

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

B196651247

FACILITY: WHITE PINE ELECTRIC POWER LLC		SRN / ID: B1966
LOCATION: 29639 WILLOW ROAD, WHITE PINE		DISTRICT: Upper Peninsula
CITY: WHITE PINE		COUNTY: ONTONAGON
CONTACT: JAMES R RICHARDSON , TECHNICAL MANAGER		ACTIVITY DATE: 10/21/2019
STAFF: Michael Conklin	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted inspection for FY 20.		
RESOLVED COMPLAINTS:		

Facility: White Pine Electric Power, LLC (SRN: B1966)
Location: 33707 Power Plant Road, White Pine, MI 49971
Contact(s): JR Richardson, Technical Manager, 906-885-7187
Zach Halkola, Chief Operating Officer, 906-885-7905

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

White Pine Electric Power, LLC (WPEP) is a 40 MW electrical power plant located in Carp Township, Ontonagon County, Michigan. The facility was originally constructed in the 1950s as a coal-fired power plant to provide electricity to the Copper Range Company White Pine mine. The plant has gone through a series of ownerships and is now owned by PM Power Group.

In 2014, White Pine Electric Power, LLC entered a Consent Agreement and Final Order (CAFO) with USEPA Region V (Docket No. CAA-05-2014-0044). A requirement of the CAFO required White Pine Electric to remove all coal firing capability for EU-PP05 (Riley Power Boiler #1), EU-PP06 (Riley Power Boiler #2), EU-PP07 (Kewanee Boiler), and convert the units to natural gas fired only.

Shortly after the Riley Power boilers were converted to natural gas, the Midcontinent Independent System Operator (MISO) filed with the Federal Energy Regulatory Commission (FERC) to terminate the system support resource (SSR) designation for the 20-megawatt White Pine Unit #2 electric generator. In late 2016, MISO filed with FERC to terminate the SSR designation for the 20-megawatt White Pine Unit 1 electric generator. The plant has not operated since November 2016.

The following equipment is permitted under MI-ROP-B1966-2018.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-PP03	IBW natural gas-fired boiler with a nominal heat input capacity of 40 million BTU per hour.	1982 2013	NA
EU-PP04	RILEY natural gas-fired heating boiler with a rated heat input capacity of 33 million BTU per hour.	1953 1994 2014	NA
EU-PP05	RILEY Power Boiler #1 is a natural gas-fired unit, with a rated heat input capacity of 222 million BTU per hour. This unit serves a steam turbine-electrical generator set rated at 20 megawatts.	1953 1976 2014	FG-PP05 & 06
EU-PP06	RILEY Power Boiler #2 is a natural gas-fired unit with a rated heat input capacity of 222	1953 1976	FG-PP05 & 06

	million BTU per hour. This unit serves a steam turbine-electrical generator set rated at 20 megawatts.	2014	
EU-PP07	KEWANEE natural gas-fired boiler installed in 1982. The boiler has a rated heat input of 25.1 million BTU per hour. No permit to install was issued because the boiler met the Rule 336.1201(1) exemption pursuant to R 336.1282 (b)(i).	1982	NA
EU-EMRGDGS	35 kW emergency diesel generator exempt from R 336.1201(1) pursuant to R 336.1282 (b)(ii).	10/18/2006	NA

Emissions

Pollutants emitted from the combustion of natural gas-fired boilers include nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and trace amounts of sulfur dioxide. NOx is formed and emitted primarily through one of three mechanisms: thermal, fuel, and prompt. Thermal NOx formation occurs in the high temperature zone, near the burners, by the reaction of nitrogen (N₂) and oxygen (O₂) molecules in the combustion air. Fuel NOx formation occurs through the reaction of nitrogen molecules in the fuel and the oxygen molecules in the combustion air. This form of NOx formation is low when burning natural gas since there is a low nitrogen content in the fuel. Prompt NOx is formed through the reaction of nitrogen molecules in the combustion air and hydrocarbon radicals from the natural gas. 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 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.

Emissions Reporting

WPEP is an electrical provider that is considered a major source for criteria pollutants. The source is categorized as a Category 1A facility and is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). WPEP has not operated since 2016 and is currently under due care and maintenance status. Thus, no emissions were reported for 2018.

Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in 2017 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

Regulatory Analysis

WPEP is subject to MI-ROP-B1966-2018 for a thermal power plant. The facility is considered a major source for all criteria pollutants because the potential-to-emit (PTE) for each criteria pollutant exceeds 100 tpy. The facility is considered an area source for hazardous air pollutants (HAPs) because the PTE of each HAP is less than 10 tpy and the PTE of aggregate HAP emissions is less than 25 tpy. EU-EMERDGS is subject to 40 CFR Part 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

Inspection

On October 21, 2019, I conducted an unannounced inspection on White Pine Electric Power, LLC. I arrived at the office building and met with JR Richardson and Zach Halkola. I explained to Mr. Richardson and Mr. Halkola that the purpose of the inspection was to ensure compliance with MI-ROP-B1966-2018 and all other applicable air pollution control rules and federal regulations.

During the inspection of the facility, the plant was not operating nor heated. The plant is under due care and maintenance status until it is called upon to be needed.

EU-PP03

This emission unit is an IBW natural gas-fired boiler with a maximum heat input capacity of 40 MMBtu/hr.

Mr. Richardson stated this boiler has not been operated since 2010 and is in the process of being decommissioned and removed. The purpose of this boiler was to provide steam/heat to the facility.

EU-PP04

This emission unit is a Riley Stoker natural gas-fired boiler with a maximum heat input capacity of 33 MMBtu/hr. The purpose of this boiler is to provide steam/heat to the facility. During the inspection, the coal feeders were observed on the side of the boiler, but Mr. Richardson provided information, in a follow-up email, showing that the unit is natural gas-fired only now. This boiler was last fired in 2014.

EU-PP07

This emission unit is a Kewanee natural gas-fired boiler with a maximum rated heat input of 25.1 MMBtu/hr. The primary purpose for this unit is to provide steam/heat to the facility. This unit was last fired in 2017 and burned 5.6 MMcf of natural gas (SC VI.1).

EU-EMRGDGS

This emission unit is a 35 KW emergency diesel generator that is exempt from the requirements to obtain a Permit-To-Install. Mr. Richardson stated that the engine has not been operated in the past five years and is in the process of being moved off the property.

EU-PP05 and EU-PP06

These emission units are the Riley Power Boilers #1 and #2. Each unit is natural gas-fired with a maximum rated heat input capacity of 222 MMBtu/hr. These units are field erected, water tube boilers that are wall-fired with four natural gas burners on a single wall. Each boiler is cross connected to each of the three turbines. The turbines are each rated at 20MW, providing up to 60 MW combined. However, the combined boiler steam output capacity is enough to only provide 40 MW of power.

The boilers were previously coal-fired but were turned to natural gas in 2014 following the Consent Agreement and Final Order between White Pine Electric LLC and the USEPA Region 5 in Docket No. CAA-05-2014-0044. Conditions of the consent agreement required that each power boiler be stack tested for NOx, SO2, and PM to show compliance with the emission limits outlined in CAFO No. CAA-05-2014-0044. EU-PPEU-06 was tested in March 2015, and EU-PPEU-05 was tested in September 2015. Both boilers passed all three emission limits. Following the initial stack test for all three pollutants, each boiler is to be tested for compliance with the NOx emission limit every 365 days of operation. EU-PPEU-05 last operated in 2016 and burned 58 MMcf of natural gas. This unit has operated a total of 36 days since the September 2015 test. EU-PP06 last operated in 2015 and burned 34.8 MMcf of natural gas. This unit operated for 34 hours in April 2015 following the March stack test to properly prepare the boiler for long term due care and maintenance.

SC VI. 1 requires monitoring and recording of the combined mega-watt hours produced from the operation of the boilers on a daily basis. A ratio (capacity factor) of the actual output to the theoretical output over a 12-month rolling period is to be calculated to determine if FG-PP05 & 06 collectively exceeds 33 percent. If the capacity factor exceeds 33 percent, then a CEMs for NOx is to be installed and operating within 6 months of the capacity factor exceedance (SC IV.1). In a follow up email, Mr. Richardson provided the 12-month rolling capacity factors for the periods of July 2015 through December 2016. The consent agreement required White Pine Electric to begin monitoring and recording this data after June 30, 2015. From the data provided, the highest capacity factor for a given 12-month period was 6.88 percent, which was from November 2016 through December 2017.

Currently, White Pine Power does not have any plans of making changes to the facility.

Compliance

Based on this inspection, White Pine Electric, LLC is in compliance with MI-ROP-B1966-2018 and all other applicable air pollution control rules and federal regulations.

NAME Michael Moran DATE 11/6/2019 SUPERVISOR EdH

