

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

N735033783

FACILITY: MICHIGAN TECHNOLOGICAL UNIVERSITY		SRN / ID: N7350
LOCATION: 1400 TOWNSEND DR., HOUGHTON		DISTRICT: Upper Peninsula
CITY: HOUGHTON		COUNTY: HOUGHTON
CONTACT: David Taivalkoski , Director of Energy Management and Sustainability		ACTIVITY DATE: 03/16/2016
STAFF: Joe Scanlan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced inspection to determine compliance with PT I#'s 91-04 & 217-15		
RESOLVED COMPLAINTS:		

FACILITY: *Michigan Technological University (MTU)*

INSPECTION DATE: 3/16/2016

MDEQ-AQD STAFF

- *Joseph Scanlan, EQA*

FACILITY REPRESENTATIVES

- *David Taivalkoski, Director of Energy Management & Sustainability -- detaival@mtu.edu*
- *Gregg Richards, Director of Engineering Services*
- *Clifton Brusso, Energy Management Shift Operator*

LOCATION

The central energy plant and associated facilities and accessory structures for Michigan Technological University are located on the north side of campus, along the Portage Canal, in Houghton. Facilities Management offices are located the Facilities Building adjacent to the central energy plant.

SOURCE DESCRIPTION

Michigan Technological University's central energy plant, steam distribution system and campus building energy management system functions to provide heat and steam for buildings on campus. The central energy plant houses four large boilers which operate on natural gas with #2 fuel oil as a standby fuel. There are also four (4) 2250 kilowatt Caterpillar diesel generator sets which supply power in the event of a power outage and to supply the local area with additional power during times of peak electricity demand. Adjacent and to the east of the central energy plant is a 1,000,000 gallon fuel oil tank that will be removed during the summer of 2016 and has been replaced by six (6) 35,000 gallon tanks installed late 2015. Another 1,000,000 gallon fuel oil tank and two (2) smaller 100,000 gallon fuel oil tanks were removed during the construction of MTU's Great Lakes Research Center in late 2010 and early 2011.

INSPECTION

On 3/16/2016 I conducted an unscheduled visit to the central energy plant at MTU. PPE worn during this inspection included steel-toed boots, safety vest, safety glasses and hardhat. I met with Director of Energy Management & Sustainability, Mr. David Taivalkoski, in his office adjacent to the boiler operator's control room. Mr. Taivalkoski went over my previous inspection report from 7/17/2015 with me and we corrected a few minor mistakes. He provided me with the most recent data compiled for fuel usage and certification and also the maintenance records for the boilers and emergency generators for the FY 14/15 (July 2015 - July 2015).

EMISSION UNIT DETAILS

Emission Unit ID	Description of Emission Unit	PTI#	Installation/Modification Date	Compliance Status
EUBOILER1R	156 mmBtu/hr boiler fired w/nat. gas and #2 fuel oil	PTI# 91-04A	1971	C
EUBOILER2	39.4 mmBtu/hr boiler fired w/nat. gas and #2 fuel oil	PTI# 91-04A	1950	C

EUBOILER3	39.4 mmBtu/hr boiler fired w/nat. gas and #2 fuel oil	PTI# 91-04A	1957	C
EUBOILER4	96 mmBtu/hr boiler fired w/nat. gas and #2 fuel oil	PTI# 91-04A	1964	C
EUGENERATOR1	Caterpillar model 3516B 2250 kilowatt diesel generator set	PTI# 91-04A	10/01/2006	C
EUGENERATOR2	Caterpillar model 3516B 2250 kilowatt diesel generator set	PTI# 91-04A	10/01/2006	C
EUGENERATOR3	Caterpillar model 3516B 2250 kilowatt diesel generator set	PTI# 91-04A	10/01/2006	C
EUGENERATOR4	Caterpillar model 3516B 2250 kilowatt diesel generator set	PTI# 91-04A	10/01/2006	C

FGBOILERS

I. EMISSION LIMIT(S) – See PTI# 91-04A for complete limits

II. MATERIAL LIMIT(S) – Natural gas usage shall not exceed 390 million cubic feet per 12-month rolling time period. No. 2 fuel oil usage shall not exceed 390,000 gallons per 12-month rolling time period.

- Natural gas usage from July 2014 - June 2015 was 329,905 mmBTU
- No. 2 fuel oil usage for the boilers from July 2014 - June 2015 was 1184 gallons; far below permit limits.

III. PROCESS/OPERATIONAL RESTRICTION(S) – Sulfur content limited to 0.05% by weight. Only natural gas and/No. 2 fuel oil shall be combusted.

- Ultra low sulfur No. 2 fuel oil purchased from U.S. Oil out of Green Bay, WI

IV. RECORDKEEPING/REPORTING – Permittee shall maintain records of No. 2 fuel supplier certification which include name, statement stating that the specifications of the oil comply with ASTM D396-98 (or latest version) and sulfur content of oil.

- Ultra low sulfur No. 2 fuel oil purchased from U.S. Oil out of Green Bay, WI

VI. STACK/VENT RESTRICTIONS

Stack & Vent ID	Maximum Diameter (ft)	Minimum Height Above Ground Level (ft)	Applicable Requirements
SVBOILER1R	5.0'	55.5'	40 CFR 52.21
SVBOILER2	3.6'	55.6'	40 CFR 52.21
SVBOILER3	3.6'	55.6'	40 CFR 52.21
SVBOILER4	4.5'	58.0'	40 CFR 52.21

The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.

FGGENERATORS

I. EMISSION LIMIT(S) – See PTI# 91-04A for complete limits

II. MATERIAL LIMIT(S) – No. 2 fuel oil usage shall not exceed 329,918 gallons per 12-month rolling time period. Biodiesel fuel usage shall not exceed 319,400 gallons per 12-month rolling time period.

- No. 2 fuel usage for the generators from July 2014 to June 2015 was 2615 gallons; far below the permit limits.

III. PROCESS/OPERATIONAL RESTRICTION(S) – Sulfur content limited to 0.5% by weight. Only No. 2 fuel oil and/or biodiesel fuel shall be combusted.

- Ultra low sulfur No. 2 fuel oil purchased from U.S. Oil out of Green Bay, WI

IV. RECORDKEEPING/REPORTING – Permittee shall maintain records of No. 2 fuel and/or biodiesel supplier certification which includes name, statement stating that the specifications of the oil comply with ASTM D396-98 for fuel oil or D 6751 for biodiesel (or latest version of either standard) and sulfur content of oil.

- Ultra low sulfur No. 2 fuel oil purchased from U.S. Oil out of Green Bay, WI

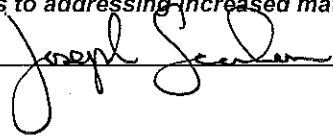
VI. STACK/VENT RESTRICTIONS

Stack & Vent ID	Maximum Diameter (in)	Minimum Height Above Ground Level (ft)	Applicable Requirements
SVGGENERATOR1	12"	40'	40 CFR 52.21
SVGGENERATOR2	12"	40'	40 CFR 52.21
SVGGENERATOR3	12"	40'	40 CFR 52.21
SVGGENERATOR4	12"	40'	40 CFR 52.21
The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.			

SUMMARY

No violations of PT# 91-04A were observed at the time of this inspection and the facility appears to be in compliance with the permit, however this facility was close to the materials limits for natural gas usage in the boilers for the FY 14/15 according to data provided to district staff. It should be noted that the winter of 2014/15 was an exceptionally cool one, with record-setting temperatures. Despite the record temperatures, the facility is prepared to work with AQD in regards to addressing increased materials limit allowances.

NAME



DATE

7/7/16

SUPERVISOR

