

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

N295570892

FACILITY: KINROSS CORRECTIONAL FACILITY		SRN / ID: N2955
LOCATION: 16770 South Watertower Drive, KINCHELOE		DISTRICT: Marquette
CITY: KINCHELOE		COUNTY: CHIPPEWA
CONTACT: Gene Wood , Manager of Environmental Health		ACTIVITY DATE: 01/26/2024
STAFF: Drew Yesmunt	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Targeted inspection for FY24.		
RESOLVED COMPLAINTS:		

Facility: Kinross Correctional Facility (SRN: N2955)

Location: 16770 South Watertower Drive, Kincheloe, Chippewa County, MI

Contact(s): Jeff Niemi, MDOC; Gene Wood, MDOC; Amy Dean, Fishbeck

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

The Kinross Correctional Facility is a prison located in Chippewa County, Michigan. The facility is a level I and II security facility for males 18 years and older and is capable of housing up to 1,600 inmates. The facility opened in 1977 but has not held prisoners since October 2015 when the prison was relocated to Hiawatha Correctional Facility.

The facility includes a physical plant building that houses three boilers for steam generation and emergency generators for back-up power during outages.

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Emissions

Pollutants emitted from the combustion of natural gas-fired boilers includes nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and trace amounts of sulfur dioxide. Higher temperatures of burning and longer residence time results in higher NO_x 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 greater combustion efficiency and lower emissions of CO and VOCs. Emissions of sulfur oxides are

low since processed natural gas contains a very low sulfur content. PM emissions are also low since natural gas is a gaseous fuel. 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 (NO_x), 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 lubricating oil that leaks into the combustion chamber past worn piston rings and is partially burned. Black smoke is a result of carbon particles combining to form soot. Liquid particles that form during an engine cold start, or low operation, appear as white smoke. Emissions vary according to the air-to-fuel ratio, ignition timing, torque, speed, 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 New Source Performance Standard (NSPS), 40 CFR Part 60 Subpart Dc, and thus the facility is required to report its annual emissions to the Michigan Air Emissions Reporting System (MAERS) each year. The table below shows the facility's emissions for 2022.

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Pollutant	Emissions (PPY)	Emissions (TPY)
CO	869.42	<1
NO _x	1084.44	<1
PM10 PRIMARY	77.37	<1
PM2.5 PRIMARY	77.37	<1
PM10 FILTERABLE	4.68	<1
PM2.5 FILTERABLE	4.68	<1

SO2	6.89	<1
VOC	61.42	<1
TOC	5.42	<1
Lead	0.01	<1
Ammonia	4.98	<1

Compliance History

The facility was last inspected in May 2020 and was found to be in compliance with PTI No. 215-15. No violation notices have been issued to the facility in the last five years.

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Inspection

On January 26, 2024, AQD staff (Drew Yesmunt) conducted a targeted inspection of Kinross Correctional Facility in Kincheloe, MI. AQD staff arrived at the facility and met with Jeff Niemi, Physical Plant Administrator. It was explained that the purpose of the inspection was to ensure compliance with PTI No. 215-15 and all other applicable air pollution control rules and federal regulations. A tour of the facility was then provided.

It was explained to AQD staff that all units in FG-BOILERS had been drained of all fuel, and the connected natural gas lines had been capped in 2017. This was confirmed on-site by AQD staff. It was also explained that there was no plan for future operation of the boilers, and the natural gas train had been removed in December 2023. AQD staff then explained that the facility could pursue removing the boilers from their permit as the facility would be classified as a true minor source instead of a synthetic minor source. It was explained that this change would reduce fees paid by the facility and the frequency of future inspections.

During the tour, AQD staff was shown all emission units in FG-EMGGENS remaining on site. No engines were operating during the time of the inspection. It was explained to AQD staff that EU-EMGRICE1 and EU-EMGRICE5 were removed from the site, and that EU-EMGRICE3 and Engine No. 7 were no longer in operation. The hour meters and nameplates on each engine were observed and recorded. Following the tour, AQD staff sent a records request to Gene Wood, Manager of Environmental Health, Fire Safety, and Jail Services. Records were sent to AQD staff by Amy Dean, Senior Environmental Specialist at Fishbeck.

FG-BOILERS

This flexible group encompasses the facility's three boilers capable of burning natural gas and fuel oil. At the time of inspection, the equipment had been permanently shut down with fuel lines capped. The facility is required under PTI No. 215-15 to maintain records of fuel use and hours of operation for FG-BOILERS. As the boilers are permanently shut down, there has been no fuel use nor operation of the boilers since 2017.

FG-EMGGENS

This flexible group consists of six of the facility's seven emergency generators, EU-EMGRICE1, EU-EMGRICE2, EU-EMGRICE3, EU-EMGRICE4, EU-EMGRICE5, and EU-EMGRICE6. At the time of inspection, EU-EMGRICE1 and EU-EMGRICE5 were removed from the site. The facility's seventh engine was operated under exemption from permitting but is no longer operational. To maintain compliance under PTI No. 215-15, the facility must maintain non-resettable hour meters on all engines in FG-EMGGENS (SC.IV.1) as well as records of operation for each engine on a monthly basis and a 12-month rolling basis (SC.VI.2). Records were provided for January-December 2023. The table below shows the hour meter values recorded on-site and the monthly and 12-month operating hours for December 2023.

Emission Unit	Hour Meter Reading	12-Month Rolling Hours of Operation	Monthly Hours of Operation
EU-EMGRICE2	370.3	8.0	1.0
EU-EMGRICE3	367.1	0	0
EU-EMGRICE4	351.3	9.6	0.8
EU-EMGRICE6	421.8	5.7	0.6

Additional information on each emergency engine at the source was provided to show compliance with SC.VI.4. Information was not provided for EU-EMGRICE5 as the unit was removed 1/1/2019. EU-EMGRICE1 and EU-EMGRICE3 were removed from service in 2022.

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Emission Unit	Manufacturer	Manufacture Date	Model Number	Rating (hp)	Serial Number	Date of Startup
EU-EMGRICE1	Katolite (Cummins)	1970-1975	D4800B	80	4002319	5/31/2005
EU-EMGRICE2	Cummins	11/17/1987	4BT-3.9	80	42229305	1987
EU-EMGRICE3	Generac	1996	96A03648-S	168	2029077	1996
EU-EMGRICE4	Newage Stamford (Cummins)	10/2005	M05J08652604	402	S036526-04	2006
EU-EMGRICE6	Kohler (John Deere)	1990	100ROZJ	134	259834	6/12/2005

Records of the last delivery of fuel oil to the facility were provided to show compliance with SC.VI.3. Kinross Correctional Facility maintains a contract with Crystal Flash for ultra-low sulfur diesel (ULSD) with a maximum sulfur content of 15 ppm. The most recent delivery was on 08/20/2020.

FG-FACILITY

This flexible group includes all emission units at the source, including exempt and grandfathered units. The facility has taken limits to restrict its potential-to-emit to below major source thresholds. These emission limits are for NO_x, SO₂, and CO. As a result, the facility is required to maintain monthly and 12-month rolling records of overall fuel use and emissions of SO₂, CO, and NO_x (SC.VI.1-3). Records were provided for January-December 2023. Throughout 2023, the facility had a total fuel throughput of 91,531 ccf of natural gas. The emissions for SO₂, CO, and NO_x were well below the limits established in PTI No. 215-15. The table below shows the recorded monthly and 12-month rolling emission values for December 2023.

SO ₂ Emissions (tons/mo)	SO ₂ Emissions (tons/12-mo)	CO Emissions (tons/mo)	CO Emissions (tons/12-mo)	NO _x Emissions (tons/mo)	NO _x Emissions (tons/12-mo)

4.49E-04	3.83E-03	0.05	0.40	0.07	0.55
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Compliance

Based on this inspection and the records reviewed, Kinross Correctional Facility appears to be in compliance with PTI No. 215-15 and all other applicable air pollution control rules and federal regulations. It was conveyed to the facility that no violations were observed during the on-site inspection.



Capped natural gas fuel line to FG-BOILERS.



FG-BOILERS, permanently shut down.



EU-EMGRICE3 in storage, permanently shut down.

NAME Dee Yerman

DATE 2-23-2024

SUPERVISOR Michael Kline