

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

P040854867

FACILITY: EES COKE BATTERY L.L.C.		SRN / ID: P0408
LOCATION: 1400 Zug Island Road, RIVER ROUGE		DISTRICT: Detroit
CITY: RIVER ROUGE		COUNTY: WAYNE
CONTACT: Brenna Harden , Senior Environmental Engineer		ACTIVITY DATE: 08/27/2020
STAFF: Katherine Koster	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MEGASITE
SUBJECT: FY2020 Scheduled Inspection		
RESOLVED COMPLAINTS:		

REASON FOR INSPECTION: Targeted Inspection

INSPECTED BY: Katie Koster

PERSONNEL PRESENT: Brenna Harden, EES Environmental Engineer

FACILITY PHONE NUMBER: 313-297-4183 (phone); 734-320-5255 (cell)

FACILITY BACKGROUND

EES Coke Battery, LLC was organized and formed by DTE to assume the coke making operations from United States Steel Great Lakes Works (USSGLW) in 2004. Prior to USSGLW ownership, the coke making operations were owned and operated by National Steel Company. The equipment is located on the southern half of Zug Island in the city of River Rouge. The property is owned by USSGLW.

While the No. 5 battery and No. 3 byproducts operations and coal piles are managed by DTE, the coke making operations rely on USSGLW for steam, power, and water. The battery used to receive blast furnace gas from USSGLW for underfire combustion, but that practice was halted by EES in July 2012 as DTE claimed that moisture in the gas was degrading the regenerators below the ovens. EES also claimed that preheating the gas to drive off the moisture was not feasible. USSGLW also used to accept and purchases excess coke oven gas for use at Boilerhouses 1&2 on Zug Island until operations were temporarily idled in March 2020 (see more detail below). COG used to also be combusted at the Hot Strip Mill but that was halted by USSGLW in mid-2016.

REGULATORY ANALYSIS

On June 13, 2014, the facility submitted PTI application, 51-08C, to increase the yearly coal throughput limit, permanently remove the heat input restrictions, modify/remove emission limits, and modify a variety of recordkeeping and reporting conditions. The permit evaluation form states that it is a major modification under PSD for NOx and greenhouse gases. This permit replaced 71-13 and 51-08. The permit was issued in November 2014. 71-13 was a temporary permit to suspend the daily and annual heat input limits on the battery.

The whole coke making facility is incorporated as Section 7 of the United States Steel Great Lakes Works (USSGLW) Renewable Operating Permit (ROP) Number 199600132d. However, USSGLW and EES submitted a request in December 2012 to administratively split the ROP into two documents. This process has started as the USSGLW ROP renewal has gone through public comment and does not contain conditions related to EES. EES was assigned a separate SRN, P0408, and reports annual emissions in MAERS under this SRN.

Benzene and HCl are the main HAP's emitted; primarily from the underfire stack and the COG flare.

St of Michigan Consent Orders

The facility is operating under some old Wayne County consent orders including SIP Consent Order No. 27-1993 for fugitive dust. In December 2013, the facility was referred for escalated enforcement action due to issues with the CERMS systems for monitoring NOx, CO, SO2, and flow; including incorrect reporting of downtime and manual revisions of the CERMS data unbeknownst to AQD at the time. The referral also included other recently cited violations related to inadequate maintenance, inspections, and recordkeeping, and failed stack test, and improper calibration gas used for leak checks under Part 61 Subpart L and V. This is consent order AQD CO No. 57-2014.

Federal Regulations

The No. 5 coke oven battery is subject to MACT Standards promulgated in 40 CFR Part 63, Subpart CCCCC (NESHAP for Coke Ovens: Pushing, Quenching, and Battery Stacks) and Subpart L (National

Emission Standards for Coke Oven Batteries). The No. 3 Coke Byproducts plant is subject to NESHAPs promulgated in 40 CFR, Part 61, Subpart FF (NESHAP for Benzene Waste Operations), Subpart L (NESHAP for Benzene Emissions from Coke By-Product Recovery Plants), and Subpart V (NESHAP for Equipment Leaks (Fugitive Emission Sources)).

PROCESS OVERVIEW

The vast majority of the coal is received by vessel and off loaded on the southern end of the island. Four to six types of coal are used in the coke making process and a mix of low, mid, and hi vol coal is used and properties such as ash and sulfur content and strength are important. Coal is loaded into a truck and driven to the coal hopper. From the hopper, it enters the mixing building. Blended coal is pulverized and conveyed to the coal bunker on top of the battery. Along the way, coal tar sludge is sprayed onto the conveyor for bulk density control. No 2 fuel oil is also used for this purpose.

Coal is stored in a bunker until dispensed into one of two larry cars on the top of the battery. Coal is then charged into an oven with the larry car and leveled with the leveling bar. It is important to create an even headspace so that gas is drawn off evenly across the oven during coking. Each oven has four ports with lids on the top for charging and two sides with removable doors. Approximately 35 tons of wet coal/32 tons dry coal is charged per oven and 23 - 25 tons of coke are produced. The normal coking time is about 17 hours at a temperature of approximately 2200F. If there is reduced demand for coke, then the battery has to shift to an extended coking time.

The staggered oven pushing is to ensure even distribution of the coke oven gas across the collector main. The coking process takes place in the absence of oxygen to drive off residual VOCs and other impurities in the coal and to form a hard mass known as metallurgical coke. This coke can withstand the very high temperatures in iron making blast furnaces. There is a limit to how long coking time can be extended because the process will not generate enough gas to run the battery and the battery will not be able to produce metallurgical coke of the required size. Important factors for coke are stability (strength), size (permeability), sulfur (<0.85%), and ash (<10%), and volatility. Samples are tested daily. Approximately 6% of coke made is breeze and nut coke. 117 ovens per day is maximum that can be pushed. Ovens are 18 inches wide.

Ovens are charged and pushed in a specific sequence whereby odd numbers are pushed and then even or vice versa unless there is extended coking schedule. Ovens are kept under slightly positive pressure while coking and slightly negative pressure while charging. Negative pressure is achieved with the use of an assist oven and jumper pipe. High pressure flushing liquor is in use to aid in off gas collection during charging. The flushing liquor shock cools the raw coke oven gas causes it to contract quickly which pulls a vacuum.

When pressure in the crossover main(s) reaches 0.80 inches w.c., the bleeder stack(s) open. There are two bleeders per crossover. The bleeders are equipped with automatic igniters so that raw COG is combusted when they are opened. The main function of the bleeders is to flare gas until the pressure returns to normal. The company sends reports to AQD on when the bleeders open, length of time of opening, and certification that the emissions were ignited. Overall plant pressure is 37 in. w.c.

Once the coking cycle is complete, the oven doors are removed, and coke is pushed from the oven into a receiving car. The car moves along the oven to the quench tower where it is deluged with water. The coke is then poured out onto the coke wharf for further cooling. Emissions from pushing and traveling to the quench tower are captured by a movable hood positioned over the receiving car. The hood ducts emissions to the Pushing Emissions Control System (PECS) baghouse. Baffles in the quench tower must be maintained to suppress the release of particulate emissions. Twelve thousand gallons of water are used per quench. After cooling, coke is conveyed to the screening station and then loaded into rail cars.

Off gas from the ovens (raw coke oven gas or raw "COG"), is collected through the suction main to the four crossover mains and into the collecting main. The collecting main feeds the byproducts recovery plant. Flushing liquor is sprayed in the collecting main for cooling and tar begins to precipitate out. Tar, light oil, and ammonia are recovered from the coke oven gas through a series of decanters, condensers, heat exchangers, and stills. These products are then sold offsite. The byproducts recovery process is completely enclosed; nitrogen blanketing is in use for emissions suppression. Emissions from this process are only attributable to leaks or storage tank emissions and

load out activities. The wash oil has a high boiling point; it absorbs benzene, toluene, and xylene, and is sent through the distillation column. Coal tar is loaded by rail or truck off site.

Excess gas that is not needed in the underfire system by the battery or (formerly) by US Steel is sent to the main flare. About 40% of the gas generated is used to underfire the battery. Natural gas could be used for a short time period in an emergency situation; however, the flame temperature is too high, and it would damage the refractory if used on a long-term basis.

Process water from moisture in the coal is contaminated with ammonia, phenols, heavy metals and mercury. The onsite wastewater treatment plant removes phenols and NH₃ biologically.

The battery operates 24 hours a day, 7 days a week. Approximately every 20 minutes there is a reversal whereby the fuel gas combustion is turned off for approximately 2 minutes. The heating flues become exhaust flues and vice versa to even out the heat distribution throughout the battery. The products of combustion of 100% COG are exhausted out of the natural draft stack. There is a CEMS in the combustion stack for measuring NO_x, SO₂, and CO lb/hr emissions. COG is mainly comprised of hydrogen and CH₄ and has an average heating value of 500 BTU/ft³. It also contains H₂S, benzene, and PAH's.

USSGLW owned equipment provides steam, cooling water, and electricity to the battery operations.

A contractor, AKJ, used to oversee the tar sludge handling, storage and loading process. This has been reclaimed by EES to be done in house.

INSPECTION NARRATIVE

On August 27, 2020, I arrived on Zug Island. I was met by Brenna Harden, EES Environmental Engineer. Due to COVID-19, all visitors are generally required to wear a respirator while on site.

USSGLW Zug Island operations have been temporarily idled as of March 31, 2020. EES Coke is now operating the US Steel No 2 boilerhouse in order to provide steam and power to the battery operations.

The coke battery is on extended coking due to reduced demand. At present, coking time is 35:45:00. Every twenty five minutes an oven is pushed. 56 ovens per day are pushed and the battery is operating on a Koppers 9 schedule, The lowest number of ovens the battery ever got to was 50 per day. Oven No. 61 was out of service. Current customers are AK Steel, Algoma, and Arcelor Mittal Dofasco.

At 11:46 a.m, we entered the CERMS shelter. I recorded the following: SO₂ – 331 ppm, CO₂ – 3.8, NO_x low- 203.2, NO_x high – 273.3, CO low – 70.1, CO high – 70.5, Gas flow – 608.2, stack velocity – 7.6 ft/sec, temp – 456.2, dilution air – 48 psi.

I did not observe any visible emissions from the underfire combustion stack or the PECS stack while on site. Ms. Harden and I walked around the battery. I did not observe any door leaks on the charge side of the battery. I observed a coke push from an oven and did not observe any visible emissions above the battery top. EES has a new Method 303 reader; Ms. Sharvon Banks is no longer a contract employee. 303 and other readings are performed by Tobe Ackerman and Charles Wolfe.

Company has instituted a process with a daily form to check that the flare is ignited. A new igniter panel showing that the flame is on is on the property and waiting to be installed. Upgraded gas flow system with alarms for low or no flow. There is a camera on the flare as a visual check. However, wind can sometime flatten the flame and make it hard to detect. Therefore, they are having some difficulty regarding alarms associated with the camera system.

There is reportedly still a lot of "USS coke" from Clariton Works on the island. It is supposed to be removed by June. There is also a large pile of limestone; plan unknown,

Boosters – electrical boosters don't work as well as steam assist.

Substation – distribution of power onto the island

Various electrical rooms step up or down the power. 6 electrical rooms for USS, 4 for EES Coke.

UPS – long lead time to procure.

APPLICABLE RULES/PERMIT CONDITIONS EVALUATED

EUCOKE-BATTERY – Only conditions that were evaluated are in this report. Conditions are from PTI 51-08C which was issued in November 2014.

I. EMISSION LIMITS

1. IN COMPLIANCE. 437.3 pph CO 8 hr block average from the combustion stack as recorded by the CERMS. No excess emissions have been reported in the quarterly reports.

2. IN COMPLIANCE. 1,411 NOx tons per year limit from the combustion stack. This is an increase from prior permitted limit of 959.5 tons per year. Based on 12 month rolling time period from January 2019-June 2020, highest 12 month rolling emissions were 903 tons in June 2019 (attached - Item 1).

3. IN COMPLIANCE. 563.5 NOx hourly limit from the combustion stack as recorded by the CERMS. No excess emissions have been reported in the quarterly reports.

4. IN COMPLIANCE. 0.75 NOx lb/ MMBTU heat input for the combustion stack on a 12 month rolling average. EES has not reported any exceedances in the quarterly reports. At this time, compliance is based on EES calculation methodology of assuming COG BTU content of 500. Highest monthly average was 0.65 in April 2019.

5. IN COMPLIANCE. 1.25 NOx lb/MMBTU heat input on a 24 hr rolling basis for the combustion stack. EES has not reported any exceedances in the quarterly reports. For the second quarter 2020 (attached), highest value recorded was 0.76 lbs/MMBTU.

6. IN COMPLIANCE. 2.61 NOx pph from the PECS stack. The most recent test was conducted in September 2020. The test is undergoing TPU review. The September 2018 has a TPU memo in the file for a summary of the test report review. The NOx emissions on an hourly basis, based on a three run average, were 1.37 pph. As this process does not run continuously, i.e. pushing only occurs once every 11 minutes, and the hourly emissions are calculated based on the actual non-continuous operation.

7. IN COMPLIANCE. PM limit of 0.095 lbs/1000 lbs exhaust gas on combustion stack. The most recent test was conducted in September 2019 and the result was 0.027 lbs/1000 lbs dry at 50% excess O2.

The September 2017 results were 0.022 lbs PM/1000 lb gas @50% excess air. The test conducted in September 2015 and the results were 0.078 lb PM/1000 lb gas @50% excess air.

8. IN COMPLIANCE. PM limit of 0.012 gr/dscf from the combustion stack (excluding sulfates). The most recent test was conducted in September 2019 and the non sulfate PM result was 1.62 pph and 0.001 gr/dscf. The prior test was conducted in September 2017. Results were received in November 2017. Results were 0.004 gr/dscf. The prior test was conducted in September 2015 and the results were 0.000095 gr/dscf.

9. IN COMPLIANCE. PM limit of 25.7 pph from the combustion stack. The most recent test was conducted in September 2019 and the non sulfate PM result was 1.62 pph and 0.001 gr/dscf. Results from the prior test were received in November 2017. Results were 5.48 lb/hr. Prior test was conducted in September 2015 and the results were 0.111 pph.

10. IN COMPLIANCE. PM limit of 9.7 tons per year from the PECS stack. 2.0 tons of PM was the highest 12 month rolling average from January 2019 – June 2020 (attached - Item 1).

11. IN COMPLIANCE. PM limit of 0.02 lb/ton of coke pushed from the PECS stack. The most recent tests were conducted in December 2018 and September 2018. See TPU memo in the file for a summary of the test report review Results for December 2018 were 0.005 lb. PM/ton coke pushed and September 2018 was 0.01 lb. PM/ton coke.

12. IN COMPLIANCE. PM10 limit of 73.3 pph from the combustion stack. The September 2019 PM 10 and 2.5 results were both 33.1 pph. The September 2017 test result was 30.14 pph. The stack test performed in September 2015 was 50.8 pph.

13. IN COMPLIANCE. PM10 limit of 0.69 pph from the PECS stack. The most recent tests were conducted in September 2018 and December 2018. See TPU memo in the file for a summary of the test report review. Company failed the test in September 2018 for PM10 and 2.5. The result was 1.15 lb./hr. A violation notice was issued. Facility retested in December 2018 and passed. Results were 0.28 pph for PM10. Facility used 201A instead of M5 which size sorts the filterable particulate. As such, the PM10 and PM2.5 results are different.

14. IN COMPLIANCE. PM2.5 limit of 73.3 pph from the combustion stack. The September 2019 PM 10 and 2.5 results were both 33.1 pph. The September 2017 test result was 30.14 pph. The prior stack test was performed in September 2015 and the result was 50.8 pph.

15. IN COMPLIANCE. PM2.5 limit of 0.69 pph from the PECS stack. The most recent tests were conducted in September 2018 and December 2018. See TPU memo in the file for a summary of the test report review. Company failed the test in September 2018 for PM10 and 2.5. The result was 1.15 lb./hr. A violation notice was issued. Facility retested in December 2018 and passed. Results for December 2018 were 0.23 pph PM2.5. Facility used 201A instead of M5 which size sorts the filterable particulate. As such, the PM10 and PM2.5 results are different.

16. IN COMPLIANCE. SO2 limit of 2,071 tpy from the combustion stack based on a 12 month rolling time period. Based on the CERMS and the approved methodology in PTI 51-08C used to estimate emissions during downtime, for the 12-month time period from January 2019 - June 2020, highest 12 month rolling was 1,903 tons per year. From January 2018 – February 2019, the highest emissions were 1,989 tons of SO2 from the combustion stack in March 2018. Some quarter(s) had downtime where emissions are estimated.

17. IN COMPLIANCE. SO2 3-hour average of 544.6 lbs. from the combustion stack. No exceedances in 2019 and in 2020 through 3rd quarter 2020.

18. NOT IN COMPLIANCE. SO2 limit of 0.702 lb/1000 scf of COG on a 1 hr average from the combustion stack. No exceedances were reported for CY2019. Two exceedances were reported in the second quarter of 2020.

19. IN COMPLIANCE. VOC limit on 43.1 pph from the combustion stack. The September 2019 VOC – results were 27.8 pph and 0.0632 lb/MMBTU heat input. The September 2017 test result was 12.7 pph. Testing also occurred in September 2015 and result was 19.5 pph. In October 2013, the test result was 7.99 pph VOC.

20. IN COMPLIANCE. VOC limit of 0.0956 lb/MMBTU limit from the combustion stack. The September 2019 VOC – results were 27.8 pph and 0.0632 lb/MMBTU heat input. The September 2017 test result was 0.0248 lb/MMBTU heat input. Stack test was performed in September 2015 and the result was 0.0391 lb/MMBTU heat input.

21. IN COMPLIANCE. VE limit of 20% 6 minute average on the combustion stack. No visible emissions were observed while on site. There is a COMS in the combustion stack that operates continuously. For 2018, there were 8 total exceedances on six different dates for a total of 48 minutes. For 2019, there were 19 total exceedances. As the COMS operates continuously, facility is substantively in compliance with this condition.

22. IN COMPLIANCE. VE limit of 15% on a 6 reading average of the PECS stack. No visible emissions exceedances have been reported in the semi annual Title V deviation reports.

23-28. IN COMPLIANCE. These are limits, in terms of % leaking as observed on a daily basis, found in the state Part 3 rules. Facility has not reported an exceedance of these limits. Also, see attached spreadsheet which includes the leak percentages as input from the daily readings.

II. MATERIAL LIMITS

1&2. IN COMPLIANCE. Dry coal charge limited to 1,420,000 tons per year on a 12 month rolling time period and 125,000 tons/month. Highest 12 month rolling from January 2019 – June 2020 was 1,308,841 tons in March 2019 (attached).

3. IN COMPLIANCE. Heavy tar sludge charged limited to 836,000 gallons per year on a 12 month rolling time period. Highest 12 month rolling from January 2019 – June 2020 was 722,542 gallons in February 2020 (attached).

4. IN COMPLIANCE. No. 2 fuel oil charged limited to 1,365,000 gallons per year on a 12 month rolling time period. Highest 12 month rolling from January 2019 – June 2020 was 997,491 gallons in January 2020 (attached).

5. IN COMPLIANCE. No. 2 fuel oil sulfur content should be no more than 0.5% by weight. Fuel records indicate facility is purchasing ULSD. ULSD is defined as having a maximum sulfur content of 15 ppm.

6. IN COMPLIANCE. TDS of quench water shall not exceed 800 mg/liter. 3 samples minimum collected per week. State rule 336.2033 requires 5 samples be collected. I discussed this with Brenna who stated that the facility was doing that anyway. TDS results have been below the 800 mg/liter threshold for 2020. See attached.

III. PROCESS/OPERATIONAL

1. IN COMPLIANCE. An updated MAP was submitted on February 21, 2018. MAP was approved after 90 days by default as allowed by the condition. However, AQD did review the MAP in relation to the compliance inspection and it appears to contain the required information. The prior MAP was submitted on January 22, 2015 and approved by AQD.

2. DID NOT EVALUATE. The volatile matter in the coke produced by EUCKE-BATTERY shall not exceed 0.94 percent by weight, based upon a daily composite sample, on a 12-month rolling basis.

3. IN COMPLIANCE. Shall not cause a standpipe lid to be open on an oven which is more than 3 ovens ahead of the one being pushed. Facility is demonstrating compliance through training of the operators. At this time, I do not have information that indicates this is not sufficient. Based on visible observations during prior inspections, I did not notice any open standpipe lids on in service ovens that did not meet this condition.

4. IN COMPLIANCE. Excess COG shall be sent off site when dry coal charged exceeds 1.3MM tons per 12 month rolling time period (based on equation in the permit). Dry coal charged did exceed 1.3MM in February 2019 through June 2019 from the time period from January 2019 – June 2020. Gas was sent off site every month during that time period. Gas is sent to River Rouge Power Plant. Gas sent off site far exceeded required minimum. See attached.

IV. DESIGN/EQUIPMENT PARAMETERS

1. **IN COMPLIANCE.** At this time, based on the records that were reviewed, overpressure flares, PECS baghouse, and quench tower appear to be operated and maintained satisfactorily. The permittee shall not operate EUCKE-BATTERY unless the overpressure bleeder flares, PECS baghouse, and quench tower are installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining each control device in accordance with an approved MAP as required in SC III.1.

2. **IN COMPLIANCE.** The permittee shall install, maintain, and operate, in a satisfactory manner, the EUCKE-BATTERY overpressure bleeder flares and the COG flare with automatic ignition systems.

Overpressure flares and COG flare are equipped with automatic ignition systems. In the past, the overpressure bleeders have sometimes opened without igniting. However, this issue has not occurred at least in the last year based on the semi annual compliance reports and the absence of notification of release of raw COG. However, the COG flare ignition system failed and cause the release of uncombusted gas for 67 minutes on November 7, 2019. Corrective measures were implemented. As such, compliance was chosen. However, if this situation recurs, a violation notice may be warranted.

3. **IN COMPLIANCE.** . The permittee shall not push coke from EUCKE-BATTERY unless the pushing emission control system (PECS) is installed, maintained, and operated in a satisfactory manner. Pushing emissions from EUCKE-BATTERY shall be captured by a belted duct collection system connected to the PECS baghouse. PECS appears to be maintained and operated at a satisfactory level based on no excess emissions and passed stack tests.
4. **IN COMPLIANCE.** The baffles in the EUCKE-BATTERY quench tower shall be kept in a good state of repair. Based on review of records for 2020, baffles appear to be in good condition..
5. **IN COMPLIANCE.** The permittee shall only use acceptable makeup water in the EUCKE-BATTERY quench tower. Acceptable makeup water is defined as surface water from a river, lake, or stream; water meeting drinking water standards; storm water runoff and production area cleanup water except for water from the by-product recovery plant area; process wastewater treated to meet effluent limitations guidelines in 40 CFR 420; water from any of these sources that has been used only for non-contact cooling or in water seals; or water from scrubbers used to control pushing emissions. Waste water recycled from EUCKE-BYPRODUCT is not acceptable makeup water. Facility is not using recycled waste water.

6. IN COMPLIANCE. The permittee shall install, calibrate, maintain and operate, in a satisfactory manner, a device to monitor the pressure drop across the PECS baghouse on a continuous basis. A device to monitor pressure drop is installed and operated. Did not request calibration records at this time.

V. TESTING

1. **IN COMPLIANCE.** Permittee shall test combustion stack every two years. Testing was conducted in 2019, 2017, 2015, and 2013.
2. **IN COMPLIANCE.** Permittee shall test PECS stack every two years. Testing was conducted in September 2020, September 2018, September 2016, December 2014 and June 2012.
3. **IN COMPLIANCE.** Permittee shall sample TDS on a weekly basis with a minimum of three samples collected per week. Five samples are being collected per week.
4. **DID NOT EVALUATE.** At least once each calendar month, the permittee shall sample the volatile matter content of the coke produced by EUCKE-BATTERY. The volatile matter content shall be based on an average of 3 samples for a calendar day composite. The permittee must submit any request for a change in the sampling frequency and methods to the AQD District Supervisor for review and approval

VI. MONITORING/RECORDKEEPING

2. **IN COMPLIANCE.** COMS shall be installed and maintained. COMS is installed; annual audit is performed and provided to AQD. Also, quarterly excess emission reports are required and have been submitted by EES in a timely manner.
3. **IN COMPLIANCE.** CERMS shall be maintained and operated in a satisfactory manner. This system was the subject of an enforcement action which resulted in Consent Order AQD No 57-2014 in 2014. Through this order, various improvements were made to the CERMS. In 2016, the pitot based flow monitor was replaced by an optical scintillation monitor (OSI). However, downtime has been an issue; mostly related to issues with the flow monitor. In 2017, excess monitor downtime occurred in the 3rd and 4th quarters of 2017 due to a failed RATA. However, moving forward:

2018 – No excess downtime

2019 – No excess downtime

2020 – No excess downtime to date (through the 3rd quarter 2020)

4. **IN COMPLIANCE.** Flow monitoring system shall be maintained and operating in a satisfactory manner. This system was the subject of a recent enforcement action which resulted in Consent Order

AQD No. 57-2014. Through this order, various improvements were made to the CERMS. In 2016, the pitot based flow monitor was replaced by an optical scintillation monitor (OSI). However, downtime continues to be an issue; mostly related to issues with the flow monitor.

In 2017, excess monitor downtime occurred in the 3rd and 4th quarters of 2017 due to a failed RATA. However, moving forward:

2018 – No excess downtime

2019 – No excess downtime

2020 – No excess downtime to date (through the 3rd quarter 2020)

5. IN COMPLIANCE. Permittee shall keep continuous opacity monitor records. Records are available. An example is attached.

6. IN COMPLIANCE. Hourly and 8-hour averages of CO are being maintained in a satisfactory manner through the CERMS system.

7. IN COMPLIANCE. Required NOx emission records are being maintained.

8. IN COMPLIANCE. Required SO2 emission records are being maintained.

9. IN COMPLIANCE. Required SO2 emission records are being maintained.

10. IN COMPLIANCE. Non-certified VE's of the PECS baghouse shall occur on a weekly basis. Records were presented during the inspection.

11. IN COMPLIANCE. Certified VE's of the PECS baghouse shall occur on a monthly basis. Example of records are attached.

12. IN COMPLIANCE. Daily Method 9B observations shall be conducted. It appears that sufficient information to determine compliance with Method 9B is being recorded.

13. DID NOT EVALUATE. Did not request pressure drop records for the PECS baghouse.

14. IN COMPLIANCE. The permittee shall conduct regular inspections of the operational condition of the PECS baghouse. These inspections shall be conducted during scheduled outages or downtimes, and as soon as practicable after observing visible emissions, but not less frequently than at least once every month. Records of each inspection, the reason for any visible emissions observed, and any corrective actions taken shall be kept on file in a format acceptable to the AQD District Supervisor.

See attached inspections. Leak detection system was inspected, baghouse electrical inspection mechanical inspections (leak at gear box, add oil to gearbox, air leak on diaphragm valves, one inspection revealed small hole in ductwork, records indicated FU work order scheduled.) PECS baghouse does not appear to have ongoing, unresolved issues and appears to be operating and maintained properly.

15. IN COMPLIANCE. The permittee shall conduct regular inspections of the operational condition of the baffles in the quench tower. These inspections shall be conducted during scheduled outages or downtimes, and as soon as practicable after observing visible emissions or fallout, but not less frequently than at least once every month. Records of each inspection, the reason for any visible emissions or fallout observed, and any corrective actions taken shall be kept on file in a format acceptable to the AQD District Supervisor. Monthly inspection records for 2020 were provided. See attached inspections. Some spray nozzles were determined to be in need of replacing and work orders were provided indicating follow up occurred.

16. IN COMPLIANCE. Records of monthly and 12 month rolling dry coal, heavy tar sludge, and No.2 fuel oil charged to the battery for the time period requested (January 2019 – June 2020) were provided. See attached.

17. IN COMPLIANCE. Records of monthly, twelve month rolling, heat input, fuel gas usage, BTU content of fuel gas, volatile matter of coke produced, and coke production rate from January 2019 – June 2020 are attached. BTU content is an assumed constant of 500 BTU/scf. See attached.

18. IN COMPLIANCE. Records of monthly and twelve month rolling of the amount of COG generated per ton of dry coal and amount sent to a separate stationary source and COG generated per ton of dry coal are attached.

19. IN COMPLIANCE. Permittee shall monitor and record the amount of coke oven gas vented to the flare on a daily basis. This information is tracked and maintained by DTE. See attached example for the month of June 2020.

20. IN COMPLIANCE. This condition requires regular inspections of the flare and automatic ignition system. There was an issue with the flare on November 7, 2019 which was reportedly caused by a blown fuse to the natural gas pilot. It is unclear whether this would have happened regardless of regular inspections. However, a more rigorous inspection program, including routine visual checks throughout the day, have been implemented. Also, periodic flare calibrations (flow verification and transmitter calibrations) are performed and record were provided and are attached.

21. IN COMPLIANCE. Shall maintain daily records of the operation of the overpressure bleeder flare system. Records are maintained, and a log of opening is submitted to AQD semi annually as part of the ROP deviation report. Records contain time, duration, and reason for opening. See semiannual ROP deviation reports.

22. IN COMPLIANCE. Shall maintain record of the analysis of each shipment of No 2 fuel oil. Purchase records with notations that the material is ultra-low sulfur diesel (ULSD) from vendor.

VII. REPORTING

- 1. IN COMPLIANCE.** Reports of bleeder openings have been received in a timely manner.
- 2. IN COMPLIANCE.** 1-hr SO₂ emissions quarterly reports are being received in a timely manner.

VIII. STACK HEIGHTS/RESTRICTIONS

1,2&3. IN COMPLIANCE. Stack dimensions were reviewed during the recent PTI review and should be correct. Error in height from 51-08 was corrected.

EUMATERIALS

IX.1 IN COMPLIANCE. Shall comply with fugitive dust plan in SIP CO 27-1993. Facility has certified compliance with dust plan quarterly. Quarterly reports are submitted which detail the fugitive dust activities that have been performed. See attached sample of fugitive dust inspections.

FGMACT L

I.1 IN COMPLIANCE. Percentage of leaks allowed at certain points on the battery. Based on daily Method 303 readings and the tabulated 30-day averages and log averages as allowed by the MACT, the battery is in compliance with these conditions. (attached spreadsheet)

I.2 NOT IN COMPLIANCE. No visible emissions from each flare except for periods not to exceed 5 minutes in 2 hours. Facility has started reporting all individual bleeder openings (regardless of whether the gas was ignited) that last more than 5 minutes as deviations. AQD agrees with this approach. However, as there are 8 bleeders, usually a single bleeder is not open for more than 5 minutes. Based on information provided by the facility (in the file), much work has been done to minimize the duration of scheduled maintenance which causes most of the flaring events. As such, instances of flares open more than 5 minutes in two hours have been reduced. For 2017, there were no reported deviations from this requirement. For 2018, there were 10 reported; most of the visible emissions were reportedly due to power or steam loss which is supplied by US Steel. As these events appear to be beyond the control of EES based on the information available at this time, discretion is

being used in terms of issuing a violation notice. Future events will continue to be monitored and reviewed.

UPDATE for 2020 inspection: Based on EES semi annual reports, bleeder events exceeding this limit (more than 5 minutes of visible emissions in 2 hours) continued into 2019. Even though, they were attributable to issues at the US Steel boilerhouse, due to their recurring nature, a violation notice was issued. At this point, these instances do not appear to be "sudden, infrequent, and not reasonably preventable" as the exceedances are being caused by the same issue and the facility needs to figure out a way to address these issues. Note, facility claims they are not able to have personnel observe all bleeder throughout an event to determine the presence of visible emissions. Therefore, any opening for more than 5 minutes in a two hour period is considered to be a violation. A violation notice was issued June 1, 2020. While the facility did respond and is now operating the No 2 boilerhouse due to US Steel shutting down Zug Island operation, and have reportedly made some improvements, sufficient time has not elapsed to determine if this issue is resolved. Hence, the status of not in compliance.

III. PROCESS/OPERATIONAL RESTRICTIONS

2. IN COMPLIANCE. Shall seal leaks in the collecting main within 4 hours. No leaks have been detected in the collecting main.

4. IN COMPLIANCE. An SSM plan is in place. See attached.

V. TESTING/SAMPLING

1. IN COMPLIANCE. A daily performance test shall be conducted each day, 7 days per week by certified Method 303 observer to determine compliance with each applicable visible emission limitation for coke oven doors, topside port lids, offtake systems, bypass/bleeder flares, and charging operations in this permit. Each performance test shall be conducted according to the procedures and requirements of reference Method 303 or 303A or Methods 9 and 22 where applicable. Each performance test is to be conducted by a certified observer. The certified observer shall conduct each performance test according to the requirements of 40 CFR 63, Subpart L. The procedures in § 63.309 (d) shall be used to determine compliance with each applicable visible emission limitation for coke oven doors, topside port lids, offtake systems, bypass/bleeder flares, and charging operations in this permit.

Daily readings described in this condition are conducted and recorded. Records are maintained by the facility and have been presented during past inspections. An example of the readings is attached.

VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. The permittee shall inspect the collecting main for leaks at least once daily according to the procedures in Method 303 as specified in § 63.308(a). The permittee shall record the time and date a leak is first observed, the time and date the leak is temporarily sealed, and the time and date of repair. Collecting main is inspected daily. No leaks have been observed.

The following conditions apply to: EUCKE-BYPRODUCT – DID NOT EVALUATE

The following conditions apply to: FGNESHAPL,V,&FF – DID NOT EVALUATE

The following conditions apply to: FGMACTL – DID NOT EVALUATE

The following conditions apply to: FGMACTCCCC – DID NOT EVALUATE

APPENDIX A – Testing Requirements. Facility has been complying with the requirements in this appendix.

APPENDIX B - Continuous Opacity Monitoring System (COMS) Requirements

IN COMPLIANCE. Annual audits of the COMS have been completed in a timely manner and reports have been submitted for review. Quarterly EER's are being submitted with the required information and on time. Monitoring plan was submitted to TPU for review.

APPENDIX C - NO_x, SO₂, CO, CO₂/O₂ - Continuous Emission Monitoring System and Continuous Emission Rate Monitoring System (CEMS/CERMS) Requirements

IN COMPLIANCE with Conditions 2-7. The CERMS monitoring plans have been submitted and reviewed by TPU. The initial plan was submitted on July 27, 2009. An updated plan was submitted on April 13, 2015 as required by the Consent Order 57-2014. Quarterly reports have been submitted and contain the required information. TPU staff has determine the CERMS to be compliant with the required performance specifications.

COMPLIANCE DETERMINATION

At the time of the inspection, a violation notice is pending for excess SO₂ emissions as described above. Also, it is unknown whether the visible emissions exceedances from the overpressure bleeders has been corrected (as discussed above). As such, non-compliance was chosen.

NAME Katherine KosterDATE 3/17/2021SUPERVISOR April Wendling