

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

B284033294

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: 01/12/2016
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FCE Evaluation as a result of site inspection activities conducted on 1/12/2016 and 2/4/2016. sgl		
RESOLVED COMPLAINTS:		

On Tuesday, January 12<sup>th</sup> and Thursday, February 4<sup>th</sup>, 2016, targeted site inspections were 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-B2840-2014 is associated with the facility; the referenced permit was issued on November 14, 2014. 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, SO<sub>2</sub>, PM and a major source of HAPs.

An application for minor modification of MI-ROP-B2840-2014 was submitted to the MDEQ AQD on May 1, 2015. The referenced minor modification was to incorporate Permit to Install (PTI) 40-15 (approved and effective April 30, 2015). PTI 40-15 was proposed by the company to meet Federal Consent Decree (U.S. V Consumers Energy Company Civil Action 14-13580, E.D. Mich., 2014) requirements, and consisted of terms of the consent order required to be incorporated into the Title V permit. The minor modification application was required to be submitted by May 3, 2015. On May 6, 2015, EPA requested a hold on the Minor Modification. At the time of the preparation of this report the referenced modification has not changed status. Conditions under PTI 40-15 will be identified as such in this report.

On November 20, 2015, the ROP was re-opened to incorporate applicable requirements associated with the Transport Rule (AKA Cross State Air Pollution Rule (CSAPR)) and removal of the Clean Air Interstate Requirements (CAIR). The company provided comments on or before the December 14, 2015, due date.

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, EUKARN2 and flexible group FGKARN12.

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. Low NOx burners were installed in Karn #2 in 1998.

Selective Catalytic Reduction (SCR) was installed on Karn #1 and Karn #2 in 2004 and 2003, respectively. This pollution control device was installed to control NOx emissions for the referenced units.

Spray Dry Adsorbers (SDAs) were installed on Karn #1 and Karn #2 and put into operation in October 2014 and May 2015, respectively. The units were added to reduce emissions of sulfur dioxide as well as mercury and acid gases and are part of the company's overall strategy to comply with the requirements of 40 CFR Part 63, Subpart UUUUU and the CSAPR. The control device makes use of coal ash collected in the PJFF, which results in ash generated by the EUs no longer going to the Dry Ash Handling system (EUASHKARN1&2). The ash consumed via the SDA is addressed under EUSORBENT, EUBPRECYCLE and EUBDISPOSAL.

Compliance requirements for the referenced boilers and associated control devices 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, EUKARN4 and FGKARN34.

Note that the company has indicated that the units are tentatively categorized in the limited use liquid oil fired subcategory (40 CFR Part 63, subpart UUUUU). The units had during the previous compliance inspection been in a mothballed status. During this inspection the units, with the exception of Karn#4 which was in outage were reported to be available for operation. During 2015, the two units were only operated for required RATA testing.

The referenced boilers are supplied fuel oil by four fuel oil storage tanks with internal floating roofs and polyurethane vapor seals. SO<sub>2</sub> from the boilers is controlled by fuel blending, and NO<sub>x</sub> is controlled by the use of Low-NO<sub>x</sub> 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 and EUAUXBLRB) 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. They may also be used to provide supplemental steam to augment Karn boilers 12 if one of the two are down or in outage. NO<sub>x</sub> emissions are controlled by low NO<sub>x</sub> burner technology. Emissions vent to the stack shared by Karn boilers # 3&4. 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, EUWEADOCK8 and flexible group FGWEADOCK78.

The boilers currently employ ESPs for particulate control. Sulfur trioxide can be used to increase the efficiency of the ESPs. The boilers are scheduled for decommissioning on or before April 15, 2016. 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 have historically shared an ash handling system in which ash from the baghouses and economizer hoppers associated with the referenced boilers (EUASHKARN1&2, EUASHWEADOCK7&8) 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. As previously indicated ash generated in the operation of Karn Boilers 1&2 are presently being consumed by the SDA system, and no longer is going to/through the ash handling system. The system is only being utilized by

Weadock Boilers 7&8, and will be out of use with the decommissioning of those boilers by the facility on or before April 15, 2016.

The ash handling system also includes:

- o a common ash silo with dry and wet unloading capabilities (EUASHSILO, in both Sections 1 and 3 of the ROP);
- o equipment associated with the new Dry Fly Ash Handling system which is subject to an approvable written Maintenance Malfunction Abatement Plan (MMAP) (FG-ASHMAP, in both Sections 1 and 3 of the ROP);

Pollution control equipment includes two bag filter/separators on two vacuum producers and one bin vent filter on the transfer tank. 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. Karn Boilers 3&4 have an existing emergency, stationary RICE with a site rating of more than 500 Brake HP (EU-KARN34GEN). Additional emergency generators are also associated with the guard shack (EU-GUARDHSEGEN1-1 and EU-GUARDHSGEN2-1), the electric fish fence (EU-FISHBARGEN-1).

The units are Reciprocating Internal Combustion Engines (RICE), and meet the definition of an emergency unit. The facility has determined that with the exception of EU-KARN34GEN, the RICE units 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.

With the exception of EU-GUARDHSGEN2-1) which was installed in 2013, the referenced emergency generators are exempt from 40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition RICE (EU-KARN12DCGEN-1 and EU-KARN12ACGEN-1) and 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition RICE (EU-GUARDHSGEN1-1 and EUFISHBARGEN-1) due to their dates of installation.

- 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.
- Combustion Turbine- The ROP includes one (1) NG fired Combustion Turbine (EUCOMBTURB). However, the unit has not been operated since before 2011.

The unit is associated with the Weadock portion of the facility, and the EU is anticipated at this time to be removed after the Weadock boilers are decommissioned. Conditions associated with this EU may be found in section 5 of the ROP.

- Heater Boilers - The ROP identifies EU-WEADHTBLR (Section 3) as a natural gas fired, auxiliary heating boiler used when Weadock # 7&8 are not in use.

### COMPLIANCE HISTORY

A review of AQD District records since the last targeted site inspection was conducted on the following dates: November 6, 2013, January 15, 2014 and on March 5, 2014. A review of District records 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.

### FEDERAL STANDARDS APPLICABILITY

Notifications - The following initial notification of applicability were identified in District Files:

Notification Date	Affected Units	Federal Standard
May 21, 2013	EUTANKFARMBLR3, EUTANKFARMBLR4,EUAXBLRA, EUAXBLRB and EUWEADHTBLR	40 CFR Part 63, Subpart DDDDD
January 18, 2005	EUAXBLRA, EUAXBLRB and EUWEADHTBLR (aka EU-W78- HEATBLR)	40 CFR Part 63, Subpart DDDDD
August 13, 2012	EUKARN1, EUKARN2, EUKARN3, EUKARN4, EUWEADOCK7 and EUWEADOCK8	40 CFR Part 63, Subpart UUUUU

**Extensions** - Extension requests have been submitted by the Facility for compliance dates for the affected Emission Units under;

- The Mercury and Air Toxics Standards (MATS) for Electric Generating Units (EGU) Maximum Achievable Control Technologies) (MACT) (40 CFR Part 63, subpart UUUUU), and
- The Industrial, Commercial and Institutional Boilers and Process Heater MACT (IB MACT AKA Boiler MACT) (40 CFR Part 63, subpart DDDDD).

Supplemental information regarding the requests follows.

Date Extension Requested	Affected Units	Federal Standard	Date Approved	New Compliance Date
12/17/2014	KARN #1 & #2	Subpart UUUUU	12/19/2014	10/15/2015
3/6/2015	KARN #3 & #4	Subpart UUUUU	3/13/2015	4/15/2016
6/4/2015	WEADOCK #7 & #8	Subpart DDDDD	10/29/2015	6/31/2016
6/18/2015	KARN #1 & #2	Subpart UUUUU	6/24/2015	4/15/2016

On December 17, 2014, Consumers Energy, requested a 6-month extension (from April 15, 2015 to October 15, 2015) of all pending Mercury and Air Toxics Standards (MATS) (40 CFR Part 63, subpart UUUU) for the DE Karn Plant Units 1&2. AQD granted the extension in a letter dated December 19, 2014. A supplemental extension (allowing for extension until April 16, 2016) was requested in correspondence dated June 18, 2015. The request was approved in AQD correspondence dated June 24, 2015.

On March 6, 2015, Consumers Energy submitted an extension request for compliance with the MATS deadlines for KARN Units 3 & 4. The request of a one-year extension of compliance was requested due to the uncertainty of the EPA proposed rule modification of MATS in the February 17, 2015 edition of the federal register, which would change the mechanism used to determine if a unit meets the definition of a natural gas-fired electric utility steam generation unit. The finalization of the proposed rule would not be issued until after the April 16, 2015 compliance date. AQD approved the one year extension in correspondence dated March 13, 2015.

June 4, 2015, Consumers Energy submitted a request for a one year extension of all pending Industrial Boiler Maximum Achievable Control Technology (IB MACT) deadlines for boilers at the JC Weadock Facility in Essexville (AKA Weadock #7 & #8). The compliance deadline for the referenced units under the IB MACT was January 31, 2016. Requirements under the IB MACT for the referenced units consisted of work practice standards including boiler tune ups and energy assessments.

The company as part of the November 2014 Federal Consent Decree had agreed to retirement of the referenced boilers on or before April 16, 2016. The company indicated that retirement of emission units had in other prior cases been interpreted broadly by EPA as "installation of controls" and that as the planned decommissioning date was less than 6 months from the compliance date, that an extension of the compliance date would not result in adverse impacts to air quality and that the standard maintenance activities and good emission control practices and state boiler regulations would cover most if not all of the tune-up portion of the work practice standards. They also stated that it would not

make sense or even be feasible to contract and plan to implement any findings from a required energy assessment due to the planned shutdown of the units. On October 29, 2015, following EPA approval, AQD approved a 5 month extension to the compliance date for the Weadock Units. (June 31, 2016)

**COMPLIANCE EVALUATION**

Due to the size of the complex and it's associated permit, site inspection activities were conducted over the course of multiple site visits to better allow District Staff to evaluate compliance activities and status for the facility.

Note compliance evaluations with respect to the CSPAR Program, CAIR Nox Trading Program, CAIR NOx Ozone Trading Program, CAIR SO2 Trading Program and Phase II Acid Rain Permit were not conducted as part of the site inspection activities.

**Operational Status/Restrictions** –The facility was in operation at the time of the inspection. The ROP requires that the required emission control devices be installed, operated and maintained for operation of the permitted emission units. Per conditions in PTI 40-15, the associated control devices are operated continuously. Based on available records it appears that installed control devices are being operated properly and where applicable continuously.

Please note that multiple emission units are monitored by Continuous Opacity Monitors (COMs) or Continuous Emission Monitors (CEMs) for various parameters. The units are operated in general compliance with requirements outlined in the ROP. Other operational restrictions are outlined in MI-ROP-B2840-2014 for the following emission units/flexible groups:

- EUKARN1, EUKARN2 and FGKARN12

Based on available information, the required in-service notifications were received as required by permit for the SDA installed for EUKARN1 (October 20, 2014) and EUKARN2 (May 15, 2015). It should be noted that with initiation of trial operation of the SDA, the following emission units are in operation; EULIMEPREP, EUBPRECYCLE and EUBPDISPOSAL.

Operational guidelines for pollution control devices associated with the referenced emission units were submitted as follows;

Control Device	Start Down	Up-Shut	MAP	CAM	Fugitive Dust Plan
Pulse Jet Fabric Filter	NA		10/22/2010	NA	NA
SDA with Sorbent Injection	NA		12/4/14 revised 1/29/2015	NA	8/29/11
Selective Catalytic Reduction System	NA		12/21/15 revised	NA	NA

Based on readily available information, it appears that the units are being operated (including recordkeeping and reporting) in general compliance with the above referenced documents.

- EU-LIMEPREP, EU-BPRECYCLE, EUBPDISPOSAL and EU-SORBENT

Process and Operational restrictions includes installation, maintenance and operation of the appropriate control devices, a continuous fugitive dust control plan for all material handling operations as well as a MAP. The referenced documents were received in compliance with the permit.

- FGKARN34

Operational restrictions for the referenced emission unit(s) includes limiting use of RUO that meets

specific compositional limits as specified in Appendix 2.9 of the ROP. Available records indicated that RUO has not been used for a minimum 2 years, and that RUO specifications were in compliance with ROP limits.

- EUWEADOCK7, EUWEADOCK8

Under the existing ROP, the facility is required to implement install, calibrate and operate the low NOx burner, ESP and sulfur dioxide injection system to control emissions. In addition, the facility is required to develop and maintain a startup/shutdown and MAP program for the two referenced boilers (submitted April 30, 2010, with June 28, 2013 revisions on file). In addition, the facility was to develop and implement a CO Minimization plan for the referenced boilers, a copy of which is on file in the District Office. (note: that that a CO monitoring plan was submitted on 4/02/2010 for the referenced units) The facility per ROP conditions operates and maintains a CO CEMS. Copies of the referenced plans are on record in District files, and a request for any updated plans has been made to the facility.

- FGPARTSCLEANERS12, FGPARTSCLEANERS34, FGPARTSCLEANERS78 and FGPARTSCLEANERCH

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.

- EUASHSILO-S1, EUASHSILO-3, EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3, FGASHMAP-S1 and FGASHMAP-S3

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 were 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 an enclosed haul truck inside the two-sided structure.

It should be noted that ash generated by Karn boilers 1&2 are utilized by the SDA system and no longer are routed through the ash handling system. With Weadocks shut down no later than April 15, 2016, the ash handling system will no longer be in operation.

- FGEMERGENCYDG, FGEMERGENCYDG

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 confirm that the annual inspection have been completed by the facility for 2015.

Records available confirm that the EUs/FGs are being operated in compliance with the ROP requirements.

- **FGPAINTROOM34**

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 and FGSUBKTANKS**

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**

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.

Material Usage Rates – Material limits outlined in MI-ROP-B2840-2014 are limited to the following emission units:

- **EUKARN1, EUKARN2 and FGKARN12**

The referenced ROP for the above referenced flexible group restricts the burning of freeze conditioning, dust suppression agents, boiler cleaning solutions and/or spent solutions in the emission units unless the fabric filter baghouse is installed and operating properly. In addition, the ROP limits the burning of boiler cleaning solutions and spent cleaning solutions to 250 gallons per minute, per boiler. Sources of cleaning and spent solutions burned are limited to from any other source than the boiler itself. Solutions can only be burnt in one boiler at a time.

District Files identified notifications of boiler cleaning solution burning/thermal evaporation activities for the following dates:

Notification Date	Activity Date (on or after)	Source of Boiler Cleaning Solutions
11/10/2014	11/21/2014	EUKARN2

Evaluation of records confirmed that the above referenced activities were conducted in compliance with the ROP conditions.

- **EUKARN3, EUKARN4 and FGKARN34**

Material limits for the referenced flexible group limits the use of fully reclaimed used oil (RUO) fuels to 40 million gallons per calendar year, restricts mixing with substances other than used or fuel oils, and limits PCB content in the fuel. Available records indicate that fully reclaimed used oil has not been used as fuel for over 2 years.

- **FGWEADOCK78**

Material limits associated with the emission unit restrict burning of boiler cleaning solutions to 120 gallons per minute per boiler. Boiler cleaning solutions and spent solutions shall not be burned in more than one boiler at the same time, and shall be generated from no other source than Weadock boilers 7&8. Per staff the last time the boiler chemical cleaning was greater than 4 years ago.

- EUASHSILO-S1 and EUASHSILO-3,

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.

- EUCOMBTURB

The referenced emission unit has not been used since prior to 2011, resulting in no recent records of NG usage or deviations to be reported.

- FGPARTSCLEANERS12, FGPARTSCLEANERS34, FGPARTSCLEANERS78 and FGPARTSCLEANERCH

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

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.

Emission Limits -

- EUKARN1, EUKARN2 and FGKARN12

Emission limits for the referenced emission units include SO2 and PM, and are to be evaluated by monthly calendar average or testing, respectively. Per ROP the facility is required to conduct Stack testing every 3 years for the referenced EUs. Most recent testing was conducted as indicated in the table below. Emission levels reported were in compliance with PM permit limits). Data reviewed indicated emissions in compliance with permit limits at the time of testing.

Emission Unit	Parameter	Test Date	Permit Limit	Test Results (avg)
EUKARN1	PM	9/4/2014	0.16 lbs/1000 lbs @ 50% excess air	0.0008 lbs/1000 lbs @ 50% excess air
EUKARN2	PM	9/3/2014	0.16 lbs/1000 lbs @ 50% excess air	0.0001 lbs/1000 lbs @ 50% excess air

PTI 40-15 incorporated SO2, PM and Opacity limits as agreed to in the 2014 EPA CD. These limits reflect significant decreases in emissions, and became effective for the dates specified below.

Emission Unit	Parameter	Permit Limit	Effective Date
EU-KARN1 and EU-KARN2	PM	0.015 lbs/MMBTU heat input	December 8 <sup>th</sup> , 2014
EU-KARN1 and EU-KARN2	SO2	0.090 lbs/MMBTU heat input (30-day rolling average)	March 1, 2015
EU-KARN1 and EU-KARN2	SO2	0.075 lbs/MMBTU heat input (365 day rolling average)	December 31, 2015
EU-KARN1 and EU-	NOx	0.080 lbs/MMBTU heat	January 10, 2015



KARN2		input (30 day rolling average)	
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NOx, CO2 and SO2 emissions are determined using Continuous Emission Monitoring systems (CEMS) associated with each emission unit. More recently the facility has installed and conducted the initial required testing for Mercury and PM CEMS in compliance with permit conditions . Monthly calendar averages are based on the CEMs and operational data. 2015 emission data reviewed reported values well below ROP limits and EPA CD/PTI 40-15 limits for the appropriate referenced units as well as System-Wide Annual NOx & SO2 limits and Super-compliance allowance provisions for NOx & SOx limits.

Opacity limits associated with the referenced EUs are monitored by a Continuous Opacity Monitor (COM). Opacity data is reported as required by the ROP. Prior to the CD Opacity limits defined an excursion as any two or more consecutive, 1-hour block average opacity values greater than 20 percent. PTI 40-15 sets opacity limits at 20% per 6-minute period, except for one 6-minute period per hour of not more than 27%. Data reviewed indicated general compliance with the permit conditions.

- EUKARN3, EUKARN4 and FGKARN34

The ROP for the facility limits SO2 and NOx for the flexible group which also includes the auxillary boilers (EUAUXBLRA and EUAUXBLRB). SO2 and NOx emissions are determined using Continuous Emission Monitoring systems (CEMS) associated with each emission unit. Monthly calendar averages are based on the CEMs and operational data. Emissions data was readily available and SO2 and NOx emission data reviewed reported values well below permit limits.

FGKARN34 is required to maintain a record of fuel oils specifications including PCB analysis for each delivery or storage tank. In addition, the facility is required to document that the RUO is not mixed with any substances other than used oil and fuel oil for fuel, and the total amount of fuel oil used on a monthly and 12-month total basis. The required records are maintained onsite and confirmed compliance with the permit.

- EU-LIMEPREP, EU-BPRECYCLE, EUBPDISPOSAL and EU-SORBENT

The referenced emission units are required to conduct and record non-certified VE observations, the referenced observations are recorded electronically daily in compliance with permit conditions.

- EUWEADOCK7, EUWEADOCK8

Emission Units EUWEADOCK7 and EWEADOCK8 have PM, SO2 and CO limits per the ROP. Compliance with respect to the referenced limits is determined by stack testing (PM) and CEMS (SO2 and CO). Opacity is monitored using a COMs.

Stack Test data summarized below confirms compliance with the referenced permit limits.

Emission Unit	Parameter	Test Date	Permit Limit	Test Results (avg)
EUWEADOCK7	PM	11/3-4/2014	0.18 lbs/1000 lbs @ 50% excess air	0.035 lbs/1000 lbs @ 50% excess air
EUWEADOCK8	PM	11/3-4/2014	0.18 lbs/1000 lbs @ 50% excess air	0.030 lbs/1000 lbs @ 50% excess air

SO2 and CO limits are for monthly calendar averages, which are determined based on CEMs and EU operational data. Opacity excursions are defined as two or more consecutive hours in which the hour block average was greater than 20%. Data reviewed indicated emissions in general compliance with permit limits.

As the Weadock boilers are to be decommissioned on or before April; 15, 2016, no supplemental emission limits were part of the 2014 EPA CD (PTI 40-15).

- **EU-COALHAND**

Monitoring and recordkeeping requirements under the ROP include monitoring opacity emissions. The monitoring of broken bag detection system alarms are performed daily during periods of equipment operations. In addition non-certified VE observations are monitored daily during periods of equipment operation for the dumper building dust collector exhausts and in response to any broken bag alarms. Appropriate written records are maintained by the facility.

Testing/ Sampling –Permit conditions require submittal of test plans and test date notifications prior to stack test events. A review of files indicates that stack testing as well as COMS and CEMS testing activities have been conducted in general compliance with permit conditions.

- **EUKARN1, EUKARN2, FGKARN12, EUWEADOCK7 and EUWEADOCK8**

Testing requirements for the four referenced boilers under the ROP is limited to PM and is required once every three years. Based on discussions with Facility Staff, the condition interpretation has been for the "calendar year", which is consistent with testing and report submittal records available in District Files. Test protocols, scheduling notification and report submittals have been completed in a timely manner in general permit with permit conditions.

At the time of the last compliance evaluation, the most recent testing had been conducted in 2011. The EUs were tested again in Fall 2014. The most recent test dates are summarized below:

Emission Unit	Parameter	Test Date	Report Date
EUKARN1	PM	7/21/2011	
EUKARN1	PM	9/4/2014	10/6/2014
EUKARN2	PM	5/5/2011	
EUKARN2	PM	9/3/2014	10/6/2014
EUWEADOCK7	PM	2/7-8/2011	
EUWEADOCK7	PM	11/3-4/2014	11/25/2014
EUWEADOCK8	PM	2/9-10/2011	
EUWEADOCK8	PM	11/3-4/2014	11/25/2014

It should be noted that under the recent EPA CD (PTI 40-15) PM stack testing for Karn1&2 boilers was required to be conducted within 12 months of date of entry into the CD (November 4, 2014) and annually thereafter with some exceptions as outlined in Appendix C-1 of the CD. Testing to meet EPA CD requirements was conducted September 21-24, 2015, and the report delivered to EPA before the due date.

- **EUKARN3, EUKARN and FGKARN34**

FGKARN34 is required to conduct RUO fuel spec monitoring including PCB analysis for each delivery or storage tank. RUO monitoring is conducted per the facilities quality control program. Records available were in compliance with permit requirements.

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

- **EUKARN1, EUKARN2, FGKARN12, EUWEADOCK7 and EUWEADOCK8**

Monitoring and recordkeeping requirements for the referenced emission units include monitoring and operation of a Continuous Opacity Monitoring System (COMs) for each of the referenced boilers. Data monitoring for the COMs is conducted in compliance with the ROP requirements for the applicable emission unit. Records reviewed for the COMs operation, maintenance and testing appeared to be in general compliance with applicable requirements. Based on available records, the required monitoring testing is being conducted in a timely and appropriate manner. No calibration or compliance issues

were noted.

In addition to the COMS, the facility is required to install, calibrate maintain and operate a Continuous Emission Monitoring System (CEMS) for the measurement of gas flow, SO<sub>2</sub>, CO<sub>2</sub> and NO<sub>x</sub>. Records reviewed as part of the site inspection activities indicated that the CEMS is in general compliance with permit conditions. Based on available records, the required monitor testing is being conducted in a timely and appropriate manner. No calibration or compliance issues were noted.

Since the 2014 site inspections, Mercury and PM CEMs have been installed to monitor emissions for EUKARN1 and EUKARN2. Monitor testing was conducted for both units in 2015, and indicated that the CEMS were in compliance with permit conditions.

Per permit conditions for FGKARN12, the permittee maintains written records of the amount of boiler cleaning solutions and spent solutions charged to each boiler in compliance with the permit.

- EU-LIMEPREP, EU-BPRECYCLE, EUBPDISPOSAL and EU-SORBENT

Monitoring and recordkeeping for the referenced components of the SDA system require daily records of non-certified VE observations. The monitoring and recordkeeping appears to be in general compliance with permit conditions.

- EUKARN3, EUKARN4 and FGKARN34

As previously indicated monitoring and record keeping requirements associated with FGKARN34 include records associated with monthly and 12-month totals for RUO, as well as records of fuel oil specifications including PCBs and documentation that the RUO is not mixed with any substances other than used oil and fuel oil. Records available were in general compliance with permit conditions.

- EUWEADOCK7, EUWEADOCK8 and FGWEADOCK78

Monitoring and recordkeeping requirements for the referenced emission units include monitoring and operation of a COMs for the referenced boilers. Data monitoring for the COMs is conducted in compliance with the ROP requirements for the applicable emission unit. Records reviewed for the COMs operation, maintenance and testing appeared to be in general compliance with applicable requirements.

In addition to the COMS, the facility is required to install, calibrate maintain and operate a CEMs for the measurement of gas flow, SO<sub>2</sub>, CO<sub>2</sub>, CO and NO<sub>x</sub>. Records reviewed as part of the site inspection activities indicated that the CEMS is in general compliance with permit conditions. Based on available records, the required monitor testing is being conducted in a timely and appropriate manner. No calibration or compliance issues were noted for COMs or CEMS monitors.

FGWEADOCK78 is required to maintain a written record of the amount of boiler cleaning solutions and the spent solutions charged to each boiler. The required records are maintained by the facility and are readily available for review. No notifications for charging of boiler cleaning solutions have been received by the district since November 10, 2014. Discussions with Facility representatives indicated that cleaning solutions at the time of the compliance evaluation were being disposed of appropriately.

- EUASHSILO-S1, EUASHSILO-3, EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3, FGASHMAP-S1 and FGASHMAP-S3

Monitoring and recordkeeping requirements for EUASHKARN172-s1 AND 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 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 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.

- FGEMERGENCYDG, FGEMERGENCYDG

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

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 and FGSUBKTANKS

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.

**Reporting** – Reporting requirements for all emission units and flexible groups evaluated during the site inspection includes prompt reporting of deviations and/or excess emissions, as well as the semiannual and annual reporting pursuant to General Conditions 19 through 22 and 23 of Part A of the ROP. A review of submittals indicated that the facility is in general compliance with permit reporting conditions.

- EUKARN1, EUKARN2 and FGKARN12

In addition to the above referenced reporting, the above referenced emission units are required to report opacity and SO<sub>2</sub> excess emission and the nature and cause of the excess emissions on a quarterly basis. The report is also required to identify the date and time period during which the CEMS was inoperative and the nature of repairs made. The referenced reports are submitted to the District and Technical Programs Unit in a compliance with the permit.

- EUKARN3, EUKARN4 and FGKARN34

The above referenced emission units are required to report opacity and SO<sub>2</sub> excess emission and the nature and cause of the excess emissions on a quarterly basis. The report is also required to identify the date and time period during which the CEMS was inoperative and the nature of repairs made. The referenced reports are submitted to the District and Technical Programs Unit in a compliance with the permit.

- EUWEADOCK7 and EUWEADOCK8

In addition to the above referenced reporting, the above referenced emission units are required to report opacity and SO<sub>2</sub> excess emission and the nature and cause of the excess emissions on a quarterly basis. The report is also required to identify the date and time period during which the CEMS was inoperative and the nature of repairs made. The referenced reports are submitted to the District and Technical Programs Unit in a compliance with the permit.

- EUASHSILO-S1, EUASHSILO-3, EUASHKARN1&2-S1, EUASHWEADOCK7&8-S3, FGASHMAP-S1 and FGASHMAP-S3

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.

#### SUMMARY -

On Tuesday, January 12<sup>th</sup> and Thursday, February 4<sup>th</sup>, 2016, targeted site inspections were 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-B2840-2014 is associated with the facility; the referenced permit was issued on November 14, 2014. The referenced permit is for an electric generating and transmission complex and consists of five (5) sections. The facility is a major source of NO<sub>x</sub>, SO<sub>2</sub>, PM and a major source of HAPs.

An application for minor modification of MI-ROP-B2840-2014 was submitted to the MDEQ AQD on May 1, 2015. The referenced minor modification was to incorporate Permit to Install (PTI) 40-15 (approved and effective April 30, 2015). PTI 40-15 was proposed by the company to meet Federal Consent Decree (U.S. V Consumers Energy Company Civil Action 14-13580, E.D. Mich., 2014) requirements, and consisted of terms of the consent order required to be incorporated into the Title V permit. The minor modification application was required to be submitted by May 3, 2015. On May 6, 2015, EPA requested a hold on the Minor Modification. At the time of the preparation of this report the referenced modification has not changed status. Conditions under PTI 40-15 will be identified as such in this report.

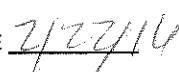
On November 20, 2015, the ROP was re-opened to incorporate applicable requirements associated with the Transport Rule (AKA Cross State Air Pollution Rule (CSAPR)) and removal of the Clean Air Interstate Requirements (CAIR). The company provided comments on or before the December 14, 2015, due date.

Site inspection activities were conducted with the intent of confirming the operational status and compliance under the referenced permit. Compliance evaluations with respect to the CAIR NO<sub>x</sub> Trading Program, CAIR NO<sub>x</sub> Ozone Trading Program, CAIR SO<sub>2</sub> Trading Program and Phase II Acid Rain Permit were not conducted as part of the site inspection activities. As a result of the most recent compliance investigation, the inspected/evaluated portions of the facility were determined to be operating the referenced EUs/FGs in general compliance with their ROP.

NAME



DATE



SUPERVISOR

