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

N739661542

FACILITY: WHITE PINE COPPER REFINERY INC		**SRN / ID:** N7396
LOCATION: 29784 WILLOW ROAD, WHITE PINE		**DISTRICT:** Marquette
CITY: WHITE PINE		**COUNTY:** ONTONAGON
CONTACT: JAMES R RICHARDSON , ENVIRONMENTAL MANAGER		**ACTIVITY DATE:** 12/01/2021
STAFF: Joe Scanlan	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Announced inspection to determine status of facility and compliance with MI-ROP-N7396-2017		
RESOLVED COMPLAINTS:		

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 Copper Refinery (WPCR) is located in Carp Township in Ontonagon County, in the community of White Pine. WPCR was originally associated with the underground White Pine Mine, which opened in 1955 and ceased operations in 1995. WPCR was constructed in 1982 as an electrolytic copper refinery, utilizing copper bearing materials that were refined to produce copper cathode sheets.

The facility has six emission units, however only EURF02R1 (EMEW) is in operation.

PROCESS DESCRIPTION

EURF02R1

EURF02R1 is an Electrometals Electrowinning System (EMEW) and is the heart of the electrolytic copper refinery. It is currently the only permitted equipment operating at the facility. Equipment was originally permitted under PTI# 321-07. EMEW was completed in February 2008, however operations ceased in 2010 and restarted at reduced production in 2016. The process involves the electrolytic recovery of copper from an aqueous solution of sulfuric acid. Using titanium anodes with an iridium coating, the system makes copper cathodes ranging from 20-45 pounds and can produce up to 25,000 pounds of copper cathodes annually. The current EMEW is intended to be a pilot project for a much larger system which hypothetically would produce approximately 75,000 long tons of copper cathodes annually.

The current EMEW is comprised of 8 modules consisting of 90 cells each, for a total of 720 cells, and four sulfuric acid storage tanks. The system is operating daily, however at a very reduced rate of only 30 active cells. Emissions are controlled with an exhaust ventilation system, scrubber, and demister. Emissions control is monitored via a flow indicator and is equipped with a differential pressure gauge. Operating range is 2-8 psi. If pressure goes outside of the determined range the system is wired to automatically shut down. EURF02R1 has no emission limits because its potential to emit is very low.

EUSF02

EUSF02 includes a vertical shaft furnace fired with natural gas, an electric induction holding furnace, and copper casting equipment. Equipment was originally permitted under PTI# 56-81. EUSF02 once produced emissions that qualified the facility as a major source of emissions and is the reason the facility has a Renewable Operating Permit (ROP). The shaft furnace can melt approximately 22 tons per hour of electrolytically refined copper cathodes. It remains on standby and the company wishes to keep the equipment permitted. The mill still has hopes of restarting the furnace to melt processed anodes. The furnace last ran in the mid 1980's. In order to restart it, a significant investment would be required to meet emission limits for CO, NOx, and PM. The company wishes to maintain its major source status with an ROP even though this emission unit is not operating.

EURA02

This is the Nickel Sulfate Recovery System which includes an Electric Evaporator with ventilation system for collecting and conveying emissions through a demister. This emission unit has not operated since 1996.

EURF04

This is the Anode Scrape and Cathode Washing machines which have an exhaust system controlling emissions with a mist eliminator. This emission unit has not operated since 1996.

EURF06

This is for electrolytic copper refining operations in a tankhouse. Tankhouse ventilation is accomplished using air handlers to exhaust tankhouse air. This emission unit has not operated since 1996.

EURA01

This is the Slimes Treatment System containing a Wet Side using leaching towers exhausted to atmosphere through a filter pad demister, and a Dry Side containing a filter press followed by a steam heated dryer and solids handling and drumming operations controlled with a cartridge filter exhausted to atmosphere. The facility has not accumulated enough solid byproduct to operate the filter press since 2012. The facility continues to conduct Preventive Maintenance on all equipment associated with the slimes treatment system.

EMISSIONS REPORTING

The facility is required to report annual emissions to Michigan Air Emissions Reporting System (MAERS). Only the EURFO2R1 (EMEW) system is currently being operated therefore this the only emission unit reporting. The following table lists the source total emissions for the reporting year 2021:

MAERS 2021

Emission Unit	Throughput	PM10
EURF021	11.28 ton	6.16lb

SUMMARY

The facility has an acceptable electronic maintenance system. Maintenance on demisters and filters are automatically assigned and are checked off after a hard copy documentation once tasks have been completed. The facility has an acceptable Malfunction Abatement Plan for the EMEW (EURF02R1).

The facility is in compliance with MI-ROP-N7396-2017 and applicable Michigan Air Pollution Control Rules. The ROP is currently in-house for renewal and is expected to be issued in the second quarter of 2022.

NAME _____ DATE 3/24/22 SUPERVISOR _____