

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

B284024071

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: 11/06/2013
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Initial facility tour, and inspection of facility ash handling system.sgl		
RESOLVED COMPLAINTS:		

On Wednesday, November 6, 2013, 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 FGWEADOCK7-8-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.

- 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.

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.

Operational Status/Restrictions –The facility was in operation at the time of the inspection. Operational restrictions include installation, maintenance and proper operation of a bin vent filter for EUASHSILO-S1, EUASHSILO-3, EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3 in accordance with the MMAP and below Visible Emission (VE) restrictions. In addition, EUASHSILO-S1, EUASHSILO-S3, EUASHWEADOCK7&8-S3 and EUASHKARN1&2-S1 in compliance with the ROP was equipped with a properly maintained broken bag leak/dust detector.

The Ash handling system includes dry ash unloading from EUASHSILO-S1 and EUASHSILO-S3. The referenced emission unit requires the installation and maintenance of a properly operating telescopic chute(s) with shroud and a vent system back to the ash silo. In compliance with the ROP, unloading is reported to be into enclosed haul truck inside the two-sided structure.

Material Usage Rates – Material Limits for EUASHSILO-S1 and EUASHSILO-S3 included 350,400 tons on a 12-month rolling average, determined at the end of each month. 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 EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3, EUASHSILO-S1, EUASHSILO-S3, FGASHMAP-S1 and FGASHMAP-S3.

Monitoring/Recordkeeping – Monitoring and recordkeeping requirements for EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3 include the system parameters in accordance with the MMAP, the broken bag leak/dust detectors and recording of VEs during routine operating conditions. Compliance with regards to the referenced requirements was determined through record reviews.

The Facility in accordance with the monitoring and recordkeeping requirements for EUASHSILO-S1 and EUASHSILO-S3 document VEs a minimum of once per calendar day (when operating) for the ash silo bin vent filter emissions. The Facility in compliance with the ROP maintains written documentation of the material processed in the ash silo in tons per month, and calculates the 12-month rolling total. Appropriate records were readily available for review to AQD District Staff for review in compliance with permit requirements.

In compliance with the ROP, the Facility monitors VEs and the broken bag/dust collector per the Compliance Assurance Monitoring (CAM) plan for FGASHMAP-S1 and FGASHMAP-S3. As previously indicated VEs are documented at least once per day of operation. The bag leak/dust detector(s) alarms are remotely monitored on a continuous basis.

Reporting – Reporting requirements for Section 1 emission units and flexible groups includes prompt reporting of deviations as well as the semiannual and annual reporting pursuant to General Conditions 21, 22 and 23 of Part A of the ROP.

In addition, FGASHMAP-S1 and FGASHMAP-S3 also requires each semi-annual report of monitoring deviations include where appropriate a summary of information on CAM monitor downtime in the reporting period, as well as any 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 submits the required reporting in a timely basis.

SUMMARY - . On 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. No compliance issues were noted for the referenced units. sgl

NAME

Sharon L. LeBlanc

DATE

1/14/2014

SUPERVISOR

C. Stone