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

P040845722

FACILITY: EES COKE BATTERY LLC		**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:** 08/22/2018
STAFF: Katherine Koster	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: FY18 Targeted Inspection		
RESOLVED COMPLAINTS:		

REASON FOR INSPECTION: Targeted Inspection
INSPECTED BY: Katie Koster
PERSONNEL PRESENT: Brenna Harden, EES Environmental Engineer; Rob Sanch, DTE Corporate; Elise Ciak, EES Environmental Engineer
FACILITY PHONE NUMBER: 313-297-4183 (phone); 734-320-5255 (cell)
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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 still accepts and purchases excess coke oven gas for use at Boilerhouses1&2 on Zug Island. 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. PTI 77-17 was issued for the temporary controlled degassing of existing Tank 37. A permit was obtained because the facility could not adequately demonstrate that the activity met all of the criteria for an exemption. The activity was completed on October 13, 2017 and the permit has been voided.

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. The ROP has not been renewed to include PTI 51-08C.

Facility submitted a HAP analysis as part of the ROP renewal. Benzene and HCl are the main HAP's emitted; primarily from the underfire stack and the COG flare.

<u>St of Michigan Consent Orders</u>
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 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; however, at this time, it is on the normal coking cycle.

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%), 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 is it 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 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. USS stopped combusting COG in the hot strip mill reheat furnaces in mid-2016. As a result, much more COG has been combusted at the flare.

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 NOx, 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 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 21, 2018, I arrived on Zug Island. I was met by Brenna Harden, EES Environmental Engineer, Elise Ciak, EES, and Rob Sanch, DTE. We discussed battery operations and recordkeeping.

Currently USSGLW is using coke from its facility in Clairton Works, and it is delivered by train which blocks the entrance and exit to the island. USSGLW is not using any coke that is being produced by EES. The current operation is 114-115 ovens per day and a 17 hour coking time per oven.

On the date of the inspection, coke was "going to ground". It is stockpiled and scooped by front end loader and loaded into a truck.

I did not observe any visible emissions from the underfire combustion stack or the PECS stack while on site. On 9/19/18, while on site for a stack test, I did not observe any leaking doors on the charging side of the battery.

According to Ms. Harden, the facility is flaring more than their maximum target. The goal is 12% of COG is flared but the YTD number is 24%.

Notes:
Bleeders – Back up batteries have been installed on all igniters and the batteries are changed annually. Procedures were changed from weekly to daily checks that the igniters are functioning, spray for flushing liquor blockages now occurs on a weekly basis, every three years EES's swaps out the igniters (this task is scheduled in MAXIMO), and there is weekly use of an imaging camera on the flushing liquor distribution system.

Chemical dust suppressant – If coke going to ground, no suppressant is in use. If EES is not operating the screening station, there is no dust generated. The company recently added a truck loader and NS railcars go to AK Steel.

Byproducts plant – According to the facility, most tanks can be purged and degassed through the nitrogen gas blanketing system; they do not need to be vented to a flare so that is why degassing has not been a permitting issue.

PECS BH – Annual dye inspection from 2016 results in changing bags in 6 cells. The 2017 check indicated that there were no issues.

BYPRODUCTS PLANT (BPP)

We did not complete a walk though of this process during this inspection. This is an enclosed process. It is subject to LDAR monitoring through the various NESHAPs. Reports are submitted on a quarterly and semi annual basis. Siddock performs this monitoring.

TAR LOADING FACILITY

This emission unit was not included in the existing ROP. It is operating under PTI 124-09. It will be included in the renewal. The TLF is located across the pushing side of the coke battery. The TLF allows EES Coke to ship out the tar produced in the by-product plant (BPP) to their customers by rail or by tank truck. I requested records. See attached. Records from July 2017 – July 2018 indicate compliance with benzene, VOC, and tar limits.

APPLICABLE RULES/PERMIT CONDITIONS EVALUATED

EUCOKE-BATTERY – 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 2017 – July 2018, highest emissions were 924 tons of NOx from the combustion stack in March 2018 (See attached).

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 from January 2017 – July 2018.

4. IN COMPLIANCE. 0.75 NOx lb/ MMBTU heat input for the combustion stack. EES has not reported any exceedances in the quarterly reports from January 2017 – July 2018. At this time, compliance is based on EES calculation methodology of assuming COG BTU content of 500.

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. Also, based on the 12 month rolling time period from January 2017 – July 2018, the highest lb/MMBTU value was 0.48 during multiple months. At this time, compliance is based on EES calculation methodology of assuming COG BTU content of 500.

6. IN COMPLIANCE. 2.61 NOx pph from the PECS stack. The most recent test was conducted in September 2016. See 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 2.26 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 2017. Results were received in November 2017. Results were 0.022 lbs PM/1000 lb gas @50% excess air. The prior test was 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 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 2017. Results 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. 5.74 tons was reported for 2017 in MAERS. The MAERS value includes fugitive emissions.

11. IN COMPLIANCE. PM limit of 0.02 lb/ton of coke pushed from the PECS stack. The most recent test was conducted in September 2016. See TPU memo in the file for a summary of the test report review Results were 0.004 lb PM/ton coke pushed.

12. IN COMPLIANCE. PM10 limit of 73.3 pph from the combustion stack. 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.

13. IN COMPLIANCE. PM10 limit of 0.69 pph from the PECS stack. The most recent test was conducted in September 2016. See TPU memo in the file for a summary of the test report review. Results were 0.43 lb PM10 pph.

14. IN COMPLIANCE. PM2.5 limit of 73.3 pph from the combustion stack. 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 test was conducted in September 2016. See TPU memo in the file for a summary of the test report review. Results were 0.43 lb PM2.5 pph.

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 2017 – July 2018, the highest emissions were 1,989 tons of SO2 from the combustion stack in March 2018. Note, some quarter(s) had significant downtime.

17. IN COMPLIANCE. SO2 3-hour average of 544.6 lbs. from the combustion stack. From July 2017- July 2018, no exceedances have been reported.

18. 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 CY2017 or the first half of the year semi annual period of 2018.

19. IN COMPLIANCE. VOC limit on 43.1 pph from the combustion stack. 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 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. For 2017, there were 4 total exceedances on three different dates for a total of 24 minutes. 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 tpy on a 12 month rolling time period and 125,000 tons/month. Highest 12 month rolling from July 2017 – July 2018 was 1,252,837 tons in July 2018 and 113,582 tons per month in July 2018. (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 July 2017 – July 2018 was 707,365 gallons in March 2018. (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 July 2017 – July 2018 was 701,523 gallons in June 2018. (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.

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. IN COMPLIANCE. Volatile matter in coke shall not exceed 0.94% by weight based on a 12-month rolling average. Based on the attached records, the 12-month rolling volatility is below this level. Facility tests for volatility for quality purposes as well. (attached)

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 has not exceeded 1.3MM for the 12-month rolling time period July 2017- July 2018 so no COG has been required to go off site. (attached)

IV. DESIGN/EQUIPMENT
1-4. IN COMPLIANCE. Conditions 1-4 paraphrased as follows: Shall not operate EUCOKE-BATTERY unless bleeder flares, PECS baghouse and quench tower are installed, maintained, and operating in a satisfactory manner. Bleeder flares and COG flare shall have automatic ignition system which is maintained and operated properly. Shall not push coke unless PECS baghouse is operated and maintained properly. Baffles in the quench tower shall be kept in a good state of repair.

The PECS baghouse, including the capture system, and quench tower appear to be maintained properly based on the attached records from July 2017 – July 2018. It appears that more timely work orders related to leaks in the capture system or other issues with the BH have been implemented so that issues do not appear to be ongoing from one month to the next. The quench tower does not appear to have ongoing issues that would affect its performance. Bleeder/bypass flare system did not have any releases of raw COG during that time period and appear to be maintained and operated properly.

5. IN COMPLIANCE. Permittee shall only use acceptable make up water. Make up water is mill water. I believe it meets that definition in terms of "water from any of these sources (i.e. river), that has been used only for non-contact cooling or in water seals."

6. IN COMPLIANCE. Pressure drop monitoring occurs on a continuous basis via a pressure drop gauge and is electronically recorded.

V. TESTING
1. IN COMPLIANCE. Permittee shall test combustion stack every two years. Testing was conducted in 2017, 2015, and 2013.

2. IN COMPLIANCE. Permittee shall test PECS stack every two years. Testing was conducted in September 2016, December 2014 and June 2012. Next test is scheduled for the week of September 17, 2018.

3. IN COMPLIANCE. Permittee shall sample TDS on a weekly basis with a minimum of three samples collected per week. Records were presented. Five samples are being collected per week.

4. IN COMPLIANCE. Volatility records are attached.

VI.MONITORING/RECORDKEEPING
2. IN COMPLIANCE. COMS shall be installed and maintained. COMS is installed and an 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. NOT 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 continues to be an issue; mostly related to issues with the flow monitor. For July 2017 – July 2018, excess monitor downtime occurred in the 3rd and 4th quarters of 2017 due to a failed RATA.

The 1st and 2nd quarter of 2018 have minimal downtime. Facility just preliminarily passed the 3rd quarter 2018 RATA. However, AQD is awaiting 3rd and 4th quarter downtime reports and the facility's plan for minimizing future downtime to resolve the issue.

4. NOT 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. For July 2017 – July 2018, excess monitor downtime occurred in the 3rd and 4th quarters of 2017 due to a failed RATA.

1st and 2nd quarter of 2018 have minimal downtime. Facility just preliminarily passed the 3rd quarter 2018 RATA. However, AQD is awaiting 3rd and 4th quarter downtime reports and the facility's plan for minimizing future downtime to resolve the issue.

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 COMPLI ANCE. 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. Records were presented during the inspection.

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. IN COMPLIANCE. Pressure drop is continuously recorded. No pressure readings outside of the normal range during processing have been observed. The normal range is 0.3 – 7 in. w.c. according to the July 1, 2015 O&M plan. However, the January 2018 amended MAP has the high end of the range at 10. According to Ms. Harden, this is based on a review of the operations manual.

14. IN COMPLIANCE. Inspection of the PECS baghouse is required once per month. From July 2017 – July 2018, inspections were performed on time. See attached.

15. IN COMPLIANCE. Inspection of the baffles is required once per month. From July 2017 – July 2018, inspections were performed on time based on the records reviewed on site. See attached.

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 (July 2017 – July 2018) 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 as 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. No COG was required by the permit to be sent to a separate stationary source based on the coal charged. However, highest 12 month rolling average amount of COG sent off site for July 2017 – July 2018 was 1,681,775 MMBTU. See 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 for July 2017 – July 2018.

20. IN COMPLIANCE. Condition requires regular inspections of the flare and automatic ignition system. According to facility, no formal inspections are necessary because it is obvious whether the flare is working. No issues with the ignition system at the flare have been experienced. At this time, this appears to be sufficient.

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, Spencer Oil, are maintained and were presented during the inspection.

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.

IX. OTHER. IN COMPLIANCE. NESHAP L and 5C are evaluated in later sections of this report.

EUCOKE-BYPRODUCT

DESCRIPTION: The by-products plant includes the exhausters that draw the gases off the No. 5 coke oven battery and all the process vessels required to separate the phenols, tars, light oils, and ammonia from the coke oven gas. This occurs by passing the gas and fluids through a series of process decanters, condensers, heat exchangers, and stills. The by-products plant also includes storage tanks, and light oil loading operations.

Flexible Group ID: FGNESHAPL,V,&FF

POLLUTION CONTROL EQUIPMENT: Nitrogen gas blanketing system

I. EMISSION LIMITS NA

II. MATERIAL LIMITS NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. The permittee shall not vent raw coke oven gas that has not been processed in EUCOKE-BYPRODUCT to the COG flare. At this time, AQD is not aware of any situation where raw COG could go the flare without passing through the byproducts plant. This situation has not been reported either.

IV. DESIGN/EQUIPMENT PARAMETERS NA

V. TESTING/SAMPLING

1. IN COMPLIANCE.
   The permittee shall monitor for benzene leaks from the by-products plant equipment using Method 21 or other methods as approved by the AQD District Supervisor. The frequency of leak testing is as follows:
   a. Monthly for pump seals
   b. Quarterly for flanges, valves and exhausters
   c. Semi-annually for blanketing systems
   d. Annually for difficult to monitor equipment
   e. The frequency of leak tests as required by 40 CFR 61, Subpart V shall prevail over the above indicated frequency if lesser.

   The permittee must submit any request for a change in the sampling frequency and methods to the AQD District Supervisor for review and approval.

   Reports are submitted semi-annually, and activities appear to meet the required monitoring frequency from the time period of July 2017 – July 2018.

VI. MONITORING/RECORDKEEPING NA

VII. REPORTING NA

VIII. STACK/VENT RESTRICTIONS NA

IX. OTHER REQUIREMENTS – DID NOT EVALUATE. References to Subpart L,V, and FF.

EUMATERIALS

I.1&2 IN COMPLIANCE. Visible emissions limit of 10% opacity on a 6-minute average for the coal bin vents and the mixing building baghouse. No exceedances have been observed by the certified reader.

III.1 IN COMPLIANCE. Under PTI 51-08C, a revised plan to include EUMATERIALS for fugitive dust control was required within 180 days of permit issuance. The permit was issued November 21, 2014. An updated fugitive dust control plan was received on 5/26/15. The plan was revised 1/30/18. Portions of the plan related to EUMATERIALS were approved by default after 90 days as the condition states. See attached.

III.2 IN COMPLIANCE. MAP was revised on January 30, 2018 and submitted to AQD. It was approved by default after 90 days. The prior MAP was submitted on January 22, 2015 for the mixing building baghouse and was approved. See attached.

IV. IN COMPLIANCE. A pressure drop gauge is installed at the mixing building baghouse.

VI.2 and 3 DID NOT EVALUATE. Did not receive this information at this time.

VI.4. IN COMPLIANCE. Requires daily non certified VE's on the mixing building baghouse and coal bin vents. If VE's are observed, a certified reading shall be performed. No VE's have been observed.

VI.5 IN COMPLIANCE. Requires daily pressure drop records. Daily pressure drop records are maintained.

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.

FGNESHAPL, V, &FF – DID NOT EVALUATE

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 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.

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.

DID NOT EVALUATE III.1,3

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

IV. DESIGN/EQUIPMENT PARAMETERS

1. IN COMPLIANCE. Electronic igniters are in place. Did not request full design specifications at this time. The permittee shall operate and maintain a bypass/bleeder stack flare system complete with electronic igniters installed in accordance with the design requirements as specified in § 63.307(a) (1) and (b).

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
2. DID NOT EVALUATE. The permittee shall maintain a record of internal reports which form the basis of every malfunction notification under § 63.310(f).
3. IN COMPLIANCE. The permittee shall maintain files on-site at all time of all required information in a permanent form suitable for inspection at an on-site location for at least 1 year, and thereafter will maintain such files for 5 years from the date of creation at a location so that the files are accessible within 3 working days. Such records include a copy of the work practice plan, records related to the implementation of the work practice plan, design drawings and engineering specifications for the bypass/bleeder stack flare system, and records regarding the basis of each malfunction notification. Facility appears to have the required records for the past year on site. I did not evaluate the remainder of the condition.
4. DID NOT EVALUATE. The permittee shall maintain records required to be maintained and reports required to be filed under 40 CFR 63, Subpart L be made available to the authorized collective bargaining representative of the employees at the coke battery for inspection and copying in accordance with the provisions of § 63.311(g). Did not evaluate whether this information was provided to the employees.

VII. REPORTING

1. IN COMPLIANCE. Within 14 days of the notification made under § 63.310(d), or after a startup, shutdown, or malfunction, the permittee shall submit a written report to the AQD District Supervisor that:
   a. Describes the time and circumstances of the startup, shutdown, or malfunction; and
   b. Describes actions taken that might be considered inconsistent with the startup, shutdown, or malfunction plan.

   From July 2017 – July 2018, no SSM notifications have been received.

2. IN COMPLIANCE. The permittee shall submit semi-annual compliance certifications in accordance with § 63.311(d). Certifications are submitted semiannually.

3. IN COMPLIANCE. The permittee shall report any venting of coke oven gas through a bypass/bleeder stack that was not vented through the bypass/bleeder stack flare system to the USEPA as soon as practicable but no later than 24 hours of the event. The permittee shall submit a follow-up written report within 30 days. From time period of July 2017 – July 2018, there were no releases of raw coke oven gas.

VIII. STACK/VENT RESTRICTIONS NA

IX. OTHER REQUIREMENTS

1. DID NOT EVALUATE. The permittee shall make available to the surrounding communities the results of any risk assessment performed by the USEPA to determine the appropriate level of any emission standards under section 112(f) of the CAA, within reasonable time after any such risk assessment is published by the USEPA.

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FGMACTCCCCC/MACT 5C

I.1 IN COMPLIANCE. PM limit of .02 lb/ton of coke pushed. December 2014 test results were 0.006 and April r015 were 0.003. The most recent test was conducted in September 2016. See TPU memo in the file for a summary of the test report review Results were 0.004 lb PM/ton coke pushed.

I.2 IN COMPLIANCE. Based on the COMS data, and as reported quarterly in the Excess Emissions Reports (EER), no exceedances of the daily average 15% opacity for a battery on normal coking have been reported or 20% on extended coking for the time period of July 2017 – July 2018.

II. MATERIAL LIMITS

1 IN COMPLIANCE. TDS testing results for the quench water are all below 1,100 mg/liter. This is based on a composite sample of 5 daily samples. Records to indicate daily samples are being taken and are below the 1,100 mg/liter limit were presented during the inspection.

III PROCESS/OPERATIONAL

1& 2. IN COMPLIANCE. Permittee shall comply with work practice standards for fugitive pushing emissions and soaking. Compliance is demonstrated through training. Training materials and attendance logs were provided during the prior inspection and this training is still in place. At this time, c, d and e of this condition were not evaluated as I am unsure how compliance should be demonstrated.

3. Shall comply with the following for quench towers:
a.IN COMPLIANCE. Demonstration provided in the prior inspection showing uncovered cross-sectional area less than 5% and the design has not changed.
b.IN COMLPLIANCE. Baffles washed every 6th quench cycle and are washed every day regardless of temperature. The PLC activates the washing.
c.IN COMPLIANCE. Baffles inspected monthly and monthly checks for blockage are performed as well. While some issues are indicated on the monthly inspection forms, none of them were reportedly causing an issue with the efficiency of the spray tower (i.e. small leaks in nozzles, some buildup but none blocking sprays, etc.).
d.IN COMPLIANCE. No baffles needing repair were identified in the inspection records.

4. IN COMPLIANCE. See attached latest O&M plan revised January 30, 2018. Permittee shall comply with the general O&M requirements for the battery. Must prepare and operate at all times according to a written operation and maintenance plan for the general operation and maintenance of new or existing by-product coke oven batteries. Each plan must address, at a minimum, the elements listed in paragraphs (b)(1) through (6) of this section. (1) Frequency and method of recording underfiring gas parameters. (2) Frequency and method of recording battery operating temperature, including measurement of individual flue and cross-wall temperatures. (3) Procedures to prevent pushing an oven before it is fully coked. (4) Procedures to prevent overcharging and undercharging of ovens, including measurement of coal moisture, coal bulk density, and procedures for determining volume of coal charged. (5) Frequency and procedures for inspecting flues, burners, and nozzles. (6) Schedule and procedures for the daily washing of baffles. Procedures exist. Parameters that are tracked and recorded to indicate compliance with this condition were provided during the prior inspection and are still being monitored.

5. IN COMPLIANCE. Permittee shall maintain and operate at all times according to the O&M plan for the capture system and control device. See attached latest O&M plan revised January 30, 2018. Part of the O&M plan is to inspect the capture system monthly and repair defects within 30 days. Based on the records provided for July 2017 – July 2018, repairs appear to complete within 30 days and records include references to follow up work orders. Records are attached.

6. DID NOT EVALUATE. Permittee shall implement and maintain an SSM plan. ee attached for latest version of plan.

IV DESIGN/EQUIPMENT

1. IN COMPLIANCE. Documentation has been previously provided to demonstrate that the bag leak detector meets the requirements in the MACT and the sensitivity and range have not been adjusted since the initial establishment. According to Ms. Harden, an alarm is generated from an instantaneous reading above the set point.

V. TESTING

1. IN COMPLIANCE. PECS baghouse stack shall be tested twice every 5 years. Testing was conducted in 2012 and 2014 and 2016 and 2018. Sampling was only conducted during pushing.

2. IN COMPLIANCE. Permittee uses a COMS to determine compliance with opacity limits.

3. DID NOT EVALUATE. Sampling of TDS of the quench water based on methods for coke oven quench towers in 63.7325. Did not evaluate at this time whether all parts of the methodology are being followed.

VI. MONITORING/RECORDKEEPING

1a. IN COMPLIANCE. Documentation was previously provided to demonstrate that the bag leak detector meets the requirements in the MACT and the sensitivity and range have not been adjusted since the initial establishment.

1b. IN COMPLIANCE. The required PECS baghouse monitoring – pressure drop, dust removal, compressed air supply, bag cleaning mechanism, quarterly visual inspection of interior, quarterly fan inspections - is being conducted as documented in the inspection records reviewed on site. Quarterly inspections are attached.

2. IN COMPLIANCE. Permittee shall monitor and collect data for combustion stack opacity, PECS stack bag leak detection readings, and PECS baghouse fan amps to demonstrate continuous compliance. All parameters listed are continuously monitored and recorded. Example of COMS data is attached.

3. IN COMPLIANCE. Daily average opacity has not exceeded 15% as determined by the COMS for the time period of July 2017 – July 2018. This is reported quarterly in the EER.

4. IN COMPLIANCE. TDS content is below 1100 mg/l as determined by the sampling results presented during the inspection . Also, the TDS content is determined weekly per the records.

5. a.1 IN COMPLIANCE. 4 pushes a day are being read and every oven has been read once every 90 days.
b. Records of work practice standards for soaking. IN COMPLIANCE related to training of workers and procedures for dampering off ovens. Did not evaluate whether facility has documentation related to soaking emissions events.
c. IN COMPLIANCE. See other identical condition regarding the quench tower.

6. IN COMPLIANCE. For 6.a and b.ii, part of the O&M plan is to inspect the capture system monthly and repair defects within 30 days. Based on the records provided, repairs appear to be completed within 30 days if there is a potential to affect the capture and/or control. For the remainder of this condition, records of corrective actions for a BLD alarm were provided and appear sufficient (see attached), baghouse conditions related to 63.7331(a)(1) -(8) were provided during the inspection. Current O&M plans are maintained and available per condition d. I did not request copies of prior plans at this time. For the BLD alarms from July 2017 – July 2018, all of the incidents appear to have had corrective action initiated within 24 hours and completed within a reasonable time frame.

7. IN COMPLIANCE. Based on a spot check of records during the inspection, it appears that the permittee is maintaining the required records. Permittee must maintain compliance records.

VII.REPORTING
1. **IN COMPLIANCE. From the time period of July 2017 – July 2018, 5C reports appear to contain the required information.**
2. **DID NOT EVALAUTE. Did not review all notifications that have been submitted for MACT 5C at this time.**

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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, SO_2, CO, CO_2/O_2 - 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.

PENDING for Condition 1.

1. **Within 30 calendar days after permit issuance, the permittee shall submit two copies of a Fuel Flow Monitoring Plan to the AQD for review and approval. The Fuel Flow Monitoring Plan shall include fuel flow metering methodology and data to support a default COG heating value (Btu/scf).**

While the plan was submitted, it is not yet approved. After multiple requests, AQD finally received quarterly test results for the COG HHV on September 19 to support the default COG heating value of 500 CTU/scf. From January 2017 through September 2018, the quarterly value ranged from 476 to 544, with an average of 506. AQD is still evaluating whether this variation makes a difference in compliance with the emission limits. AQD is also awaiting several more quarters of results.

COMPLIANCE DETERMINATION

At this time, EES Coke is not in compliance with all of the conditions evaluated above as there are ongoing issues with CERMS downtime. While the CERMS recently preliminarily passed a RATA, it is unclear whether the monitor downtime issues have been fully resolved and what the facility has done to address them. AQD will await the 3rd and 4th quarter 2018 downtime results and an explanation from the company as to how the monitor downtime in 2017 was addressed and will be prevented from recurring before resolving the non compliance status.

NAME Katie Koski DATE 9/27/18 SUPERVISOR