

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

M379246345

FACILITY: NORTHERN MICHIGAN UNIVERSITY		SRN / ID: M3792
LOCATION: RIPLEY HEATING PLANT, MARQUETTE		DISTRICT: Upper Peninsula
CITY: MARQUETTE		COUNTY: MARQUETTE
CONTACT: GISELE DUEHRING , ASSOCIATE DIRECTOR		ACTIVITY DATE: 08/22/2018
STAFF: Joe Scanlan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced inspection to determine compliance with PTI# 196-16A and any additional applicable Michigan Air Pollution Control Rules		
RESOLVED COMPLAINTS:		

On 8/22/2018 I conducted a scheduled inspection of the NMU Ripley Heating Plant. My contact was Gisele Duehring.

NMU's Ripley Heating Plant is a combined heat and power facility supplying steam and electricity to the university and consists of four natural gas-fired boilers. PTI# 196-16A contains facility-wide limits for NOx and SO2 and is classified as a synthetic minor opt-out. Additionally, Ripley is considered a minor area source of HAPs and is not subject to PSD regulations.

FGFACILITY

FGFACILITY contains opt-out limits of 99.9 TPY for NOx and SO2 and restricts biomass (42,000 TPY) and fuel oil usage (212,800 gal/yr) as well as steam production (443,000,000 lbs/yr) to maintain synthetic minor status. There was no biomass and fuel oil usage from 8/01/2017 through 7/31/2018. Steam production for the same time period was 283,998,000 lbs.

FGPOWERHOUSE

FGPOWERHOUSE consists of EUOLDBOILER, EUBOILER4, EUBOILER5, and EURGSBBOILER.

EUOLDBOILER, EUBOILER4, and EUBOILER5 have a heat input of 84 MMBtu/hr each when firing natural gas and a maximum steam production of 70,000 lb/hr each. During natural gas curtailment events, these boilers can also operate on No. 2 fuel oil with a heat input of 80 MMBtu/hr. When operating on fuel oil VE limits are 20% opacity per 6-minute average; 27% during startup/shutdown.

Emission Unit	Description	Installation/Mod Date
EUOLDBOILER (Unit 2)	NG/Fuel Oil-fired boiler	1965
EUBOILER4 (facility still refers to this as Unit 3 because it is situated next to Unit 2 in the boiler house, however the original Unit 3 was decommissioned to make room for EUBOILER4)	NG/Fuel Oil-fired boiler	2006
EUBOILER 5 (in line with the above statement, the facility refers to this as Unit 4)	NG/Fuel Oil-fired boiler	2006
EURGSBBOILER (the facility refers to this as Unit 5)	Biomass/NG-fired boiler	2012/2018

EURGSBBOILER

EURGSBBOILER was installed in 2012 under PTI#29-11 (void) originally as reciprocating grate stoker-fired biomass boiler and provided 59.59 MMBtu/hr with a maximum steam production of 42,000 lb/hr. This boiler now operates on only natural gas (see below). When burning biomass, the boiler is controlled with a multiclone dust collector and a dry electrostatic precipitator. Both of these control devices have been taken out of operation when it was converted to burn natural gas, however should the boiler be converted back to biomass-fueled they are capable of being functional with minor modifications. Flyash from the multicyclone set was originally re-injected back to the boiler for waste reduction. However to alleviate potential maintenance problems and reduce PM emissions the multicyclone ash was diverted directly to the ash receiving bin. The flyash handling system has been dismantled while the boiler is operating on natural gas.

40 CFR Part 60, Subpart Dc

EURGSBBOILER is subject to NSPS 40 CFR Part 60, Subpart Dc. When combusting biomass the boiler is subject to opacity and PM standards as specified in 40 CFR 60.43c(c) and 60.43(e)(1). When operating on biomass VE limits are 10% opacity per 6-minute average; 20% for startup/shutdown. COMS are installed however the facility is only required to operate this when burning biomass.

40 CFR Part 63, Subpart JJJJJ

Operating as a biomass boiler, EURGSBBOILER is also subject to the Industrial, Commercial, and Institutional Boiler Area Source NESHAP 40 CFR Part 63, Subpart JJJJJ, otherwise known as the Area Source Boiler MACT; and is a minor area source of HAPs.

Due to improved economics and new natural gas infrastructure the facility requested a permit modification on 8/25/2017 to convert EURGSBBOILER to burn natural gas by installing a natural gas-fired burner inside the existing boiler. PTI# 196-16A was issued on 11/27/2017. While operating on natural gas, the boiler produces 55 MMBtu/hr of heat input. The facility maintains operational flexibility to burn biomass or natural gas in EURGSBBOILER.

Subpart JJJJJ is not applicable when the boiler is operating on natural gas. Pursuant to 40 CFR 63.11225(g), the facility provided notice of a fuel switch on 7/24/2018 that changes the applicable boiler subcategory under 40 CFR Part 63 Subpart JJJJJ and is only operating on natural gas and will continue to do so for the foreseeable future.

If the facility burns biomass in EURGSBBOILER at any time in the future and 3 years have passed since the last compliance demonstration, the facility will be required to complete a compliance demonstration on biomass within 180 days after firing as specified by 40 CFR 63.11220(e).

Rule 224--TBACT

TBACT is not required for any emission unit for which standards have been promulgated under Section 112(d) of the Clean Air Act. Since the EURGSBBOILER is subject to 40 CFR Part 60, Subpart JJJJJ, which has been promulgated under Section 112(d) of the Act, the boiler is not subject to Rule 224.

Rule 225--Screening Levels for TACs

An analysis for TACs was performed during review of PTI# 196-16A and the emissions of TACs were found to be in compliance with all applicable screening levels.

Rule 702--Sources of VOCs

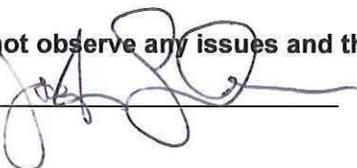
PTI# 196-16A contains a VOC limit of .039 lb/MMBtu. The gas burner installed in EURGSBBOILER will not exceed the maximum allowable limit contained in the permit. All requirements of Rule 702 are met.

INSPECTION

At the time of my inspection, steam production rate on EURGSBBOILER (aka Unit 5) was in the range of 40,000 to 42,000 pounds per hour. This is their typical maximum operating rate. Total campus steam demand during the winter is 60,000 to 70,000 pounds per hour. This is primarily delivered by EURGSBBOILER and one of the other natural gas-fired boilers, either Unit 3 or Unit 4. Unit 2 was built in 1965 and is no longer used. EUBOILER4 and EUBOILER5, aka Units 3 & 4 respectively, get used alternately in order to keep the same number of run hours on each unit.

Base load is provided by EURGSBBOILER and EUBOILER4 or EUBOILER5 are used for swing loads.

I did not observe any issues and the facility is in compliance with PTI# 196-16A.

NAME  DATE 10/25/18 SUPERVISOR 