

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

B284024089

FACILITY: Consumers Energy Karn-Weadock Facility		SRN / ID: B2840
LOCATION: 2742 N. Weadock Hwy., ESSEXVILLE		DISTRICT: Saginaw Bay
CITY: ESSEXVILLE		COUNTY: BAY
CONTACT: George Eurich , Environmental Lead -Air		ACTIVITY DATE: 01/15/2014
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Compliance determination for parts cleaners, paint room, fuel storage tanks, emergency generators, turbine and coal handling system.sgl		
RESOLVED COMPLAINTS:		

On Wednesday, January 15, 2014, a targeted site inspection was conducted at the Consumers Energy Karn-Weadock Facility (CEKW) (SRN B2840) located at 2742 N. Weadock Hwy, Essexville, Bay County, Michigan.

One Renewable Operating Permit (ROP) MI-ROP-B2840-2009a is associated with the facility; the referenced permit was issued on August 18, 2009. Applications for administrative amendment and minor modifications to the referenced document were submitted to the MDEQ AQD on December 29, 2011 and March 23, 2010, respectively. The modified documents were submitted to EPA for 45-day review on November 28, 2012. No pertinent comments were received. The referenced permit is for an electric generating and transmission complex and consists of five (5) sections. The facility is a major source of NOx, SO2, PM and a major source of HAPs.

Site inspection activities were conducted with the intent of confirming the operational status and compliance under the referenced permit. George Eurich, Environmental Lead - Air Quality for the complex provided a tour of the facility.

#### FACILITY DESCRIPTION

The subject site is located on approximately 2400 acres at the mouth of the Saginaw River, Hampton Township, Essexville, Michigan. The facility was reported to begin construction of Weadock Boiler #1 in 1937, and began operation in 1940. Since that time the facility has expanded and presently the facility consists of the following plants, support operations and ancillary equipment:

- Karn Boilers # 1&2 – Approximately 2500 mmbtu per hour (mmbtu/hr) dry bottom tangential coal fired boilers with fuel oil startup capabilities and supplemental co-firing for flame stabilization and mill outages. These two units are referenced in the ROP as EUKARN1-S1, EUKARN2-S1 and flexible group FGKARN12-S.

The two referenced boilers exhaust through independent stacks, and currently employ pulse jet fabric filters to replace the previous electrostatic precipitator (ESP) for particulate control. Each baghouse has approximately 10,000 bags with 320,000 sq. ft of cloth area. Selective Catalytic Reduction (SCR) was installed on Karn #1 and Karn #2 in 2004 and 2003, respectively. Low NOx burners were installed in Karn #2 in 1998. Compliance requirements for these units may be found in Section 1 of the ROP.

- Karn Boilers # 3&4 – Are natural gas and fuel oil (dual fuel) fired boilers which began operation in 1975 and 1977 and are rated at 7290 mmbtu/hr and 8030 mmbtu/hr, respectively. These units are referenced in the ROP as EUKARN3-S2, EUKARN4-S2 and FGKARN34-S2.

The referenced boilers are supplied fuel oil by four fuel oil storage tanks with internal floating roofs and polyurethane vapor seals. SO2 from the boilers is controlled by fuel blending, and NOx is controlled by the use of Low-NOx burner technology. Karn boilers # 3&4 exhaust through a common stack, and are primarily operated as peaking units. The Karn #3&4 boilers are backed up by an emergency diesel generator (EUKARN34GEN-S2). Compliance requirements for these units may be found in Section 2 of the ROP.

- Auxiliary Boilers A&B – Aux boilers A and B (EUAUXBLRA-S2 and EUAUXBLRB-S2) are twin 300 mmbtu natural gas fired boilers that are basically used as pre-heaters to warm up the dual-fuel

Karn boilers # 3&4. NOx emissions are controlled by low NOx burner technology. Compliance requirements for these units may be found under Section 2 of the ROP.

- Weadock Boilers 7&8 – each of the referenced boilers is a dry bottom tangential coal fired boiler with fuel oil startup capabilities and supplemental co-firing for flame stabilization and mill outages. Each boiler is rated at 1610 mmbtu/hr. These two units are referenced in the ROP as EUWEADOCK7-S3, EUWEADOCK8-S3 and flexible group FGWEADOCK78-S3.

The boilers currently employ ESPs for particulate control. Sulfur trioxide can be used to increase the efficiency of the boilers. Compliance requirements for these units may be found in Section 3 of the ROP.

- Coal Handling Operations – coal is delivered to the site via rail and ship. Coal ships dump directly to a well groomed coal pile at the north end of the site along the Saginaw River. Rail cars are unloaded in a rotary-car handling station with coal being transferred to the storage piles via radial stacker.

Karn Weadock burns predominantly western coal over a smaller amount eastern coal. Eastern coal has higher btus but western coal has a lower sulfur content. Coal is blended prior to being sent via conveyor system to the boilers. Permit requirements for these units may be found in Section 4 of the ROP. The system is subject to Compliance Assurance Monitoring (CAM).

- Ash Handling – Karn Boilers 1&2 and Weadock Boilers 7&8 share an ash handling system in which ash from the baghouses and economizer hoppers associated with the referenced boilers (EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3) is pneumatically transferred across the site to a common storage silo(s). From the silos as is either sold to outside sources, or is wetted and sent to the onsite ash disposal facility.

The ash handling system also includes:

- a common ash silo with dry and wet unloading capabilities (EUASHSILO-S1 and EUASHSILO-S3);
- equipment associated with the new Dry Fly Ash Handling system which is subject to an approvable written Maintenance Malfunction Abatement Plan (MMAP) (FG-ASHMAP-S1 and FG-ASHMAP-S3);

Pollution control equipment includes two bag filter/separators on two vacuum producers and one bin vent filter on the transfer tank. refers to. Permit requirements for these units may be found in Sections 1 and 3 of the ROP.

- Emergency Generators – The facility has installed a number of emergency generators to support various activities onsite. Karn Boilers 1&2 and Weadock Boilers 7&8 both have one AC and one DC generator of less than 500 horsepower associated with them. One additional emergency generator is associated with the guard shack, the electric fish fence and Karn Boilers 3&4.

The units are Reciprocating Internal Combustion Engines (RICE), and meet the definition of an emergency unit. The facility has determined that they are subject to 40 CFR63, Subparts A and ZZZZ. A copy of their applicability determination is maintained by the facility electronically. Permit conditions for the EUs are contained in ROP sections 1 and 3.

- Fuel Oil Storage Tanks – The ROP for the facility includes four (4) fuel storage tanks (Tanks A, B, E and F) with capacities of less than 225,000 gallons of oil and are equipped with internal floating roof and polyurethane vapor seal. The fuel oil is stored at ambient temperatures and is reported to have a vapor pressure of less than 1.5 psi. Tanks E and F (FGSUBTANKS-S2) are subject to 40 CFR 60, Subpart K.

## COMPLIANCE HISTORY

A review of AQD District records since the last targeted site inspection on August 15, 2012, indicated that no complaints or Notices of Violation were of record for the referenced facility. A review appears to indicate that the reporting has been conducted in a timely manner.

## COMPLIANCE EVALUATION

Due to the size of the complex and it's associated permit, site inspection activities will be conducted over the course of multiple site visits to better allow District Staff to evaluate compliance activities and status for the facility. During the November 6, 2013, site inspection, AQD District staff made an introductory tour of the facility and evaluated the following units: EUASHSILO-S1, EUASHSILO-S3, EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3, FGASHMAP-S1 and FGASHMAP-S3.

As part of this more recent visit AQD District Staff evaluated EUCOALHAND-S4, FGFOTANKS-S2, FGSUBTANKS-S2, FGPAINROOM34-S2, FGPARTSCLEANERS12-S-1, FGPARTSCLEANERS34-S2, FGPARTSCLEANERS78-S3, FGPARTSCLEANERSCH-S4, FGEMERGENCYDG-S1, FGEMERGENCYDG-S3 and EUCOMBTURB-S5.

Operational Status/Restrictions –The facility was in operation at the time of the inspection. Operational restrictions are outlined in MI-ROP-B2840-2009a for the following emission units/flexible groups:

- FGPARTSCLEANERS12-S1, FGPARTSCLEANERS34-S2, FGPARTSCLEANERS78-S3 and FGPARTSCLEANERCH-S4

The facility has developed written operational practices for parts cleaning stations and other EUs/FGs onsite. Written operating procedures for each cold cleaner are posted and outline the appropriate operation practices as required in the referenced ROP for the units. Cold cleaners on site were found to be in compliance with appropriate design/equipment parameters, and are reported to be unheated. Waste solvents are reported to be stored in enclosed storage containers prior to disposal.

- FGEMERGENCYDG-S1, FGEMERGENCYDG-S3

The referenced EUs/FGs are restricted to liquid fuels with sulfur contents of less than 1.0 percent by weight based on 18,000 BTU/lb. Facility staff reports that the generators are fed from the plant tank farm, and that the fuels purchased by the facility meet the sulfur restriction. The facility requires a copy of the vendor analysis and conducts verification activities and maintains records to show compliance.

Operations for the referenced EUs/FGs are limited to unit testing and readiness activities. The units have not been required to operate for emergency purposes for a number of years, and the annual operation numbers reviewed confirm that the units have not been operated other than for the maintenance/readiness testing.

Subpart ZZZZ requires a minimum of an annual inspection for emergency unit(s). The facility reports that equipment onsite are kept on a maintenance schedule that a minimum meets the Subpart requirements. Records available confirm that the EUs/FGs are being operated in compliance with the ROP requirements.

- FGPAINROOM34-S2

The referenced EU/FG consists of a paint room associated with Karn Boilers 3&4. The unit is reported to not have operated since before 2013, with any painting being completed either by brush/roller or aerosol can.

- FGFOTANKS-S2 and FGSUBKTANKS-S2

The referenced EUs/FGs have a vapor pressure of less than 1.5 psi, so equipment parameters outlined in the ROP are not applicable.

- EUCOMBTURB-S5

The referenced natural gas fired combustion turbine is reported to not have been operated since before

the last full compliance evaluation in 2011. Natural gas usage records are maintained and reflect quantities that would be consistent with only short term operations used for maintenance activities associated with the unit.

- EUCOALHAND-S4

The referenced EU/FG shall use visible emissions as the primary indicator of a properly functioning fabric filter bag house. Should visible emissions be noted, the EU, control device and associated pollutant capture system equipment shall be repaired/addressed for proper operation as quickly as possible. Per facility staff, the EU has been maintained and no failures of the system are of record.

The permittee shall also operate the coal handling system according to the most current version of the Fugitive Dust Control Plan.

Material Usage Rates – Material limits outlined in MI-ROP-B2840-2009a are limited to the following emission units:

- FGPARTSCLEANERS12-S1, FGPARTSCLEANERS34-S2, FGPARTSCLEANERS78-S3 and FGPARTSCLEANERCH-S4

The cold cleaners listed above are limited to cleaning solvents containing no more than five (5) percent of any one or combination of six specified halogenated compounds. A review of facility records confirmed that the cold cleaners presently in use meet the material use requirements for those emission units.

- FGPAINTROOM34-S2

Associated with the Karn Boilers 3&4, the ROP limits paint use associated with the emission unit to 200 gallons per month as applied minus water, per emission unit. As previously reported, the paint room with it's associated filters and sprayers have not been used for the past year. Any painting being done on site at present is believed to be done by hand (brush or roller) or using aerosol spray cans. Appropriate records were available for review, and confirmed compliance with the material limit.

Testing/ Sampling – Under the ROP no testing or sampling requirements are outlined for the EUs/FGs evaluated as part of the January 15, 2014 site inspection.

Monitoring/Recordkeeping – Under the ROP monitoring and recordkeeping requirements exist for the following EUs/FGs:

- FGEMERGENCYDG-S1, FGEMERGENCYDG-S3

The referenced emergency diesel generators are required to maintain a complete record of fuel oil specifications and/or fuel analysis for each delivery or storage tank. The required records are maintained on site as are analyticals for verification samples collected by the facility in compliance with the ROP conditions.

- FGPAINTROOM34-S2

Monitoring and recordkeeping requirements associated with the referenced EU/FG include maintaining monthly total use records in gallons/month of coating used, as applied minus water. As previously indicated the EU/FG had not been used over the past year, and available records confirm that no coatings have been used in the paint room.

- FGFOTANKS-S2 and FGSUBKTANKS-S2

Monitoring and recordkeeping requirements associated with the fuel oil tanks includes maintenance of

records of the true vapor pressure of the stored petroleum liquid for each tank. Facility representatives provided documentation if the temperature of the fuel oil was below 140 degrees Fahrenheit it has a vapor pressure of less than 1.5 psi. The facility reports maintaining temperature records to confirm the true vapor pressure. In addition, the facility maintains records of the volume of liquid stored in compliance with the ROP.

- EUCOALHAND-S4

Monitoring and recordkeeping requirements associated with the coal handling system include monitoring of opacity emissions from the coal handling system dust collectors (10 in total) and the broken bag detection system alarms during periods of equipment operation. A review of records confirms that the monitoring and recordkeeping has been conducted in compliance with the ROP.

Reporting – Reporting requirements for all emission units and flexible groups evaluated during the site inspection includes prompt reporting of deviations as well as the semiannual and annual reporting pursuant to General Conditions 19 through 22 and 23 of Part A of the ROP.

- EUCOALHAND-S4

The coal handling system is subject to the reporting requirements outlined in the general conditions referenced above. The EU is also subject to CAM and is required to report monitoring deviations in semi-annual reports and include a summary of information on CAM monitor downtime and actions taken to implement a Quality Improvement Plan (QIP) during the reporting period and whether a QIP has been completed and implemented. A review of District files indicated that the Facility has submitted complete and timely reports.

SUMMARY - On Wednesday, January 15, 2014, a targeted site inspection was conducted at the Consumers Energy Karn-Weadock Facility (CEKW) (SRN B2840) located at 2742 N. Weadock Hwy, Essexville, Bay County, Michigan. As part of this recent visit AQD District Staff evaluated EUCOALHAND-S4, FGFOTANKS-S2, FGSUBTANKS-S2, FGPAINTROOM34-S2, FGPARTSCLEANERS12-S-1, FGPARTSCLEANERS34-S2, FGPARTSCLEANERS78-S3, FGPARTSCLEANERSCH-S4, FGEMERGENCYDG-S1, FGEMERGENCYDG-S3 and EUCOMBTURB-S5. As a result of the compliance investigation the facility was to be operating the referenced EUs/FGs in general compliance with their ROP.

NAME Sharon L Lubber

DATE 1/27/2014

SUPERVISOR C. Rowe