAINTS:		

Facility: Kinross Correctional Facility (SRN: N2955)
Location: 16770 South Watertower Drive, Kincheloe, MI
Contacts: Trever Lebarre, MDOC, 517-643-6518
Amy Dean, Fishbeck, 616-464-3904

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 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, federal Clean Air Act.

Facility Description

The Kinross Correctional Facility is located in Chippewa County, Michigan and is a level I and II security facility that has been operating since 1978. The facility includes a physical plant building that houses boilers for power generation and emergency generators for back-up power during outages.

Emission Units

The table below summarizes the emission units at this source.

Emission Unit ID	Description
FG-BOILERS	Three (3) natural gas-fired steam boilers capable of burning fuel oil as a back-up fuel.
FG-EMGENS	Six (6) diesel-fueled reciprocating internal combustion emergency engine generators.
FG-FACILITY	All process equipment source-wide including equipment covered by other permits, grandfathered equipment and exempt equipment.

Emissions

Pollutants emitted from the combustion of natural gas-fired boilers includes nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO₂), methane, and nitrous oxide (N₂O), and trace amounts of sulfur dioxide. Higher temperatures of burning and longer residence time results in higher NOx emissions. CO and VOC emissions are directly related to combustion efficiency. Higher combustion temperatures, longer residence times, and well mixing of fuel and combustion air results in higher combustion efficiency and lower emissions of CO and VOCs. Emissions of sulfur oxides are low since natural gas contains a very low sulfur content. PM emissions are also low since natural gas is a gas. Nitrous oxide and methane emissions are related to the combustion temperature and amount of excess oxygen.

Pollutants emitted from the combustion process of fuel oil-fired RICE units include nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM). 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. PM in the form of blue smoke is caused by incomplete combustion of fuel.

lubricating oil that leaks into the combustion chamber past worn piston rings and is partially burned. Black is a result of carbon particles combining to form soot. Liquid particles that form during an engine cold start operation, appear as white smoke. Emissions vary according to the air-to-fuel ratio, ignition timing, torque, ambient temperature, humidity, and other factors.

Emissions Reporting

The facility is considered a synthetic minor source for NO_x and SO₂. FG-BOILERS are subject to the federal Source Performance Standard (NSPS), 40 CFR Part 60 Subpart Dc, and thus the facility is required to report annual emissions to the Michigan Air Emissions Reporting System (MAERS) each year. The table below shows the facility's emissions for 2019.

Pollutant	Pounds per Year (PPY)	Tons per Year (TPY)
CO	1474.84	<1
NO _x	2393.68	1.2
PM ₁₀	60.35	<1
PM _{2.5}	116.74	<1
SO ₂	19.30	<1
VOC	154.49	<1

Compliance History

The facility was last inspected in March 2017 and found to be in compliance with PTI No. 215-15. No notices have been issued to the facility in the last five years.

Regulatory Analysis

The Kinross Correctional Facility is subject to PTI No. 215-15 and is considered a synthetic minor source for NO_x and SO₂. The source took emission limits for NO_x and SO₂ to restrict its potential to emit to below major source thresholds. The facility is considered a true minor source for all other criteria pollutants and hazardous air pollutants. FG-BOILERS are subject to 40 CFR Part 60, Subpart Dc for Small Industrial-Commercial-Institutional Steam Generating Units. FG-EMGENGS are subject to 40 CFR Part 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

Inspection

Kinross Correctional Facility is a self-initiated inspection source for fiscal year 2020. Currently the Michigan Department of Corrections (MDOC) is not allowing on-site inspections at their facilities due to COVID-19 precautionary measures being taken. The on-site inspection is not considered essential and will be scheduled following the COVID-19 period. In the interim, a partial compliance evaluation (PCE) was conducted by reviewing requested records required in PTI No. 215-15 for the period of 01/01/2018 through current. The records requested was sent to Trevor LeBarre, Manager for Environmental Health, Fire & Safety, & County Jail Services, on 4/21/2020 and records were received via email on 5/21/2020 from Amy Dean, Senior Environmental Specialist for Facility.

A letter attached with the requested records stated that the security facility is not currently housing prisoners. The three boilers have not been used since 1/22/2017. This is confirmed also in a previous inspection report from Asher (AQD), dated 3/28/2017, that states the boilers have been drained and the gas lines have been capped. The boilers have not been operated since and are currently classified as "cold standby". Prison populations are subject to change, and the facility could be reopened on a short notice.

The natural gas throughput for FG-BOILERS, in the 2019 MAERS report, is actually natural gas activity for space heaters throughout the facility. This is also explained in the letter. This was done to simplify reporting. The space heaters will be reported in a separate reporting group for the 2020 report and beyond.

FG-BOILERS

As mentioned above, the three 18 MMBtu/hr natural gas-fired boilers have not operated since 2017. The boilers are currently out of commission with the natural gas lines capped and the boilers drained (SC VI.1).

No fuel oil has been fired in the boilers since 2017 (SC VI.3). The State of Michigan MDOC facilities have a contract with Crystal Flash for ultra-low sulfur diesel (ULSD). ULSD fuel oil contains less than 15 ppm sulfur content (SC II.2). An SDS for the ULSD fuel oil was provided from Crystal Flash that is representative of the fuel oil that would be delivered to the facility if needed (SC VI.2).

FG-EMGGENS

The emergency engines at the facility only fire ULSD fuel oil #2 that contains less than 15 ppm sulfur content (II.1 and VI.3). Fuel oil for the generators is supplied from the same tank that fuels the boilers. This tank has received a fuel oil shipment since 2017. The State has contracts with fuel oil suppliers to only deliver ULSD. An invoice from 2015 shows Autore Oil delivery has ULSD stated on the invoice.

The engines are required to be equipped with a non-resettable hour meters to track the operating hours. Engines #4 and #6 operated for a total of 11.6 and 15.6 hours during 2018, and 12.4 and 12.9 hours during 2019, respectively. These engines are operated approximately one hour per month, 15 minutes per week. Emergency engine #7 has a rated power output of 335 HP and is not listed in PTI No. 215-15 but was installed as an exempt emission unit under R 336.285(2)(g). This unit operated for a total of 53.1 hours in 2019. All other engines have been operated since the beginning of 2018. Information regarding emergency operation, generator testing, maintenance is kept in a logbook on-site. The logbooks are currently unavailable because of the COVID-19 pandemic.

Information on each emergency engine at the source was provided to show compliance with SC VI.4. EU-EMGRICE5 was removed on 1/1/2019 and is no longer on-site. This information is outlined in the table below.

Manufacturer	EU ID	Model	Serial #	Rating (KW)	Rating (HP)	Fuel	Manufacture Date
Katolite (Cummins)	EU-EMGRICE1	D4800B	4002319	60	80	Diesel	1970-1975
Cummins	EU-EMGRICE2	4BT-3.9	44229305	60	80	Diesel	11/17/1987
Generac	EU-EMGRICE3	96A03648-S	2029077	125	168	Diesel	1996
Newage Stamford	EU-EMGRICE4	M05J08652604	S036526-04	380	509	Diesel	Oct-05
Kohler (John Deere)	EU-EMGRICE6	100ROZJ	259834	100	134	Diesel	1990
Onan	#7	250DFML29921N	H880154171	250	335	Diesel	Aug-88

FG-FACILITY

The facility has taken limits to restrict its potential-to-emit to below major source thresholds. These emission limits are for NOx, SO2, and CO. As a result, the facility is required to calculate monthly and 12-month rolling emissions for these pollutants.

Spreadsheets were provided showing emissions of NOx, SO2, and CO from source-wide natural gas use, fuel use in emergency engines, and total source-wide for each month and 12-month rolling time period from January 2018 to March 2020. All three pollutant emissions for a 12-month rolling time period are well below the limits stated in SC I.1-3.

Compliance

Based on this inspection, the Kinross Correctional Facility is in compliance with PTI No. 215-15.

NAME

Michael White

DATE

5/21/20

SUPERVISOR

EFL

