B2810
MANILA

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

B281049959

FACILITY: DTE Electric Company - River Rouge Power Plant		**SRN / ID:** B2810
LOCATION: 1 BELANGER PARK DRIVE, RIVER ROUGE		**DISTRICT:** Detroit
CITY: RIVER ROUGE		**COUNTY:** WAYNE
CONTACT: Tanecia Wilson , Associate Engineer - Environmental		**ACTIVITY DATE:** 07/19/2019
STAFF: C. Nazaret Sandoval	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FY 2019 - Scheduled Inspection		
RESOLVED COMPLAINTS:		

SCHEDULED INVESTIGATION REPORT
(PCE for an FCE source)

1 -SAFETY EQUIPMENT/SAFETY TRAINING/SECURITY

Hardhat, safety glasses with side shields and steel-toed boots are required throughout the plant; hearing protection is required inside the boiler house. One must sign in at the guardhouse and allow security to notify plant staff of your arrival prior to entering the plant grounds beyond the guardhouse. One must obtain a temporary parking pass to park adjacent to the boiler house; otherwise, a visitor can usually park in the contractor/employee lot in the foreground of the guardhouse.

2 - FACILITY DESCRIPTION

DTE Electric Company River Rouge Power Plant (DTE River Rouge), formerly known as the Detroit Edison River Rouge Power Plant, was constructed in the 1950s to generate electricity. The original plant comprised three large steam boilers and associated turbines, a smaller auxiliary steam boiler, coal and ash handling equipment, and four diesel turbine peakers. The three steam boilers are identified as Unit 1, Unit 2, and Unit 3. Unit 1 is a natural gas fired unit owned by DTE River Rouge Unit 1 LLC, a subsidiary of DTE Energy, and operated by DTE River Rouge. Units 2 and 3, owned and operated by DTE River Rouge, fire primarily western subbituminous coal with additional amounts of eastern bituminous coal, natural gas, coke oven gas, blast furnace gas, and dried paint solids.

Over the years, there have been changes in the plant operations, including changes in the number of boilers in use, types of fuels, additional processes for air pollution controls, etc.
A detailed, and updated description of the operations at DTE River Rouge, follows:

DTE River Rouge offloads coal from railcars into an underground pit capped by a total enclosure known as the Rail Car Dumper House. The coal is lifted through a covered conveyor system comprising three primary transfer points (the Drive House, the Unloading House, and the Breaker House), stacking/stocking conveyors, and stockpiles for eastern, western, and PCI (pulverized coal injection) coal. All coal is eventually transported passing through additional transfer points (Transfer House No.1 and Transfer House No.2) to the boilers' bunkers or diverted for the PCI system, which utilizes the bunker formerly used for Unit 1. Particulate emissions at the Rail Car Dumper House and at the coal bunkers are controlled by fabric filters; particulate emissions along the conveyors and at the transfer points are controlled through enclosures and through the application of a dust suppressant.

DTE River Rouge acts as an intermediate coal processer for the U.S. Steel blast furnaces on Zug Island and AK Steel (formerly known as Severstal) blast furnaces in Dearborn. This coal, known as the PCI coal, is pulverized in one of four coal mills. Mills number 1, 2, 5 and 6 are used to pulverize the coal sold to U.S. Steel and the product is piped across the Rouge River to Zug Island. The coal processed at the Alstom Mill is sent to an on-site Silo and trucked to AK Steel. Particulate emissions from the PCI coal mills and PCI handling equipment are controlled by fabric filters. There are two stacks, one for each coal mill operation.

DTE River Rouge was designed to house three electric utility steam boilers; from east to west the boilers were named Unit 1, Unit 2, and Unit 3. Unit 1, the 2400 million British thermal unit (MMBtu) per hour boiler that was originally designed to fire coal, switched to burn oil in the early 1970s, and finally converted to combust natural gas, exclusively, in 1999.
Unit 1 was used for backup or peaking power and it was rarely in service; it was last operated in 2005. Unit 2, a 2280 MMBtu per hour tangentially fired boiler, operated with coal and equipped with gas burners, generated electricity for the last time on November 16, 2015 after a forced outage from July 2015 to October 2015 due to a damaged turbine that was beyond a cost-effective repair. Unit 2 was only used "intermittently" to generate steam

until December 11, 2015 during the periodic winter outage of Unit 3, to ensure none of the equipment in the plant froze during the outage. Unit 2 was officially shutdown in late March 2016 and formally retired in April 2016. Unit 3, the wall-fired, 2670 MMBtu per hour coal-fired unit, also equipped with gas burners, is the only boiler that remains in operation. Units 2 and 3 were permitted to combust up to 10,000 tons of residual paint solids (RPS) from auto assembly plants. However, the usage of RPS as an alternative fuel was discontinued in late 2015.

Unit 1 and Unit 2 boilers, the ancillary equipment and the stacks associated with their operations are still at the plant; but they are disconnected and inoperable. DTE River Rouge requested the exclusion of Unit 2 and the applicable requirements from the current permit (see details later in this report). Unit 1 is still listed in the permit as an emission unit, although it has not been in operations for about 14 years. DTE River Rouge has not requested the exclusion of Unit 1 from the current permit. Therefore, in the following explanation we will continue to describe the equipment and operations associated with Unit 1. DTE River Rouge has to keep records and continue the submittal of permit required reports as long as Unit 1 is part of the ROP.

Boiler emissions are vented vertically to the ambient air through stacks, 385 feet high for Unit 1 and 425 feet high for Unit 3. Particulate emissions from Unit 3 are controlled by electrostatic precipitators (ESP). Both units have low-NOx burners for NOx control; Unit 1 is also equipped with flue gas recirculation. SO2 emissions are limited by the sulfur content of the fuel; no add-on controls for SO2 are installed at the plant. Unit 3 is equipped with continuous emissions monitors (CEMS) for NOx and SO2 and with a continuous opacity monitor (COMS) for visible emissions. Unit 1 is equipped with CEMSs for NOx and CO. Boiler ash is wetted and discharged to trucks for transport to the Sibley Quarry; these operations are conducted in partial enclosures underneath the overhang of the ESPs.

On 7/24/2015 DTE River Rouge completed the installation of a modular Dry Sorbent Injection (DSI) and Activated Carbon Injection (ACI) system to comply with the Mercury Air Toxic Standards (MATS) for coal-fired electric utility steam generating units. The project included the installation of equipment to serve both boilers, Units 2 and 3. The MATS regulated pollutants are mercury (Hg), non-mercury metals, and acid gases. An emission limit for particulate matter (PM) can be used as a surrogate for non-mercury metals. An emission limit for Hydrochloric acid (HCl) can be used to demonstrate compliance with the acid gas standard. Hg emissions are controlled using ACI injected into the flue gas after the air heater and prior the electrostatic precipitator (ESP). HCl emissions are controlled through the DSI system. Trona, a sodium carbonate compound, is injected into the flue gas upstream of the air heater and prior to the ESP. The system described above was installed before Unit 2 was retired, thus Silo 1 (which would serve Unit 2) is on-site but was never connected. The DSI/ACI system started its trial operation on March 14, 2016 when the first delivery and loading of dry sorbent (Trona) was fed into the operating DSI modular system

DTE River Rouge operated a limited-used, 235 MMBtu per hour, natural gas-fired Auxiliary Boiler installed in 1987. The purpose of the Auxiliary Boiler was to provide steam to the plant and to other nearby customers when the main boilers were down. The Auxiliary Boiler was not connected to a turbine and generated no electricity for the grid. The repairs to maintain the Auxiliary Boiler in service appeared to be too costly and DTE River Rouge decided to shut it down in May 2013. Consequently, to comply with the contract steam supply to U.S. Steel during outages of the main boilers, DTE River Rouge leased a Portable Boiler. The leasing of the Portable Boiler became more frequent and DTE River Rouge decided to purchase the approximately 40-year old Portable Boiler from the rental company during the fourth quarter of 2014. The unit is a natural gas-fired Portable Boiler nominally rated at 33.5 MMBtu per hour heat input and 150 psi. The equipment (located in a trailer) was brought to the plant on November 1, 2014 and it is permanently installed at the site, starting its operations on April 20, 2015. All the meters and monitoring system used with the former Auxiliary Boiler have been connected to the Portable Boiler.
There are also four 28.4 MMBtu per hour diesel fueled generators connected to the electrical grid and operate as peaking units (Peakers) for black start. No add-on emissions controls are associated with the Portable Boiler or Peakers; sulfur emissions from the Peakers are limited through the sulfur content of the fuel.

The facility has three diesel generators, each rated at 10 kW (or 13.4 hp), located in the coal yard to provide emergency lighting in the event of a blackout. There are four part-cleaners, two located in the maintenance machine shop and the other two in the fuel supply area.

3 - REGULATORY BACKGROUND

DTE River Rouge is a New Source Review major source for carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO2), and particulate matter (PM). The source is also a Clean Air Act Section 112 major source for Hazardous Air Pollutants (HAPs), primarily due to emissions of hydrogen chloride (HCl). Therefore, the source is subject to the Title V program, known as the Renewable Operating Permit (ROP) program in Michigan. Unit 1 is subject to New Source Performance Standards (NSPS) at 40 CFR 60, Subparts Da and it is also subject to the National Emissions Standards for Hazardous Air Pollutants (or MACT) at 40 CFR 63, Subpart

DDDDD. Unit 3 is subject to the MACT standards at 40 CFR 63, Subpart UUUUU, including the limits for filterable PM, HCl and Hg. Unit 3 and its electrostatic precipitator (ESP) controls are subject to the federal Compliance Assurance Monitoring (CAM) regulation at 40 CFR 64. The newer portions of the coal handling system are regulated under the NSPS at 40 CFR 60, Subpart Y. The diesel peaking units and the emergency generators at the site are subject to the MACT standards at 40 CFR 63, Subpart ZZZZ. Fugitive dust emissions are regulated under State Implementation Plant (SIP) Order No. 9-1993, which has been incorporated into the ROP.

A Portable Boiler designed to burn natural gas is permanently located at the facility since 11/1/2014 and substituted the Auxiliary Boiler installed in 1987 (limited-used boiler regulated under 63.7499(o) of 40 CFR Subpart DDDDD) which operated until May 2013. DTE River Rouge submitted a notification letter to AQD indicating that the Auxiliary Boiler was permanently inoperable. Consequently, the requirements cited in the ROP for the Auxiliary Boiler (EU-AUX_BOILER) are no longer applicable. AQD will remove EU-AUX_BOILER special conditions requirements during the ROP renewal.

The Portable Boiler, with 33.5 MMBtu per hour heat input, is exempt from the requirements of Rule 201 to obtain a PTI under exemption R336.282(2)(i) – indirect heating, natural gas firing equipment with heat input rate less than 50 MMBtu per hour. The Portable Boiler has a fabrication date of January 9, 1975, therefore; it is not subject to the New Source Performance Standards (NSPS) at 40 CFR 60, Subparts Dc. However, it is considered an existing source regulated under the National Emissions Standards for Hazardous Air Pollutants (or MACT) at 40 CFR 63, Subpart DDDDD. There are no emission limits or operating parameter limitations associated with MACT regulations applicable to the Portable Boiler. The only requirements are a one-time energy assessment and an annual tune-up.

Units 1 and 3 boilers are subject to the federal Acid Rain (AR) regulations and to the Cross-State Air Pollution Rule (CSAPR). On September 7, 2016 the EPA finalized an update to the CSAPR for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) by issuing the final CSAPR Update. CSAPR regulations are replacing the Clear Air Interstate (CAIR) regulations. CSAPR regulates annual emissions of NOx and SO2 as well as NOx emissions during the ozone season (May 1 through September 30) from subject electric generating units (EGUs). CSAPR implementation began on January 1, 2015. CSAPR requires fossil fuel-fired EGUs at coal-, gas-, and oil-fired facilities in 27 States (Michigan is one of them) to reduce emissions to help downwind areas attain compliance with the ozone NAAQS. Starting on May 1, 2017 the CSAPR Update ozone season (May 1 through October 31) NOx program replaced the original CSAPR ozone season NOx program. The Acid Rain permit expires in conjunction with the facility's ROP and the renewal is issued at the same time of the ROP renewal. CSAPR requirements of 40 CFR Part 97, Subparts AAAAA, BBBBB and CCCCC will be incorporated as an appendix into the ROP during the renewal process. The compliance determination with the Acid Rain and CSAPR regulations is primarily performed by the US EPA at the end of every compliance period through the acceptance and evaluation of the data submitted directly by DTE River Rouge to the EPA Clean Air Markets program. This process is called annual reconciliation.

4 - FACILITY VISIT

Overview

This section identifies the areas of the plant that were visited during the walkthrough and defines the scope of this inspection. The inspection consisted of approximately eight hours of on-site investigation. A more detailed description of the unit operations, as well as the data collected, has been included in the section titled "Observations and Updates".

On 7/19/2019 I arrived at Belanger Park Drive at 8 AM and signed in at the DTE River Rouge security gate. I met with Ms. Tanecia Wilson, Environmental Engineer at DTE River Rouge.

At the opening meeting, Ms. Wilson arranged a meeting with the following staff from DTE River Rouge: Mr. Nader Rajabian, Plant Manager; Mr. Gary Toulouse, Production Manager; and Mr. Brandon Kelly, Maintenance /Engineering Manager.
After the introductions, I stated the objective of the inspection and I gave them a brief overview of the main topics to be discussed as part of the AQD compliance evaluation.

The purpose of the inspection was to evaluate the facility's compliance with respect to the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and the conditions of Renewable Operating Permit (ROP) number MI-ROP-B2810-2012b (ROP).

After the opening meeting, Ms. Wilson remained in the room and the rest of the DTE River Rouge staff left and offered to provide help with any question during the inspection.

Previous to the plant walkthrough, I briefly discussed the ROP provisions and recordkeeping requirements with Ms. Wilson. I had sent her a record request earlier in the week, on 7/16/2019. She had prepared some of the records and agreed on sending the remaining records via email within the following days after the inspection.

We started the plant tour at about 9:00 AM until approximately noon time. We met again at about 1:00 PM to complete the plant tour and to finish our discussions. In our discussions, I reviewed some of the records that Mr. Wilson had put together and I requested additional information. At the closure meeting I indicated that the final status of compliance would be determined after conducting further evaluation of the records. I left the facility at about 5:00 PM.

As it was noticed in the inspection of 2017, I observed that the level of activity at the conveyor/transportation system that transfers the coal to the bunkers seems to be diminished compared to the one observed four to five year ago. That's explained by the reduction in the coal usage due to the cessation in operations of Unit 2.

We started the tour with Mr. James Henderson, I&C Technician; who brought us to the CEMs shelter area that houses the monitoring system. The displays showed the emission for the different pollutants. Emissions data were obtained from the analyzers in the CEMS shelter for Unit 3 on July 19, 2019. Opacity readings were also recorded at the location of the COMs analyzers for Unit 3. I asked Ms. Wilson to provide a print-out of the CEM data for the day. In the same floor we stopped at the mercury shelter for Unit 3 to observe the sorbent trap system (STS). Mr. Henderson showed us the traps and the probes that are used to monitor mercury during stack tests. From there, we briefly stopped by the maintenance shop where Mr. Dennis Doe, Maintenance Supervisor; showed us two of the Cold Cleaners. They are Zep Dyna 143. There are no changes in the size, type or part cleaners and solvent used. It was observed that the lids were closed and the instructions for proper operation were posted. The other two parts cleaners were not inspected during the visit, but Mr. Wilson confirmed that they remain at their same locations; one is in the fuel supply tractor house and the other one is in the fuel supply maintenance shop. Afterwards, we met with Ms. Lauren JongKind, Unit Engineer. She walked with us to the control room of the ESP and explained the process. I observed the monitors and the operational variables. I recorded some of the variables and noted the fields that were in operation. When we were there, an operator came into the room to do his daily ESP monitoring round. I requested Ms. Wilson to email me a copy of the operator's records.

The lasts two stops of the inspection before the morning break were with plant personnel knowledgeable of the PCI system and the coal supply. We also visited the boiler control room and examined the data on the computer screens. We discussed the parameters that are regularly monitored and recorded at the facility. Mr. Mike Krapp, Supervising Operator; explained the PCI coal process and the control variables. He handed out a flow diagram that shows the transport overview depicting the filters, silos and the mills for US Steel. Mr. Arthur Cross, Fuel Supply Foreman; provided an update on coal consumption and coal blending.

In the afternoon, we walked to the north side area of the plant to observe the ACI/DSI system which started operations on March 14, 2016. Mr. Gary Toulouse, Production Manager; gave an overview of the operations and identified the ACI/DSI equipment and its functions. The activated carbon storage, Silos No. 1 and No. 2, are located near the abandoned rail-road track facing the River Rouge Canal. From the area of the ACI/DSI we proceeded to the meeting room for the records evaluation/discussion and closure meeting.

The peakers, the trailer that houses the portable boiler, and the auxiliary boiler are all located at the south-east corner of the plant. I did not inspect this area but during the morning discussions Ms. Wilson confirmed that the auxiliary boiler remains disconnected. The previous inspection report noted that the auxiliary boiler was last used before May 2013 and the portable boiler was installed on 11/1/2014, starting operations on 4/20/2015.

The emergency generators were inspected, and the hourly meters were checked as we drove by the locations where they are installed.

Before leaving the site, I drove along Belanger Park Drive west and south of the plant and I conducted stack observations. No visible emissions were observed from Unit 3 boiler stack or the two PCI coal mill stacks. Views from these directions placed the sun outside the allowed 140° angle for an official Method 9 reading and in a location that served to enhance the appearance of visible emissions.

All the recorded data obtained during the plant tour is provided later in this report.

Observations and Updates

For ease of documentation, I have combined the observations that relate to one another or that are common to an emission unit or group of emission units. Unless a time stamp was readily observable at a display, the times

given are from the display on my personal mobile phone; data at the CEMS/COMS and the ESPs are constantly altering, therefore observations from the displays for a number of categories are not necessarily concurrent to one another. The information included below was either gathered the day of the on-site visit, updated from past description, and/or provided via email by DTE River Rouge staff.

When Units 2 and 3 were both in operation, DTE River Rouge used to run them primarily on the lower sulfur, lower Btu content Western Coal, and occasionally, to maximize the load, the fuel supply to the boilers was a mixture of 30% Eastern Coal with 70% Western Coal. However, since mid-2016, after Unit 2 was shut down, DTE River Rouge is running Unit 3 mostly with Western Coal only. Unit 3 was in operation at the time of the inspection and Unit 1 remains non-operational, as it has been the case for several years.

Coal is received by railcar at the southwestern edge of the plant and it is loaded into the bunkers Monday to Friday between 6:30 to 9:30 AM. This represent a shorter loading period compared with the information reported in 2017, which indicated a loading period from 7 to 11 am. The Unit 3 bunker holds 3,000 tons. The PCI bunkers hold 3,000 tons total; 2,000 for the U.S. Steel system and 1,000 for the AK Steel system. Typically, the PCI system will only consume 700-900 tons per day per system: A maximum of 700 tons / day for the AK Steel system and 900 tons / day for the U.S. Steel system. The bunkers used for the PCI units were originally part of Unit 1, which explains their large capacity.
Since the shutdown of Unit 2, coal usage has decreased from 5,000 tons per day, reported during the 2015 inspection, to approximately 1,600 tons per day reported during the inspection of June 2, 2017. The levels reported for June 2019 remain similar to the ones reported in 2017, totaling 42,878 tons per month (in 25 operating days for Unit 3), which represents an average of 1,650 tons per operating day.
When Unit 2 and 3 were running, the trains delivered coal at the plant two to three days per week. The inspection report of year 2017 indicated that coal delivery had been reduced to four trains per month. During the inspection of 7/19/2019 a monthly report provided for the month of June 2019 showed that there were two coal deliveries on that month. The plant received two trains of the Western Coal for Units 3, each carrying about 15,800 tons of coal.
According to the June 2019 records for the PCI system, AK steel received one coal delivery of about 12,000 tons and US Steel received two deliveries of about 11,800 tons of coal. AK Steel total coal consumed in June 2019 was about 11,600 tons (in 27 operating days). US Steel consumed a total of 12,737 tons in 25 operating days.

Particulate control in the coal yard is accomplished through preventative measures, except at the Rail Car Dumper House. The Rail Car Dumper House consists of an enclosed structure overtop an excavated pit. A railcar charged with coal enters the Rail Car Dumper House, is secured, and then revolved to discharge coal into the pit below. The air within the structure is filtered through baghouses and vented vertically to ambient air through two stacks. Collected coal particles are returned to the coal pit below. An underground riser lifts the coal to the aboveground enclosed conveying system and the Drive House, where an enclosed stacker diverts the coal to the stockpile. The dust suppressant Benetech is sprayed onto the coal as it is lifted from the pit; although the other major transfer points (the Coal Unloading House, etc.) were originally equipped with add-on particulate control devices and exhaust stacks, the application of the Benetech coal suppressant at various stages in the conveying process has supplanted the filtering systems as the particulate control system for these transfer points. At the time of the plant walkthrough on July 19, 2019 there were no process operation activities at the fuel supply area. Therefore, observations of the unloading of railcars at the Rail Car Dumper House and visible emissions from the baghouse stacks and/or from other activities (i.e. stockpiles, transportation conveyors, etc.) were not conducted. I was informed that the Rail Car Dumper house was not in-service for overall routine maintenance.

The paved areas of the plant were swept, and traffic produced minimal localized dust. Signs denoting a speed limit of 15 miles per hour were noted along traffic routes.

Unit 3 has a circular ash silo installed between the boiler and the ESP. The silo stores fly ash from the ESP hoppers. DTE River Rouge takes the wet bottom ash from the ash hoppers in the plant and it is transferred to the silo through a different system. It is dewatered, added to the silo, and then both the fly ash and the bottom ash are rehydrated when loaded into trucks and taken offsite. The ash loading area is a partial enclosure allowing for truck traffic but with flaps extending down at the truck entrance and exit points. The ESP and associated supports overhang the area to the north and the boiler house is located to the south. For Unit 3 silo, the only practical direction for particulate emissions to exit the area is to the west. Since ash loading at the silo was not occurring during the plant tour on July 19, 2019, no emissions observation took place.

Emission data were obtained from the CEMS display at the 9th floor shelter where the CEMS analyzers are located. The information collected is presented on the table below. The recorded time is from the clock on my mobile phone. The computerized data acquisition and handling system (DAHS) is located at the boiler control room. Printouts from DAHS for the 24-hrs of operations on July 19, 2019 were provided via email by Ms. Wilson on 8/5/2019. The information is included in the attachments of this report. Please note that the computer does

not adjust the clock to the daylight savings time (DST); therefore, the DAHS time is one hour behind the actual time. The net and gross power data can be obtained from digital readouts in the control room; the CEMS shelter is equipped with a gross power digital readout.

As per paragraph 2.5 of EPA Method 9, DTE River Rouge records opacity in non-overlapping six-minute block averages. The computerized data acquisition system tracks opacity by the instantaneous reading, the current six-minute average, and the previous six-minute average. The values recorded for opacity showed negative values because the opacity is "zero". Utilizing the CEMS SO2 ppm and exhaust flow data the computer system tracks the tons of SO2 emitted thus far that calendar day and extrapolates to predict a calendar day total.

Unit	**3**	**3**
Date	7/19/2019	7/19/2019
Time (*)	8:14 AM	9:14 AM
Data Source	DAHS Printout	Analyzer
Opacity (%, instantaneous)	-0.81	0
Opacity (%, 6-min. avg. current	-0.79	___
Opacity (%, 6-min. avg. previous)	-0.69	-----
NOx (ppm)	93.6	92.8
NOx (lb. / hr.)		-----
NOx (lb. /MMBtu)		-----
SO2 (ppm)	112.6	111.9
SO2 (lb./hr.)		-----
SO2 (lb. / MMBtu)		-----
SO2 (ton/day predicted)		-----
SO2 (ton/day actual)		-----
CO2 (%)	8.3	8.42
CO2 (ppm)	-----	-----
Exhaust flow (kscfm)	Not recorded	
Stack temperature (°F)	-----	-----
Steam load (k#/hr)	-----	-----
Dilution ratio	-----	
Dilution ratio corrected	-----	
Power (gross/net MW)	Not listed in the printout record	Not recorded

(*) From the second Sunday in March to the first Sunday in November the DAHS time is one hour behind operating time due to daylight savings time

The ACI/DSI system was installed to treat HCl, PM and Hg in the flue-gas before it enters to the ESP. The ACI/DSI includes: One (1) DSI sorbent storage trailer; one (1) DSI sorbent metering trailer; two (2) ACI sorbent storage silos equipped with bin vents – Silos 1 and 2; pneumatic system to transfer the sorbent from delivery trucks to the silos; blowers and other equipment required to inject the sorbents into the flue gas ductwork.

Mercury emissions are controlled by the ACI system. The activated carbon is delivered by enclosed dry bulk semi-trailers trucks and it is pneumatically unloaded and stored in a dedicated silo. From the silo, the activated carbon is metered and pneumatically transported from the ground level silo to the flue gas ductwork.
The flue gas temperature is critical to ACI performance. At temperatures above 350 °F the mercury capture drops off rapidly. Therefore, to effectively control mercury emissions, the sorbent is injected into the flue gas downstream of the air heater and prior the ESP. The activated carbon reacts with or absorbs mercury, capturing the mercury as particulate matter in the existing ESP. The fly ash is removed for proper disposal utilizing the existing fly ash collection and disposal system.

HCl emissions are controlled through an acid gas powdered sorbent system or DSI system. Trona, a sodium carbonate compound, is injected into downstream flue gas ductwork prior to the ESP. Trona absorbs and reacts with HCl in the flue gas to form a sodium salt compound. As the transformed particle moves downstream, the ESP removes the entire particle from the flue gas. Because the use of sodium sorbents reduces fly ash resistivity, the DSI process typically enhances the ESP performance and reduces particulate matter emission rates. The solid reaction products including NaCl (sodium chloride), NaF (sodium fluoride), Na_2SO_4 (sodium sulfate) are comingled with the fly ash and are collected in the dry ESP. The fly ash is removed utilizing the existing fly ash handling system.

The system described above was installed before Unit 2 was retired, thus Silo 1 (which would serve Unit 2) is on-site but was never connected. Silo 2 stores the activated carbon that is injected to the flue-gas out of Unit 3 prior to the ESP. I was informed that based on stack testing results, the frequency of filling-in the Silo with activated carbon (i.e. ACI sorbents charged) was modified from two to three times a week, to once every three weeks. No visible emissions were observed from the top bin vent that discharges to the atmosphere from Silo 2. There is a ACI/DSI control monitor near the location of the Silos where the operators stop to take daily records of the

control variables for this system as part of their plant-walkabout.
The portable DSI system is located a short distance from the silos, toward the location of Unit 3's stack. There are two portable trailers nearby and north of the stack, one is the sorbent metering trailer and the other is the utility trailer which houses the compressor, the analyzer and the air-drying system. Truck unloading occurs at the site and Trona is fed once a week (instead of twice a week as it was in 2017) for a storage about 50,000 pounds. According to the explanation given by DTE River Rouge plant staff, Trona injection rates and flow distribution are closely monitored and controlled to obtain the desired HCl emission limits. No visible emissions were observed from the dust collector located at the top of the sorbent metering trailer.

After being treated by the ACI/DSI system, flue gases from Unit 3 are vented through an ESP prior to discharge. The ESP is constructed of four parallel chambers identified as A & B (East Module) and C & D (West Module). Each chamber has six fields (1 to 6). Therefore, there are a total of 24 ESP fields for the unit boiler. Flue gas is apportioned among the chambers to achieve the best performance. Most particles are to be collected at the first two fields. A good indication of an effective ESP performance operation in term of particle collection is having the highest sparking rates (from 30 to 70 sparks per minute) at the first two fields (1 and 2), with decreasing sparking rates towards field No. 6. Sparking rates of "zero" are expected at field 6. Also, for adequate performance, a minimum of three fields per chamber shall be functioning.

The values cited below indicate the optimum operating range of the ESP fields during normal operation. The list is titled "Precipitator Field Operating Parameters" and it is posted at the doors of some of the ESP control modules. If any of the parameters show values that are out of the recommended range, the operators make note of that in their daily reports:

Primary Volts: > 200 - indicates good T/R set voltage
Secondary Amp: > 0.3 - indicates good field conduction
Secondary K' Volts: > 20 – required for Corona
Sparks per minute: front fields should have the highest spark rates with decreasing rates as you go back.
Firing Angle: higher SCR firing angles represent lower average voltage output required for collection.

At the time of the inspection, the following fields were down for maintenance or were out of commission or showed variable values out of the recommended ranges: A5, B4, C5, D1 and, D5. However, if at least three fields per chamber are in operation, the PM retention is under control. The ESP field operating parameters showed values within the expected ranges cited above. See attached ESP operating parameters collected during the inspection of 7/19/2019. Some problems were reported for fields A3 and A4. Ms. JongKind indicated that the sparks per minute of 0.35 and 0.58 showed for fields A3 and A4 respectively, are high when they are compared to the readings for the rests of the fields. DTE is investigating this issue but they don't have an answer yet.

The ESP monitors also indicate, by a red light on/off toggle when the following occur: spark, arc, ramp, search, limit, full conductance, unbalance, short, pulse block, back corona, P.O.R./P.R.R., aux. alarm 1, aux. alarm 2, M.F.T., T/R temp, and SCR temp. Fields that are down (non-operational) show a fixed red light denoting either a "short-circuit" or "unbalance".

Most of the PCI coal processing equipment is installed on the level of the CEMS shelter. PCI coal is stored in the former Unit 1 coal bunker and then pulverized either in one of the four original PCI mills for Zug Island or in the Alstom mill for AK Steel. Zug Island PCI coal is transferred to one of two 75-ton silos and then piped across the Rouge River. AK Steel PCI coal is transferred to a stand-alone silo at the northeastern end of the plant and then drop loaded into trucks for transport to AK Steel.

The vertical PCI transfer stacks and the horizontal stacks were observed to be clear at the time of the inspection. The PCI silo was observed to be clear, though no truck loading was occurring at the time. No visible emissions were observed exhausting out of the original mill stack (ringed blue at the top) or out of the Alstom mill stack (silver-colored).

Pressure drop gauges are installed across the dust collectors at the mills. The dust collectors for the USS transport are identified as 1-5 and 1-6 Filter Houses (Connected to North Exhauster-North Filter House); and 1-1 and 1-2 Filter Houses (Connected to South Exhauster-South Filter House) – See attached illustration provided during the inspection. Thermocouple lines appeared to be present at the mills though no displays were observed.

The PCI computer displays are in the "former Unit 2" control room and they are also in the office of the PCI leader, Mr. Mike Krapp, which were the ones I checked in this inspection. Alarms and broken bag detectors are incorporated into the software as required.
Daily records of pressure drop values for the various PCI dust collectors and vent filters (in inches of water column) are maintained by DTE River Rouge. Examples of these records were provided by Ms. Wilson via email

received on 8/5/2019.

The facility has four parts cleaners. There are no changes in the size or type of part-cleaners; they are all "Zep Dyna 143" cold cleaners. Two of them are in the maintenance machine shop, one in the fuel supply tractor house, and another one in the fuel supply maintenance shop. Only the part cleaners in the maintenance machine shop were inspected, the lids were observed closed, and instructions for proper operation were posted. The SDS for the solvent is attached.

Three diesel generators are in the coal yard to provide emergency lighting in the event of a blackout. Non resettable hourly meters are installed on each generator with operational hours displayed. All three generators were inspected on 7/19/2019 and I took note of hour displayed on the meters for each one of the generators. The information is summarized on the table below. I also included the data recorded during the inspection of year 2017. Each generator is equipped with a tank capable of holding about 40 gallons of diesel fuel. The generators are run for 20 to 30 minutes each week to ensure reliability.

Generator (Location)	Hour recorded on 7/19/2019	Hour recorded on 6/17/2017	Hours of Operation (25-month)	Hour of operation (per year)
Generac 1 (Bunkers & Tractor Area)	738.3	667.3	171	82.02
Generac 2 (Unloading House)	1127.6	962.3	165.3	79.34
Generac 3 (Dumper House)	746.0	697.9	48	23

No underground fuel tanks remain at the site. There are two (2) - 1,000-gallon above ground diesel tanks behind the Tractor House and one (1) - 1,000-gallon above ground gasoline tank by the Dumpster House for fueling plant vehicles. Two open-topped storage tanks are installed near the western edge of the boiler house. The northern tank is for the storage of liquid wastes from boiler blowdowns; the southern tank is for the storage of wastewater having contacted an oil or lubricant, such as from the maintenance shop floor drains. The tanks are rarely used.

5 - COMPLIANCE EVALUATION

The initial ROP for DTE River Rouge was issued on 9/22/2003. AQD issued the renewal MI-ROP-B2810-2012 on 4/1/2012. Since the last ROP renewal in 2012, DTE River Rouge has received approval for ROP minor modifications to incorporate various Permits to Install (PTI) that had been issued after the inspection of 2015. The chronology of PTI issuance and ROP modifications is cited below. As of the publication of this report, the current permit is MI-ROP-B2810-2012b.

On 7/24/2015, AQD issued PTI 40-08G, which establishes new SO2 limits and recordkeeping for the coal fired Units 2 and 3, in support of 1-hr SO2 National Ambient Air Quality Standards (NAAQS). DTE River Rouge elected to establish lower pound per hour and pound per million Btu, federally enforceable SO2 emission limits by managing the sulfur content in the fuel concentrations and fuel consumption to achieve new unit specific SO2 limits. DTE River Rouge must comply with the new emission limits on and after January 1, 2017.
PTI 40-08G also retained special conditions and applicable requirements for the limited combustion of paint solids (RPS) in Units 2 and 3, as had been originally permitted under PTI 40-08C. PTI 40-08C allowed the combustion of RPS up to 40 tons per day and 1,000 tons per 12-month rolling time period. The issuance of PTI 40-08E on 2/14/2013 increased the annual amount to 10,000 tons. PTI 40-08E was voided on 7/24/2015 and the flexible group "FG-RPSProject" was incorporated into PTI 40-08G issued on 7/24/2015.

On 12/1/2015, AQD issued MI-ROP-B2810-2012a, a minor modification to incorporate permit PTI 215-06B into MI-ROP-B2810-2012. No comments from the EPA were received after the 45-day comment period. PTI 215-06B (issued on 5/30/2012) clarified and made corrections to the language within FG-PCI_COAL_HAND, a flexible

group containing requirements for the pulverized coal injection (PCI) system at the plant.
Since issuance of MI-ROP-B2810-2012, the former Detroit Edison Company has been renamed "DTE Electric Company"; this change was incorporated into MI-ROP-B2810-2012a.

On 11/1/2016, AQD approved , a minor modification to incorporate permits PTI 82-15A and 40-08H into Section 1 of the ROP. On 5/3/2016, AQD approved modifications under PTI 82-15A (the MATS Compliance Project) and PTI 40-08H (the SO2 1-hour NAAQS project). The amended permits reflected the shutdown of Unit 2, changes to Unit 3's SO_2 emission limits, and the removal of RPS as an alternative fuel in the boilers. PTI 82-15A replaced PTI 82-15 which had been issued on 7/24/2015 for MI-ROP-B2810-2012bthe installation of air emission control systems, Dry Solvent Injection (DSI) and Activated Carbon Injection (ACI) on Units 2 and 3 to comply with the proposed Mercury and Air Toxics Standards (MATS) in accordance with 40 CFR Part 63, Subpart UUUUU. PTI 40-08H replaced PTI 40-08G issued on 5/3/2016 to remove Unit 2 from the ROP. PTI 40-08H also removed the ability to combust RPS.

ROP Conditions and Compliance Evaluation

GENERAL PROVISIONS: MI-ROP-B2810-2012b, GENERAL CONDITIONS

In general, this evaluation covers the period from July 2018 to June 2019, although historical data is presented in some sections of this report.

9, 10 – Compliance – Collected air contaminants shall be removed to maintain controls at required collection efficiency; air cleaning devices installed and operated in a satisfactory manner – The controls are installed, and they seem operate properly. Dust suppressants are utilized in addition to add-on particulate controls.

11 – Compliance – Visible emissions limited to 20% opacity over a six-minute average, except for one six-minute period per hour where the average may not exceed 27%, unless otherwise specified in the ROP or in a federal NSPS. This limit applies to point source (non-fugitive) emission units at the plant – I did not observe visible emissions exceeding 20% opacity during the site inspection conducted on 7/19/2019.

12 – Compliance – Nuisance emissions prohibited – During the evaluated period, the AQD Detroit Office has not received any citizen complaints related to fallout or odors attributed to DTE River Rouge operations.

19 through 23, 25 (and under individual EU/FG tables at SCs VII.1 through 3) – Compliance – Semiannual deviation reports, Rule 912 reports, compliance certifications and report certifications – For both sections of the ROP (1 and 2), the semiannual deviation reports and annual certifications were timely submitted in accordance with the terms and conditions cited on the ROP. Please refer to the Full Compliance Evaluation (FCE) summary for the specific postmarked dates when ADQ Detroit Office received the semiannual and annual reports.

24 – Compliance – Submissions to the Emissions Inventory – The 2018 estimated emissions from DTE River Rouge were reported online through the Michigan Air Emission Report System (MAERS). The information was timely submitted and received by AQD on 3/15/2019. The ROP MAERS report certification was received (or postmarked) on 3/26/2019. AQD audited the report and approved it on 5/24/2019. For details of the audit please see compliance activity report CA_ B281048928.

UNIT 1: MI-ROP-B2810-2012b, EU-BOILER#1
Installed in 1953, Boiler No. 1 (or Unit 1) is a 2400 MMBtu per hour natural gas-fired unit equipped with Low-NOx burners and flue gas recirculation. Modified in 1999 through a conversion to natural gas-fire, Unit 1 is subject to NSPS Da, MACT DDDDD, the federal Acid Rain program, and CAIR regulations).

Unit 1 has not operated since 10/22/2005 but the Unit is still listed on the ROP as active source. DTE River Rouge continues to submit quarterly reports to show compliance with the emissions limits and the operational requirements cited for EU-BOILER#1.

Due to the inactivity of Unit 1, no further discussion will be presented in this report regarding the ROP special conditions and requirements. If interested in the evaluation and/or the applicability of the above cited regulations to Unit 1, when the boiler was active, please refer to the inspection report dated 9/17/2013, under the sections labeled "UNIT 1: MI-ROP-B2810-2012, EU-BOILER#1". Also read "MACT DDDDD for Steam Boilers and Process Heaters" in this report.

AUXILIARY BOILER: MI-ROP-B2810-2012b, EU-AUX_BOILER

A 235 MMBtu per hour natural gas-fired Auxiliary Boiler, without add-on air pollution control equipment was installed in 1987. This unit, subject to NSPS Db and MACT DDDDD, operated infrequently and provided steam to customers in the event the boilers in the main plant were down. The unit remains on-site but has been nonoperational since May 2013. According to the 2013 quarterly CEMS/COMS reports submitted for Units 2 and 3, the Auxiliary Boiler only operated one (1) hour in the second quarter and one (1) hour in the fourth quarter, for testing purposes. A rented portable boiler operated 108 hours for steam production. DTE River Rouge submitted a notification letter to AQD indicating that the Auxiliary Boiler is permanently inoperable. Starting 2014, the terms and conditions cited on the ROP for EU-AUX_BOILER are no longer applicable and are not discussed in this report. EU-AUX_BOILER was replaced with a Portable Boiler. Off-permit changes were introduced by DTE River Rouge on September 30, 2015 for the Portable Boiler and its MACT requirements. AQD will remove the EU-AUX_BOILER requirements during the ROP renewal. The compliance requirements for the Portable Boiler will be discussed under section "MACT DDDDD for Steam Boilers and Process Heaters".

PORTABLE BOILER: NSPS Db FOR STEAM BOILERS – NOT APPLICABLE

The federal New Source Performance Standards (NSPS) at 40 CFR 60, Subparts A and Db regulates industrial, commercial, and institutional steam generating units that commenced construction, reconstruction, or modification after 6/19/1984 and have a maximum heat input capacity greater than 100 MMBtu per hour. For the period between May 2013 and November 2014 DTE River Rouge leased a "Portable Boiler". The Portable Boiler was installed at DTE River Rouge on 11/1/2014 and it started normal operations on 4/20/2015.The Potable Boiler has a fabrication date of January 1, 1975 and a 33.5 MMBtu per hour heat input; therefore, the unit is not subject to the NSPS regulation.

UNIT 1 AND PORTABLE BOILER: MACT DDDDD for Steam Boilers and Process Heaters – In Compliance

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63, Subparts A and DDDDD (MACT DDDDD) regulates hazardous air pollutants (HAP) emissions from boilers and process heaters installed at major sources of HAPs. DTE River Rouge is a major source of HAPs.

MACT DDDDD applies to industrial boilers, commercial boilers, institutional boilers, and process heaters (40 CFR 63.7490(a) through (e)). An "industrial boiler" is defined at 40 CFR 63.7575 as "a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity." Unit 1, Unit 3, and the Portable Boiler all produce steam or electricity and therefore are considered industrial boilers. However, Unit 3 is an electric utility steam generating unit (EGU) regulated by MACT UUUUU and therefore, by 40 CFR 63.7491(a), is not subject to regulation under MACT DDDDD (please see report B281018764). Per 40 CFR 63.9983(b), Unit 1 is not subject to MACT UUUUU because, though an EGU, it combusts neither coal nor oil and combusts natural gas in an amount greater than 15.0 percent of the boiler's annual heat input for a calendar year. Per 40 CFR 63.9981 and 40 CFR 63.10042, the Portable Boiler is not subject to MACT UUUUU because it does not produce electricity for sale and therefore it does not meet the definition of an EGU under the standard. Excluded from regulation under MACT UUUUU, Unit 1 and the Portable Boiler thus default to regulation under MACT DDDDD.

Construction on both Unit 1 and the Portable Boiler commenced prior to 6/4/2010 and therefore both are considered "existing" industrial boilers (40 CFR 63.7490(d)). Both combust natural gas and so fall within the definition of a "unit designed to burn gas 1 subcategory" at 40 CFR 63.7575. At 40 CFR 63.7490(a)(1), the collection of all existing boilers and process heaters within a subcategory constitutes an affected source and, therefore, Unit 1 and the Portable Boiler combine to form a single affected source under MACT DDDDD.

DTE River Rouge also operates natural gas fired-coal mill heaters within the PCI process. The combustion gases directly contact the coal within these units and therefore this equipment does not meet the definition of "process heater" at 40 CFR 63.7575: "process heaters are devices in which the combustion gases do not come into direct contact with process materials." These units are regulated as thermal dryers under the NSPS Y for Coal Preparation Plants.

Compliance with MACT DDDDD is required not later than 1/31/2016 for existing boilers and process heaters (40 CFR 63.7495(b)). An Initial Notification dated May 30, 2013, post marked by AQD on June 3, 2013, was received from DTE River Rouge for this standard as it applied to the former Auxiliary Boiler (EU_AUX_BOILER). In January 2015, DTE River Rouge submitted an amendment to the 2013 Initial Notification requesting the revision of the classification for EU_AUX_BOILER to the limited use subcategory as defined in 40CFR 63.7545. However, later in the year, DTE River Rouge dismissed the request due to the replacement of the existing Auxiliary Boiler with the Portable Boiler.

The 33.5 MMBTU/ hr. portable boiler is capable of firing 30,000 scf of natural gas per hour at the boiler's

maximum steady state design capacity. DTE River Rouge has demonstrated compliance with the applicable work practice standards requirements cited under 40 CFR 63.7499 (l) as described below:

On March 26, 2019 AQD received a copy of the 40 CFR Subpart DDDDD tune-up compliance report as it was submitted by DTE River Rouge on the Compliance and Emissions Data Reporting Interface (CEDRI). The report was submitted in compliance with 63.7550(c)(1) for existing Units in the 63.7499 (l): Unit designed to burn gas 1 fuels. It covered the period from January 1, 2018 to December 31, 2018 and it was timely submitted in the reporting year immediately following the tune-up. The report contains information required under 63.7550 (c)(5) (ii to iii); as well as 63.7550 (c)(5) (xiv) and 63.7550 (c)(5) (xvii). According to the report, the most recent tune-up per 63.7550 (c)(5) (xiv) was on 11/6/2018. The burner inspection was on the same date and it complied with the required annual tune up frequency. Based on the information submitted on the IB-MACT Tune-up report, all components listed on the regulatory requirements were inspected and the equipment is maintained following the work practice standards for this type on units. The report also stated the usage of pipeline quality natural gas. DTE River Rouge compliance certification was also submitted. There are no emission limitations associated with 40 CFR 63 Subpart DDDDD.

PORTABLE BOILER: PART 8 RULES FOR NOX SOURCES

Michigan's Part 8 rules were promulgated in response to interstate ozone transport issues identified under Section 110(a)(2)(D)(i)(I) of the Clean Air Act. The Part 8 rules incorporate requirements imposed first by the federal NOx Budget Program and by the former CAIR program with some additional provisions. Broadly, the Part 8 rules apply to fossil fuel-fired steam generating units producing electricity for sale while serving a generator with a nameplate capacity of 25 MW or more (e.g. Rules 801(2), 802(1)(a), 821(1)(a), 821(1)(b)) and any other source of NOx with a heat input capacity greater than 250 MMBtu per hour (e.g. Rules 801(4), 802(1)(b), 821(1)(c)). The Portable Boiler does not qualify under either category.

UNIT 3: MI-ROP-B2810-2012b, EU-BOILER 3

Installed in 1955, Boiler No. 3 (or Unit 3) is a 2670 MMBtu per hour coal-fired unit equipped with Low-NOx burners and an electrostatic precipitator. Unit 3 is subject to the federal Acid Rain and programs. The requirements for Units 3 are:

11 (from the General Conditions), VII.5a.i. – Compliance – Visible emissions from the boiler limited to 20% opacity over a six-minute average, except for one six-minute period per hour where the average may not exceed 27%; quarterly report on visible emissions exceedances.

I did not observe visible emissions exceeding 20% opacity during the facility inspection on 7/19/2019, and the COMS on the boiler on 7/19/2019 measured values below 20%.

Periods of excess opacity represent periods of non-compliance and have been reported by DTE River Rouge, both in the quarterly CEMS/COMS and as deviations in the ROP semiannual reports. Quarterly reports have been timely submitted to AQD within 30-days of the end of the calendar quarter and include the information required by ROP conditions. Though excess emissions have occurred, DTE River Rouge has maintained these periods to a minimum. For the 12-month period from January 1, 2018 to December 31, 2018, Unit 3 is reported to have exceeded the visible emissions limit on only one occasion. The opacity exceedance lasted for six-minutes and it was recorded during the 3rd quarter of 2018, on 8/17/2019. This is equivalent to say that Unit 3 was not in compliance for 0.24 seconds per hour of operation during that quarter. Therefore, DTE River Rouge is in substantive compliance with the opacity limits. For details of AQD review of the DTE quarterly reports, please refer to the compliance activity reports in the AQD DTE River Rouge files.

I.1, V.1 – Compliance – Emissions of particulate matter not to exceed 0.175 pounds per 1000 pounds of exhaust gas on a wet basis corrected to 50% excess air; PM test once every three calendar years. These limits are established pursuant to Rule 331 and are determined by State reference test methods 5B or 5C; therefore, these limits are the filterable portion only (condensable not included) without speciation to PM10 or PM2.5.

The most recent PM testing on the exhaust of Unit 3 was conducted on October 27, 2016 and consisted of three one-hour test runs. Measured emissions averaged 0.003 pounds PM per thousand pounds of exhaust gas, wet basis, and corrected to 50% excess air. The average gross load was 257 megawatts, which is within 10% of its highest achievable load (278 GMW). Visible emissions averaged 0.6 % opacity over the duration of the test. The next PM test for compliance demonstration is scheduled to occur in late September of 2019, which is within three years of the last ROP PM test on Unit 3.

Previous PM tests at Unit 3 have measured the following (in units of pounds PM per 1000 pounds of exhaust gas, on a wet basis, and corrected to 50% excess air): 0.008, 0.015, 0.010. All tests occurred at average gross

loads between 80 to 90 % of full load conditions, as dictated by the day's market conditions.

All tests results have been below the emission limit for PM. For details about testing methods and procedures refer to the stack test reports in AQD DTE River Rouge files.

I.2 through I.4, VII.4 – Compliance – Sulfur dioxide emissions in Unit 3, not to exceed 1.67 pounds per million Btu heat input on a daily average based on 1.0% sulfur by weight and 12000 Btu per pound heat content; sulfur dioxide emissions not to exceed 50.5 tons per day on each calendar day; and 2,300 pounds per hour in a 720-clock hour rolling average at the end of each calendar day; quarterly report on operating hours and daily sulfur emissions.

For this compliance evaluation, quarterly reports of daily SO2 emissions were examined for a 12-month period from January 1, 2018 to December 31, 2018. The maximum reported emissions for the evaluated period were 0.78 pounds per million Btu heat input reported on 1/9/2018, and 21.8 tons per day reported on 1/9/2018; this represents a maximum of 1,817 pounds per hour.

For details about the quarterly reports on sulfur dioxide emissions please refer to the facility submittals in AQD DTE River Rouge files.

III.1 and 2, IV.1 and 2 – Compliance – Unit 3 not to be operated unless the Low-NOx burners and electrostatic precipitator (ESP) is installed and operated properly; ESP is to be equipped with a saturable core, silicon-controlled rectifier linear reactor or equivalent; the transformer-rectifier capable of operating at optimum spark-limited mode and meter/display the primary RMS voltage and amperage, the average secondary amperage, and the average spark rate; Malfunction Abatement Plan (MAP) implemented for ESP, Low-NOx burners, abnormal conditions, startup/shutdown, malfunction, and excess emissions.

According to AQD records, DTE River Rouge submitted a Malfunction Abatement Plan (MAP) for the ESPs and Low-NOx burners on 3/12/2004. The MAP was associated with both Unit 2 and Unit 3. Unit 2 retired in April 2016. A revised MAP dated August 11, 2016 (with cover letter dated August 16, 2016) was received by AQD on August 19, 2016. The MAP revisions reflect the cessation in operations of boiler No. 2 by removing all references to Unit 2. AQD reviewed the MAP and considered the revisions appropriate. The maintenance activities (i.e. preventive maintenance program, the monitoring requirements and the corrective action procedures) described in the 2004 MAP remain essentially the same. The MAP calls for daily review of emissions (e.g. NOx emission rate), control parameters (e.g. voltages), and certain equipment (e.g. observe combustion flame) as well as periodic maintenance during downtime.

The ESP has saturable core reactors and qualifies as "very large precipitator" having specific collection areas over 400. DTE River Rouge stated that the average spark rate is metered and displayed on the ESP panel and in the ESP control room and that each employs solid state circuitry to preset power levels based on sparking rate limits.

DTE River Rouge indicated that the most recent ESP inspection was in the fourth quarter of year 2018, during the Unit 3 periodic outage. During that period, Unit 3 and all supporting equipment underwent a series of in-depth inspections. The most recent Low-NOx burners-testing and tuning was on 2/7/2019. Before that, Unit 3 ESP repairs took place during the unit periodic outage of year 2018. NOX testing and Unit 3 tuning was completed in 2018. Based on the information provided, it seems like DTE River Rouge is adequately implementing the MAP.

During the inspection of 7/19/2019 I noted that the primary voltage, primary amps, secondary amps, and average spark rate were all displayed on Unit 3 ESP control panel. A copy of the ESP operating parameters checklist filled out by the operator that was covering the round when I was visiting the ESP control room on 7/19/2019 was provided. The ESP field operating parameters recorded on the checklist showed values within the recommended ranges. Based on the cited observations and the fact that no-visible emissions were observed from the Unit 3 Stack, the ESP for Units 3 seemed to be installed and operating properly as the boiler operated.

III.3 – Compliance – Only burn processed coke oven gas in Units 3, unprocessed coke oven gas to be prohibited by the contract between DTE River Rouge and the coke oven gas supplier – A copy of the cited contract is kept in DTE River Rouge files. During the inspection of 7/19/2019 AQD did not request copies of the document because the contract has not changed and a transcription of the relevant section of the contract was provided during the 2015 inspection. The original Wayne County Installation Permits C-9902 & C-9903 permitted the combustion of coke oven gas from then Great Lakes Steel after it had been processed within the No. 5 Coke Oven Battery byproduct plant. Unprocessed coke oven gas contains a greater amount of hydrogen sulfide, which leads to post-combustion emissions of sulfur dioxide. The contract prohibits the transfer of coke oven gas with hydrogen sulfide in excess of 6 grains per cubic foot on a daily average.

III.4, VI.4 – Compliance - AQD requested recent records illustrating the measures implemented by DTE River Rouge to minimize CO. Records received via email on 7/23/2019 show daily CO minimization actions implemented by DTE River Rouge for the period from 1/1/2019 to 7/13/2019. Monitoring the fuel-to-airflow ratio is the primary technique utilized by DTE River Rouge to minimize CO. Adjusting oxygen percentage and visually monitoring combustion conditions were also listed as measures to minimize CO emissions. The plan dated 3/28/2001 for Unit 3 was current as of the 2019 inspection; AQD did not ask for the plan to be submitted as part of the 2019 inspection because it has remained essentially the same since its inception.

VI.1 through 3, VII.5b. and 5c., VII.6, 7, 10.b., and 10.c. – Compliance – Continuously monitor and record visible emissions, sulfur dioxide, nitrogen oxides, carbon dioxide, exhaust gas flow as delineated in 40 CFR 75; implement Part 75 QA/QC program; quarterly CEMS QA reports; annual COMS audit; quarterly reports on CEMS/COMS downtimes, operating time, instrument range exceedances. For SO2, in the event not one quality assured monitor operating hour is established for the CEMS in the calendar day, then daily coal sampling shall replace the CEMS as the monitoring method.

NOx monitor downtime is governed by the data substitution protocol of the Acid Rain Program. The SO2 monitors serve the dual roles of the former Acid Rain accounting and compliance monitoring for SO2 emission limits.

The CEMS and COMS for Units 3 measured visible emissions, SO2, NOx, CO2 and exhaust gas flow data were collected during the 7/19/2019 inspection. Information of those parameters was provided earlier in this report as part of the Facility Visit summary.

AQD reviewed and evaluated the CEMS/COMS quarterly reports for a 12-month period from January 1, 2018 to December 31, 2018. During the evaluated period Unit 3 showed low activity. It was down for 18 days from 2/21/2018 to 3/10/2018 in the first quarter and for 20 days during the 2nd quarter. During the third quarter, the boiler operated until September 7th and it did not operate during the 4rth quarter. Although a 4-hr calibration test occurred on 12/31/2018.
In the 1rst quarter the CEMS at Unit 3 failed to monitor visible emissions for a very short period, 18-minutes down of 105,300 minutes of total operating time. In the 3rd quarter, the facility reported 12-minutes downtime for the opacity monitoring, out of 91,620 of total operating time. The total downtime for year 2018 was 30 minutes down of a total operating time 297,696 minutes (approx. 207 days) for the year; which is equivalent to 0.15 minutes per day of operation of Unit 3. For the evaluation of the previous quarterly reports and COM audits, please see compliance activity reports in AQD DTE River Rouge files.

For the evaluated period DTE River Rouge reported one instance of SO2 monitoring downtime, reported on the first quarter, on 3/11/2019. The report indicated a downtime duration of 17 hours due to maintenance labor (i.e. calibration test). According to the report, Unit 3 operated 1,699 hours during the first quarter; therefore, the duration of the monitoring downtime represents 1% of the total hour of operation.

DTE implements and maintains QA/QC program for both the CEMS and COMS. Daily calibration is conducted. Annual audit of the COMS is also performed, and the results are submitted to AQD within 30 days of the completion of the audit. The most recent audit of the COMS for Unit 3 was completed on July 26, 2018. The report with the results of the audit was received by AQD on August 3, 2018. The submittal contained minute-by-minute records of emissions data as well as QA/QC procedures implemented on that day. Per AQD/Technical Program Unit staff the COMS for visible emissions was within the recommended tolerances.

VI.5 through 7, VII.8 and 9, IX.3 and 4 – Compliance – COMS to be utilized as indicator of compliance with PM limits in I.1 pursuant to CAM; excursion defined as two or more consecutive 1-hour block average opacity values exceeding 20%; operate COMS when coal-fired boiler is operating and properly maintain the COMS; initiate corrective actions when CAM exceedances or excursions occur and record; semiannually report exceedances, excursions, and monitor downtime; promptly modify the CAM plan if inadequate and notify AQD.

CAM conditions were first included in the ROP with the renewal MI-ROP-B2810-2012 issued on 4/1/2012. Exceedances of the visible emissions standards are reported in the COMS quarterly reports as required by SC VII.5.a.i. During the 12-month evaluated period from January 1, 2018 to December 31, 2018, the quarterly reports showed opacity excess emissions (EE) for the third quarter. The EE event was recorded on 8/17/2018, with a total duration of 6 minutes. Please note that the reported exceedance is not a CAM excursion because the opacity reading exceeding 20% did not last for more than two consecutive 1-hr. block averages.
With respect to opacity monitoring downtime, refer to the previous section analysis. The opacity deviations were reported in the CAM semiannual reports for the evaluated period, which are received concurrent with the semiannual ROP deviation reports.

For the review/comments of the most recent semiannual reports submitted to AQD for years 2017 and 2018, and

the CAM records review reports; refer to AQD files for DTE River Rouge. CAM monitor downtime reports are also submitted concurrent with the semiannual ROP deviation reports and provide the same information regarding COMS downtime as it is provided in the quarterly CEMS/COMS reports required under Special Condition VII.5.b.

IX.1– Compliance – Compliance with the acid rain permitting provisions as outlined in the complete Phase II, Acid Rain Permit (ARP) issued by the AQD incorporated into the ROP as Appendix 10-1 – The Phase II Acid Rain Permit No. MI-AR-1740-2012 in Appendix 10-1 expired the same date the ROP expired (April 1, 2017). The ARP renewal application is currently under review, as part of the ROP renewal process.
The ARP is a "Cap and Trade" based programs regulated by EPA through the Clean Air Markets. EPA maintains an Allowance Management System (AMS) to record allowance transfers. AMS accounts are the official records for allowance holdings and transfers used for compliance purposes. At the end of every compliance period each source must hold enough allowances to cover their emissions (each allowance represents one ton of SO2 or NOx emissions). EPA maintains the Air Markets Program Data (AMPD) and used the data to make compliance determination for the regulated sources. For year 2018 DTE River Rouge appears to be in compliance with the Acid Rain Program requirements since notifications of non-compliance have not been issued by EPA.

CSAPR UPDATES
The EPA's 2005 Clean Air Interstate Rule (CAIR) ended in 2014 and it has been replaced with the Cross-State Air Pollution Rule (CSAPR). CSAPR implementation began on January 1, 2015. On September 7, 2016, the EPA revised the CSAPR ozone season NOX program by finalizing an update to CSAPR for the 2008 Ozone National Ambient Air Quality Standards, known as the CSAPR Update. The CSAPR Update ozone season NOX program will largely replace the original CSAPR ozone season NOX program starting on May 1, 2017.
In a similar manner as it was cited for the Acid Rain Program, EPA makes compliance determinations in relation to the implementation of the CSAPR at the regulated sources by tracking the annual SO2 and NOx allowances, as well as the ozone season NOx allowances, on Air Markets Program Data (AMPD). At the end of every compliance period DTE River Rouge must hold enough allowances to cover its emissions. it is assumed that for the evaluated period (year 2018) DTE River Rouge is complying with the CSAPR since non-compliance issues or remedial actions have been brought to the attention of the facility by the EPA.

UNIT 3 DRY SORBENT INJECTION (DSI) AND ACTIVATED CARBON INJECTION (ACI); MI-ROP-B2810-2012b, FG – DSI/ACI

Regulatory Background

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63, Subparts A and UUUUU (MACT UUUUU) regulates hazardous air pollutants (HAP) emissions from coal- and oil-fired electric steam generating units (EGUs) installed at major sources of HAPs. DTE River Rouge is a major source of HAPs.

On 2/16/2012, the EPA promulgated MACT UUUUU (77 FR 9304). On 8/14/2012, DTE River Rouge met the deadline for the submittal of the Initial Notification for MACT UUUUU informing that Unit 2 and Unit 3 were existing affected sources under the standard. The Initial Notification provided the information required at 40 CFR 63.9(b)(2). The deadline for compliance with the requirements of MACT UUUUU / Mercury and Air Toxic Standards – MATS was 4/16/2016. On 4/21/2015 AQD received a permit application from DTE River Rouge requesting the installation of Dry Sorbent Injection (DSI) system to reduce sulfur dioxide and acid gas emissions, and an Activated Carbon Injection (ACI) system to reduce mercury emissions. These controls would be installed to operate in conjunction with Unit 2 and 3 to enable DTE River Rouge to comply with the MATS requirements. The new air pollution controls were permitted under PTI 85-15 which was issued on 7/24/2015. PTI 85-15 was voided on 5/3/2016 and it was replaced with permit PTI 85-15A, which included administrative changes to address the shutdown of Unit 2. Later, on 11/1/2016, PTI 85-15A was incorporated into the ROP with the approval of a minor modification and issuance of the modified ROP, MI-ROP-B2810-2012b.

Applicable Requirements:

The flexible group FG-DSI/ACI has been in operation since March 14, 2016 and are part of the pollution control equipment that regulates PM, HCl and Hg emissions from Unit 3's flue gas under the MATS regulations. PM is monitored as a surrogate for individual HAPS. HCl is measured via emission testing as a surrogate for individual acid gases.

I.1 through 3, II.1 and V.1 – Compliance - Emission limits for PM, HCl and Hg are listed in input-based (mass per heat input) or gross output-based (mass per electricity generated). DTE River Rouge selected heat input-based limits in lb/mmBtu for demonstrating compliance with MATS. Except during periods of startup and shutdown, PM emissions are limited to 0.03 lb / mmBtu, HCl emissions are limited to 0.002 lb / mmBtu, and Hg emissions are limited to 1.2 lb /TBtu. All emission limits are based on 30-day rolling averages calculated based on operating days as defined by MATS. Initial compliance was to be demonstrated through performance testing within 180 days after the applicable date of April 16, 2016 (not later than October 13, 2016) per 40 CFR 63.10011 (a). Subsequent performance tests are required according to 40 CFR 63.10006. Verification of

emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Mercury emissions are monitored by Sorbent Trap Monitoring Systems (STMS) installed at the plant, and Relative Accuracy Test Audit (RATA) is required. The procedures outlined in Performance Specification (PS) 30B, 12B and Appendix A of Subpart UUUUU for certification, calibration and QA/QC are used to maintain the STS. Items 3 and 4 in Table 3 of Subpart UUUUU establishes the work practice standards for periods of startup and shutdown.

Initial compliance standards for material limits was conducted in accordance with 40 CFR Part 63, Subpart UUUUU for Unit 3, per 40 CFFR 63.10011(a). DTE River Rouge Initial Notification and Certification of Compliance Status (NOCS) for Mercury and Air Toxic Standards (MATS), was received/postmarked by AQD on 7/25/2016. The NOCS, dated and signed on 7/20/2016, contained the results of the initial compliance demonstration in accordance with 63.10030(e)(1) to (8). The notification was for the compliance demonstration performed using continuous emission monitoring (CEMS) for particulate matter and sorbent trap monitoring systems (STMS) for monitoring mercury. The compliance demonstration began on the first day with valid hours of operation and continued for 30 boiler operating days as defined by MATS following the compliance date of April 16, 2016. The start and end dates for the demonstration were: 5/13/2016 to 6/17/2016 for mercury (Hg), and 5/11/2016 to 6/15/2016 for PM. The 30-Boiler Operating Day Average Value for compliance demonstration were: 0.8 lb. / Tbtu for Hg and 0.01 lb. /mmbtu for PM; which are below the MATS emission limits on Table 2 of Subpart UUUUU, Hg (1.2 lb /Tbtu) and PM (0.03 lb/mmbtu). A separate notification of compliance status was submitted by DTE River Rouge for compliance demonstration performed using testing for HCl. The report certification signed/dated on 8/22/2016 was received by AQD on 8/25/2016. The test was conducted on 6/24/2016 and the 30-Boiler Operating Day Average Value was 0.0006 lb/mmbtu (below the emission limit of 0.002 lb / mmbtu).

PM emissions are controlled by the ESPs. MATS allow for a stack testing option for demonstrating compliance with the PM emission limits using a modified version of EPA Method 5. However, DTE River Rouge selected PM CEMS. The PS11 procedures for certification, calibration and QA/QC are used to maintain the PM monitors. Data is collected by the DAHS. PS-11 PM CEMS correlation testing was conducted from June 1 to 3, 2016. The testing was performed to correlate the EPA reference method (RM) mass emission and the particulate matter monitor (PMCEMS) according to the correlation test procedure in PS 11, Appendix F of 40 CFR 60 and EGU MATS rule. The report with results dated 7/5/2016, was received by AQD on 8/8/2016. The results indicated that the PM CEMS meets the PS 11 correlation criteria for different models. A linear correlation was selected, and the correlation coefficient was 0.983.
The facility has demonstrated continuous compliance with the PM emission limits. As of the date of this inspection (7/19/2019), the most recent PM CEMS correlation testing was conducted on 6/7/2018. The report with the emission test results, received by AQD on7/23/2018, indicated that the results met the criterions for acceptable correlation with the reference method. satisfying

After the initial HCl testing conducted in 2016, whose results were presented in the inspection report of year 2017, subsequent performance tests have followed 40 CFR 63.10006. Verification of emission rates have included the submittal of a complete report with the test results to the AQD within 60 days following the last date of the test. The most recent HCl quarterly testing throughout the year 2018 showed HCl emissions results that were below the permit emission limit of 0.002 lb/mmBtu. For each quarter, the results were reported as the average emissions from three (3), 60-minute test runs at the average load in Gross Megawatts (GMW):

1st Qtr. (3/23/2018) = 0.0013 lb/mmBtu, at 196 GMW
2nd Qtr. (6/6/2018) = 0.0005 lb/mmBtu, at 231 GMW
3rd Qtr. (8/8/2018) = 0.0006 lb/mmBtu, at 230 GMW

Unit 3 was not operating during the fourth quarter of year 2018. It was removed from service on 9/7/2018 to begin a 70-day periodic outage. The HCl testing results for the first quarter of 2019 were also below the permit emission limit:
1st Qtr. 2019 (2/22/2019) = 0.0004 lbs/mmBtu at 188 GMW

Mercury emissions have been monitored by STMS and RATA testing have been performed timely within the annual permit requirements. Sample data for Hg emissions for the month of June 2019 was provided via email on 8/19/2019. The analytical is collected from Hg trap data and is used for compliance demonstration. The records show a display of both the 30-day rolling average as well as the daily reported value of Hg. The values ranged from 0.698 to 0.761 lb/TBtu. Hg emissions and downtime is reported semiannually with data from January-June being reported in September. During the period from July 1 2018 to July 1 2019 there hasn't been any issues that caused to exceed the Hg emission limit of 1.2 lb/TBtu, nor has there been issues with the Hg met-80 (monitoring) system which would cause DTE to report unexpected downtime with the system. The most recent RATA on the Unit 3 Mercury (Hg) sorbent trap monitoring system (STMS) against EPA RM 30B was

performed on June 5-6, 2018. A minimum of (9), 30-minute test runs were conducted. The results demonstrated that the facility passed the audit. All required QA/QC specifications were met. The Relative Accuracy (RA) for STMS was less than 20% (10.9 % for Unit 3).

III.1 and 2, IV. 1 and 2, VI.2 and 3 – Compliance – Work practice standards and operating limits according to Tables 3 (i.e. conduct a tune-up of the EGU burner and combustion controls at least each 36 calendar months) as specified in 63.10021(e). If Unit 3 is offline when the deadline to perform the tune-up passes, perform the tune-up work practice within 30 days after the re-start of Unit 3. Maintain on-site and submit, if requested by AQD, an annual report containing the information for all periodic tune-ups performed to Unit 3. Develop MATS site-specific monitoring planof the continuous monitoring system (CMS) and submit it to AQD (if requested) at 60 days of the initial performance evaluation of the CMS.

DTE River Rouge completed the tune-up of Unit 3 burners on 2/7/2019**,** within the required timeline established in the regulation (within 30 days after the re-start of Unit 3). During the inspection of 7/19/2019 AQD requested a report with the results. The report dated 4/23/2019 was provided via email on 7/23/2019. The information in the report meets the requirements specified in 63.10021(e)(1) to (9), which included the work practice standards - inspections and repairs activities- applicable to the burners and combustion control components, as well as combustion optimization practices to minimize the generation of CO and NOx.
A copy of the MATS Site-Specific Monitoring Plan was requested during the 2017 inspection and it is saved in AQD DTE files. The plan outlines the compliance measures, monitoring methods, reporting and other applicable requirements related to MATS per 63.10000(d)(2). AQD reviewed the plan as part of the 2017 DTE inspection and it appeared to address the minimum requirements cited on 63.10000 (d)(5)(i) through (d)(5)(vii). The plan is kept on site and is to be amended and updated as necessary.

VI.1 and 4, VII. 4 and 5, IX– Compliance – Keep records for 5 years following the date of the occurrence, 2 years on-site and off-site for the remaining 3 years; keep records of startups, shutdowns and malfunctions. Report in a timely manner the deviations from applicable emission limits in Tables 2 through 4 of Part 63, Subpart UUUUU or failure to conduct required tune-up.

DTE River Rouge followed the MATS notification and reporting requirements covered in section 63.10030 and 63.10031 and Table 8 of Subpart UUUUU. The first semi-annual compliance report for the period April 16, 2016 through December 31, 2016 was received by AQD on March 17, 2017. The report included all required/applicable information cited on the MATS regulation.
Continuous compliance with MATS required the submittal of semiannual reports. The most recent MATS semi-annual compliance report was received by AQD on March 15, 2019 and it covered the reporting period from 07/01/2018 to 12/31/2018. Two events of PM CMS downtime were reported, for a total of 23 hours, which represents 1.6% of the total operating time for the period (1,423.4 hours). On 7/9/2018 the reported downtime lasted for 21 hours due to an out of control calibration test and a 2-hour downtime occurred on 8/11/2018 due to QA/QC activities. Similarly, Hg monitoring downtime occurred on 8/11/2018 for 2 hours representing 0.14% of the total operating time and it was attributed to QA/QC activities. There were no periods of malfunctions for the reported period which caused an applicable emission limitation to be exceeded. Startup and shutdown data for PM CMS as well as the fuel use summary for Unit 3, were included in the semiannual report. PM CMS and Hg STS certifications and Unit 3 tune-up were completed as required. The plant does not use a separate sorbent trap measurement system for startup and shutdown. The semiannual report, signed on 3/13/2019 by DTE River Rouge, is a certification of continuous compliance with MATS.

DSI/ACI SORBENT DELIVERING: ROP-B2810-2012b, FG- MODULAR

This flexible group includes the metering trailer that delivers the sorbent to the DSI system and the pneumatic conveying system that transport the activated carbon to the silo. There are bin vents and dust collectors on each emission unit.

I.1, V.3, VI.1 – Compliance – Maintain/demonstrate opacity limits below 7% at each individual bin vent filter or dust collectors by conducting non-certified visible emissions observations on a daily basis during normal operations; conduct EPA Reference Method 9 certified visible emissions readings of each operating emission unit at a minimum of once per calendar year, during maximum routine operating conditions and also (for a minimum of 15 minutes) when visible emissions are detected during non-certified observations.

DTE River Rouge keeps daily records of non-certified visible emissions observations for the dust collectors at the DSI injection trailer and the ACI silo, during normal operations. They changed the recordkeeping from paper to electronic logbook. A sample of the daily visible emissions records for the DSI trailer and the ACI silo was provided via email on 8/5/2019. According to the non-certified records, no visible emissions were observed from

the DSI/ACI operations from 7/7/2019 to 7/12/2019. In addition, copies of the annual EPA Reference Method 9 certified visible emissions (VE) readings for maximum routine operating conditions (truck loading/unloading) were received via email on 8/7/2019. VE observation form dated 8/14/2018 was for emissions observations during Silo filling. VE form dated 9/4/2018 was for the DSI trailer being filled. Both VE emission observation forms reported 0% opacity.

I.2 to I.7, V.1 and 2 – Unknown – Emissions limits for particulate matters expressed as PM, PM10 and PM2.5, associated with various emission units (i.e. DSI metering trailer and dust collector for the ACI Silo) to be evaluated by testing per AQD request. – Verification of the particulate matters emission rates via testing has not been requested by AQD.

III.1 and 2, IV.1, VI.2 – Compliance – Maintain and implement a fugitive dust control plan for all material handling operations; update the control plan as necessary and keep a copy of the plan at the facility; implement and update as necessary a MAP as described in Rule 911(2) for operation of the process and emission control equipment associated with FG-MODULAR; keep a copy of the MAP at the facility; submit to AQD the fugitive dust control program, the MAP report and/or the amendments, for review and approval. If the AQD does not notify approval within 90 days of submittal, the reports or amendments shall be considered approved. Monitor and record, the hours of operation for FG-MODULAR on a daily basis.

AQD reviewed a report received on 5/16/2016 which combined the Fugitive Dust Control Plan - FDCP (dated 3/11/2016) and the MAP (dated 4/15/2016). The fugitive dust control activities associated with the new emission units conforming the DSI/ACI system were incorporated into the MAP. The MAP describes the components of the dust collectors associated with the DSI/ACI systems and how they prevent fugitive dust emissions by allowing displaced air to exit the modular system during truck uploading of sorbent, sorbent aeration, and during the use of the rotary feeder for the DSI system. Similarly, for the ACI system, dust collectors prevent fugitive emissions during truck uploading of pulverized activated carbon, silo aeration and rotary feeder. The MAP contains all required elements, such as; the preventive maintenance program, monitoring requirements, and corrective action procedures. Preventive maintenance activities are tracked and scheduled through the work management system "Maximo". The work orders showed the scheduled days for routine maintenance. According to the MAP, operational hours are tracked automatically through an electronic system and the number of hours of operation are recorded daily for each system. No part of the ACI/DSI modular system is operated unless all associated environmental control devices are operating correctly. Procedures for corrective actions and notifications of regulatory agencies during malfunction or excess emissions are described in DTE Electric Co. Power Plant Order No. 223. A copy of this document was attached to the MAP report.

VIII.1 and 2 – Compliance – The exhaust gas must be discharged from the stacks, maximum exhaust dimensions (inches) and minimum exhaust heights above ground (feet) as follows: DSI Meter (9.36 x 9.36) inches and 16 feet, ACI Silo 2 serving Unit 3 (7.87 x 13.78) inches and 48 feet. Exhaust gases vent unobstructed to the atmosphere. Special Condition VIII.3 is obsolete because ACI Silo 1, originally permitted to serve Unit 2, is not used – Visual observation of the stacks during the inspection of 7/19/2019 did not raise a question of non-compliance with stack specifications, though stack height and diameter measurements were not performed.

FLY ASH HANDLING EQUIPMENT: MI-ROP-B2810-2012b, FG-FLYASH-HANDLG

Installed in 1954, the flexible group comprises two fly ash silos and an associated dust collector for each.

11 (from the General Conditions), I.1, III.1, VI.1 through 3 – Compliance – Visible emissions from each ash silo limited to 20% opacity over a six-minute average, with the exception of one six-minute period per hour where the average may not exceed 27%; particulate emission limit of 0.10 pounds per 1000 pounds. Daily non-certified Method 22 visual observations on the two fly ash stacks; if opacity is noted conduct a certified Method 9 or shut down the process; conduct inspection on dust collector following visible emission observation. Dust collectors installed, maintained and operated satisfactorily; conduct regular inspections regardless of malfunction or failure. Log observations, shutdowns, results of inspections, and corrective actions.

Compliance with the particulate emissions limit is presumed by compliance with the opacity limitations and by proper maintenance of the controls. Fly ash loading was not occurring during the inspection of 7/19/2019; therefore, surveillance of the operations and/or observations of visible emissions were not conducted in the loading area. Samples of records of inspections and visible emission readings were provided by DTE via email on 8/5/2019. The submittal provided an example of the fly ash Silo 2 observations from 7/7/2019 through 7/13/2019. Records showed clear conditions with no visible emissions during the days of system operation.

COAL HANDLING EQUIPMENT: MI-ROP-B2810-2012b, FG-PCI_COAL_HAND

FG-PCI-COAL_HAND is a flexible group containing requirements for the pulverized coal injection (PCI) system - the equipment for the handling and processing of PCI coal.

I.1 and 2, II.2 and 3, V.1, VI.1 and 3 – Compliance – Nitrogen oxides from each coal mill heater not to exceed 0.12 pounds per MMBtu heat input; nitrogen oxides from the coal mill heaters, collectively, not to exceed 48.1 tons per 12-month rolling time period; stack test upon AQD request; NOx emission rate through test or emission factor maintained on file; collective natural gas usage limited to 76.3 million cubic feet per month and 801 million cubic feet per 12-month rolling time period; natural gas usage records required.

Please see Appendix A to the submittal of 11/14/2003, where it is reported NOx emissions were measured at 0.095 pounds per MMBtu during a stack test of 1/9/1997 on the heaters for the four B & W coal mills. AQD has not requested a test on the Alstom coal mill heater, however, in the supplement to the 9/19/2013 submittal received 1/21/2014 DTE River Rouge reports a stack test of 7/29/2008 measured NOx emissions at 0.006 pounds per MMBtu. The NOx annual emission limit is correlated to the pound per heat input limit and annual natural gas usage. Sample of natural gas monthly records for period 7/1/2018 to 6/30/2019 received via email on 8/27/2019 indicated a monthly maximum of approximately 11.7 million cubic feet at the end of December 2018 and records received on 8/19/2019 showed 94 million cubic feet of natural gas for the 12-month rolling time period at the end of June 2019. The NOx emissions per 12-month rolling time period showed values of 0.14 tpy.

I.3 – Compliance – Particulate matter limited to 0.031 grains per dry standard cubic foot for each coal mill pursuant to the thermal dryer requirements within NSPS Y, Standards of Performance for Coal Preparation Plants, at 40 CFR 60.252(a)(1). Please see section below on NSPS Y relating to the initial performance tests on each coal mill dryer; no subsequent tests have been requested by the AQD.

I.4 through 18, VI.4 – Compliance – Particulate matter limits for PCI equipment expressed in grains per cubic foot (gr/cf) of exhaust air corrected to 70°F and 29.92 inches Hg, in pounds per hour (pph), and tons per year (tpy): B & W coal mill stack (0.002 gr/cf, 1.83 pph, 8.03 tpy); Alstom mill stack (0.003 gr/cf, 1.58 pph, 6.90 tpy); each transfer system stack (0.006 gr/cf, 0.33 pph, 1.43 tpy); transport vessel stack (0.01 gr/cf, 0.025 pph, 0.11 tpy); truck loading and coal silo vent filters (0.005 gr/cf, 0.30 pph, 1.30 tpy). Records of test data to be maintained; if test data is not available, emission factors utilized for compliance, shall be maintained.

Stack tests conducted on 1/9/1997 (please see Appendices A and B of the 11/14/2003 submittal) measured particulate emissions in the following concentrations: 0.0016 grains per dry standard cubic foot (gr/dscf) from the B & W coal mill stack, 0.0007 gr/dscf from the North Bag Filter House (a transfer system emission point), 0.0007 gr/dscf from the South Bag Filter House (a transfer system emission point), and 0.00033 gr/dscf from the Area 3 Fine Coal 75-Ton Silo Baghouse (the transport system emission point). A stack test conducted on 7/29/2008 (please see submittal of 3/22/2010) at the Alstom mill measured particulate emissions at 0.001 gr/dscf. Compliance with the concentration, pound per hour, and ton per year limits for the truck loading/coal silo vent filters are assumed at this time; no stack tests have been conducted on these vents.

Each pound per hour limit is based on the concentration limit and the maximum exhaust gas flowrate; each ton per year limit is based on pounds per hour limit and the maximum 8760 hours of operation in a year. Therefore, compliance with the pounds per hour and tons per year limits is presumed based on stack test compliance with the concentration limits.

For the inspection of 7/19/2019 AQD evaluated the emissions records received on 8/19/2019 corresponding to a 12-month rolling period from 7/1/2018 to 6/30/2019 for each regulated PCI equipment/emission point. For each PCI emission point, PM emissions at the end of June 2019 showed values below the ROP tons per year (tpy) limits, ranging from 0.01 tpy to 0.03 tpy

I.19, VI.7 and 8 – Compliance – Visible emissions limited to 5% over a 6-minute average from any stack within the flexible group; daily non-certified Method 22 visual observations on the PCI stacks; if opacity is noted conduct a certified Method 9 or shut down the process; conduct inspection on dust collector following visible emission observation and log observations, shutdowns, results of inspections, and corrective actions.

I observed the PCI equipment during the inspection of 7/19/2019 but since I did not notice any activity in that area, visible emissions observations from the operations or associated stack, were not pertinent. The DTE email submittal on 8/5/2019 contains records of visible emissions observations for 7/7/2019 through 7/13/2019; observations are made twice a day at 7:00 AM and 7:00 PM. The operators did not report visible emissions during the cited dates.

At 60.252(a)(2) and 60.254(a), each thermal dryer, coal processing and conveying equipment, coal storage system, and coal transfer and loading system that is an affected facility under the standard is prohibited from emitting gases which "exhibit 20 percent opacity or greater." For PCI equipment subject to the NSPS Y visible emissions standard compliance with the 5% opacity limit also demonstrates compliance with the less than 20%

standard. Please see section below on NSPS Y relating to the initial performance tests conducted on the PCI equipment.

II.1, VI.2 – Compliance – Coal throughput in PCI pulverizers limited to 1,091,160 tons per 12-month rolling time period as determined at the end of each calendar month; monthly and 12-month rolling coal throughput records required – Monthly records of collective PCI Coal throughput for a 12-month period from 7/1/2018 to 6/30/2019 were submitted by DTE River Rouge via email on 8/27/2019. Records for the 12-month rolling period, received on 8/19/2019, reported 298,525 tons of coal throughput in the PCI pulverizers at the end of June 2019. AQD reviewed historical records submitted for the past two inspections. For a similar 12-month period the coal processed was 290,934 tons in 2016 and 219,666 tons in 2015.

III.1 through 3, VI.5 and 6 – Compliance – Air pollution control equipment to be installed and operated properly; broken bag detectors and pressure drop gauges with alarms to be installed on all PCI dust collectors/vent filters and daily readings taken, when coal is transported; maximum pressure drop values are as follows, in inches of water column: B & W coal mills = 8; transfer systems =8; transport system =12; Alstom mill = 6; coal silo =6; truck loading = 6.

DTE River Rouge has indicated in the past that alarms and broken bag detectors are incorporated into the PCI software; though this was not confirmed for every dust collector/vent filter. PCI pressure drop records for the period 7/7/2019 through 7/13/2019 were provided via email on 8/5/2019. Measured pressure drops are within the ROP required ranges.

VI.9 – Compliance – Exhaust temperature from each coal mill to be continuously monitored; monitoring devices to be certified accurate to within 3°F and recalibrated annually – During the inspection of 7/19/2019 it was observed that monitoring devices were recording exhaust temperatures. In addition, DTE follows the annual preventive maintenance plan that requires annual calibration of the thermocouples. As an example, DTE sent AQD a computer screen copy of the workorder showing the completion of installation of calibrated thermocouples at the PCI Air Heaters on 6/28/2019.

VIII.1 through 7 – Compliance – Stack maximum diameters (inches) and minimum exhaust heights (feet) as follows: coal mills (63", 200'), transfer system #1 (18", 145'), transfer system #2 (18", 145'), transport vessel (12", 176'), Alstom mill (63", 200'), coal silo (8", 157'), truck loading (8", 12'). Exhaust gases must vent unobstructed vertically upwards except for the transport vessel, the coal silo, and the truck loading system, each of which may vent horizontal – Visual observation of the stacks during the inspection of 7/19/2019 did not raise a question of non-compliance with stack specifications, though stack height and diameter measurements were not performed.

IX.1 – Compliance – Comply with all applicable requirements of NSPS A and Y – Please see section related to NSPS Y.

COAL HANDLING EQUIPMENT: NSPS Y FOR COAL PREPARATION PLANTS

The federal New Source Performance Standards, Subparts A and Y (NSPS Y), regulates affected facilities at coal preparation and processing plants processing greater than 200 tons per day of coal that commenced construction or modification after October 27, 1974. NSPS Y was last amended on October 8, 2009. A coal preparation and processing plant is defined at 40 CFR 60.251(e) as a facility that "prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying." The installation dates for the Zug Island (10/24/1996) and Severstal (7/31/2007) PCI equipment postdates the original applicability date (10/27/1974) and predates the applicability date (4/28/2008) for the NSPS revisions (60.250 (b)). From the coal data given in the 8/25/2011 submittal, both processes utilized greater than 6200 tons of coal in nearly every month of operation from 7/2010 through 6/2011 (60.250(a)) and therefore exceed the 200 ton per day threshold.

The coal grinding mills reduce the size of the coal and therefore qualify as coal processing and conveying equipment (60.250(b) and 60.251(f)), and thus likewise the transfer, transport, and storage equipment are also subject (60.250(b), 60.251(h) and (s)). In addition to grinding the coal, the heaters within the mills dry the bituminous coal via direct heat and therefore qualify as thermal dryers under the standard (60.250(b) and 60.251 (r)(1)).

60.8, 60.252(a)(2), 60.254(a)(2), 60.254(a) – Compliance – Emission limits and initial performance tests. At 60.252(a)(1), the owner/operator of a coal preparation plant "shall not cause to be discharged into the atmosphere from any thermal dryer gases which contain particulate matter in excess of 0.070 g/dscm (0.031 gr/dscf)." At 60.252(a)(2) and 60.254(a), each thermal dryer, coal processing and conveying equipment, coal storage system, and coal transfer and loading system that is an affected facility under the standard is prohibited

from emitting gases which "exhibit 20 percent opacity or greater." Under 60.8, initial performance tests are required for applicable emission limits and visible emissions not later than 180 days after initial startup.

On 1/25/2010, DTE River Rouge submitted a 2/17/1997 report of particulate matter tests conducted on 1/9/1997 at the four original coal mills. On 3/22/2010, DTE River Rouge submitted a 9/8/2008 report of a particulate matter test conducted on 7/29/2008 at the Alstom mill. On 5/17/2010, DTE River Rouge submitted a report of visible emissions observations conducted in February and March of 2010 on the PCI equipment. The AQD accepted the results of each as a successful initial compliance test, despite noting certain deficiencies in the tests. Please see reports B281010158, B281009871, and B281009405 for AQD's review of the initial performance tests.

60.256(a)(1)(i) – Compliance – Each thermal dryer shall have installed a device to continuously measure the temperature of the exhaust gas stream; the device is to be accurate to within 3°F and shall be recalibrated annually – Please see the evaluation for SC VI.9 of FG-PCI-COAL_HAND above.

COAL HANDLING EQUIPMENT: MI-ROP-B2810-2012b, FGRULE290

R 336.1290 exempts from R 336.1201 those sources with limited emissions. The rule is divided into three general sections and further divided into subsections, depending on the type of emission (VOC, particulate, etc.), the carcinogenicity of the emissions, and the health-based screening level(s) of the emissions.

I.2 and 3, III.1, VI.1 through 3 – Compliance – Emissions less than 1000 pounds per month uncontrolled, and 500 pounds per month controlled; 0.01 lbs. particulate per 1000 lbs. gas; controlled by dust collector or equivalent installed and maintained; 5% opacity limit and monthly visible emission observation; description on file and records maintained.

DTE River Rouge claims the Rule 290 exemption for the coal handling transfer points in the coal yard and in the coal bunkers. These are coal processing emission units with the potential to emit particulate. Each emission point is controlled with either a dust collector or with the application of a dust suppressant. There were not coal handling/transfer activities occurring at the time of the plant tour during the inspection of 7/19/2019; therefore, no visible emissions were observed on viewing at any of the coal transfer points.

Required records are as follows for each emission unit: written description of the emission unit and control device, including the design control efficiency and exhaust gas flowrate; identify air contaminants emitted, carcinogenicity, screening level, and level of control; monthly emissions calculations; record of monthly visible emission readings.

The 8/5/2019 email submittal listed the estimated PM10 emissions from each dust collector unit for the month of June 2019. AQD noticed that the emission factor EF (0.013 lb/ton) and the control efficiency (50%) used in the calculations to estimate PM10 emissions for the month of June 2019 differs from the values used by DTE River Rouge in the MAERS emission estimates for year 2018. In the 2018 MAERS report the controlled emissions were calculated based on 99% control efficiency and the EF was 0.006 lb./ton. However, even when the calculations provided used a higher EF (compared to the MAERS EF), the PM10 emissions from each emission unit of the flexible group FGRULE 290, are still below the limit of 1000 pounds per month for uncontrolled emissions. AQD will discuss with DTE River Rouge the cited differences in PM10 emission calculations during the next MAERS season.

For the month of June 2019, the PM10 uncontrolled emissions from each emission unit in the coal handling equipment area showed values from 178.09 pounds to 880.43 pounds. An example of visible emissions records for the period from 7/7/2019 to 7/13/2019 was provided during the inspection meeting on 7/19/2019. The information is now kept electronically, and the paper records are discarded once the information is entered in the computer. The logs titled "Fuel Supply Environmental Log" showed no visible emissions. These logs contain diverse type of information, involving activities related to the implementation of the Fugitive Dust Management Plan (i.e. water wagon usage, truck wheels washed, etc.).

FUGITIVE DUST SOURCES: MI-ROP-B2810-2012b, FG-FUGITIVEDUST

Comprises the collection of fugitive dust sources at the site.

I.1 and 2, V.1 – Compliance – Visible emissions not to exceed 5% opacity from any lot, storage pile, or material handling activity, and not to exceed 20% opacity otherwise; opacity to be determined by the average of 12 consecutive readings recorded at 15-second intervals in accordance with Test Method 9D; visible emissions readings to be conducted upon request of AQD.

At the time of the plant tour on 7/19/2019, there was no activity taken place at the coal handling operations including the conveyors, front end loaders, ash loading, and vehicular traffic; no opacity observations or Method 9D readings were conducted from any of these operations.

III.1, VI.1, VII.4, IX.1 – Compliance – Fugitive dust plan in Appendix 9-1 shall be implemented and maintained, and required records kept; quarterly report required within 30 days after the calendar quarter identifying each day an emission limit, operational requirement, or recordkeeping requirement was not met, the reason why, and the remedial action taken; conditions that are solely from the SIP Consent Order 9-1993 are void upon the termination of the order.

Please see section below on Appendix 9-1. SC VII.4 requires a quarterly report detailing instances of non-compliance with the provisions of the SIP Order. The SIP Order pre-dates the ROP for the source and the semiannual deviation reports attendant to it. While DTE River Rouge has not been submitting quarterly reports, the SIP Order has been incorporated into the ROP and the facility is required to report deviations with ROP requirements on a semiannual basis. Therefore, AQD considers DTE River Rouge to be in compliance with this requirement.

FUGITIVE DUST SOURCES: MI-ROP-B2810-2012b, APPENDIX 9-1 AND SIP CONSENT ORDER 9-1993

Appendix 9-1 includes the fugitive dust provisions of SIP Consent Order 9-1993, revised and reissued on 9/9/1994.

A through F – Compliance – General provisions for paved roads, unpaved roads, storage piles, and materials handling, as specified below, with recordkeeping requirements.

Paved roads: (i) speed limit of 15 mph posted and enforced; (ii) paved roads to be swept or flushed in the spring, summer, fall, and winter when freezing is not a concern. In general, a semimonthly frequency is required for travel lanes and a monthly frequency for non-travel lanes; at a minimum, all non-travel portions of paved lots must be treated once each spring, once each summer, and once each fall.

Unpaved roads: (i) sprayed with suppressant at rate of 0.1 gallons per square yard at a frequency of either once per year or three times per year, depending on location; (ii) additional control measures to be taken to reduce fugitive dust.

Storage piles: (i) compacted and configured to reduce emissions; (ii) pile height a maximum of 50 feet; (iii) haul roads watered weekly unless recent rain or unless freezing is a concern; (iv) mobile equipment exhaust to be directed upwards; (v) excessive spillage removed within 48 hours; (vi) additional control measures taken as necessary.

Materials Handling: (i) rail delivery in enclosed rotary dumper; (ii) pile unloading by underground reclaiming and surface conveyors; (iii) conveyors covered and maintained; (iv) dust collectors and physical curtains in use when dry loading ash trucks; (v) ash to be wetted prior to loading in trucks leaving the site; (vi) ash truck wheels cleaned prior to leaving ash silo area; (vii) ash area flushed each day after loading is complete.

Documentation of required activities to be kept in a log for a period of three years; information generally as follows: date of treatment or control activity, location of application, control measures used, quantity of control measures used, responsible person.

Speed limit signage was noted, and plant roadways were clean.

No emissions were observed in the area of coal transfer and stockpiling operations, due to inactivity in the area at the time of the plant tour. No visible emissions were observed exiting the Rail Car Dumper House since coal unloading was not occurring. Ash loading was not observed.

In general, the roads and storage piles are watered five times a week from April to June.

Sweeper are used quite frequently during the months of May and June, but not in April due to recurrent heavy rains. Refer to the information provided by DTE in the records labeled "Fuel Supply Environmental Log", which was described previously on this inspection report.

EMERGENCY GENERATORS: FG-EMERDG_FSUPPLY; MACT ZZZZ and NSPS IIII FOR ENGINES

Three emergency generators are installed at the plant: each 10-kW operating on diesel fuel and with an order

date of 10/18/2006. Each generator is exempt from the requirements to obtain a permit to install. R 336.1285(g) exempts internal combustion engines with a heat input capacity less than 10 MMBtu per hour. Assuming a thermal to mechanical conversion of approximately 33% a 10-kW output generator requires a fuel input of about 0.1 MMBtu per hour; each emergency generator qualifies for Rule 285(g) exemption.

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP), Subparts A and ZZZZ (MACT ZZZZ) regulates hazardous air pollutants (HAP) emissions from reciprocating internal combustion engines (RICE) and these regulations integrate the requirements from within the NSPS Subpart IIII for stationary compression ignition (i.e. diesel fueled) internal combustion engines. The three emergency generators are each rated at 10 kW (or 13.4 hp) and were ordered from the manufacturer on 10/18/2006 (8/9/2011 submittal), therefore, each generator is classified as a new stationary RICE under 63.6590(a)(2)(ii) because each was constructed after 6/12/2006. Per 63.6590(c) and (c)(6), emergency generators such as these (less than 500 hp) need to comply only with the NSPS IIII requirements. Based on the order date, these generators are subject to the NSPS IIII through 60.4200(a)(2)(i). Part 60 and Part 63 requirements are incorporated into the ROP at FG-EMERDG_FSUPPLY.

I.1 through 3, VI.1 – Compliance – Per 60.4205(a), each generator limited to 6.6 grams CO per kilowatt-hour, 9.5 grams NOx + NMHC per kilowatt-hour, and 0.80 grams PM per kilowatt-hour; tests, if conducted, to be performed in accordance with the procedures at 60.4212; compliance to be determined by one of the methods listed at 60.4211(b)(1) through (5).

Based on the 9/29/2015 submittal provided as part of the previous AQD facility inspection, DTE River Rouge chose to comply with the above cited requirements based on a manufacturer's certification per 60.4211(b)(1). From AQD's view of the Generac website, Generac publishes a warranty entitled "United States Environmental Protection Agency & California Warranty Statement (Stationary Compression-Ignition Generators)". The warranty states that for 1996 and later model year, non-road diesel engines; the engine was designed, built, and equipped to conform with all applicable regulations adopted by the EPA and CARB pursuant to their respective authority. The warranty expires after 5 years or 3,000 hours of use; nevertheless, it is presumed that the Generac model engines at DTE River Rouge were EPA certified at the time of purchase. AQD did not request the manufacturer certification during the inspection of 7/19/2019 because it should be on file from the previous inspection.

I.4, II.1.a, VI.2 – Compliance – Sulfur dioxide emissions from each generator not to exceed 120 parts per million by volume at 50% excess air – The ppmv emission limit correlates to a sulfur in fuel oil content of 0.30 percent by weight, or 3,000 ppmw. Provided DTE River Rouge continues to demonstrate compliance with the 15 ppmw sulfur requirement for nonroad diesel fuel at SC II.1.a, the AQD will presume the sulfur in exhaust gas concentration is achieved.

II.1.a and b, VI.2 – Compliance – Per DTE River Rouge's submittal of 8/11/2011, each generator has a displacement of 0.6 liters per cylinder, therefore by 60.4207(b) these units are required to use diesel fuel that meets the requirements at 80.510(b) for nonroad diesel fuel; 80.510(b) limits the fuel to a maximum sulfur content of 15 ppmw and either a minimum cetane index of 40 or a maximum aromatic content of 35% by volume; compliance demonstration is not required by the MACT or NSPS but is included as a condition of the ROP– According to an 8/11/2011 submittal, DTE River Rouge utilizes ultra-low sulfur diesel fuel from Marathon Petroleum which, by contract, meets the sulfur and cetane requirements (see attached diesel fuel SDS). DTE River Rouge submitted a letter, dated 6/5/2013 where Marathon Petroleum indicated that all Certificates of Analyses for the fuel oil sold within the previous five years had shown sulfur content less than 15 ppm by weight. For the inspection of 7/19/2019 AQD requested records of fuel data for the last three fuel deliveries to evaluate the sulfur content and the cetane. DTE River Rouge responded that the Marathon Petroleum contract previously submitted is still in effect.

III.1 through 2 – Compliance – Each generator to be operated and maintained according to manufacturer's instructions and so as to achieve emission standards over the life of the unit (60.4206, 60.4211(a)(1) and (2)) – Each of the three Generac units were viewed during the inspection of 7/19/2019 and appeared well-maintained. An example of maintenance activities was provided in the inspection of year 2017.

III.3, IV.1, VI.3 – Compliance – Each emergency unit is limited to 100 hours per year of non-emergency use, including readiness testing and maintenance, and within the 100 hours, not more than 50 hours of unspecified use, though peak shaving or income generation is prohibited (60.4211(f)); there is no limitation on the use of the units in emergency situations; each unit is to be equipped with a non-resettable hour meter (60.4209(a)); records on reasons for use.

The emergency generators 's hourly meters were recorded on 7/19/2019. The meters clocked 667.3 hours for Generac 1, 962.3 hours for Generac 2, and 697.9 hours for Generac 3.

For each generator I used the hours recorded on 7/19/2019 and subtracted them from the previous records on file, which were obtained on 6/19/2017. The results represent the numbers of hours each generator was operated during a 25-month period. According to the results estimated as an annual average, Generac 1 was used for about 82 hours per year, Generac 2 was used for about 79 hours per year, and Generac 3 was used for about 23 hours per year.

Based on DTE River Rouge information, typically the generators are run for 20 to 30 minutes each week for readiness testing and maintenance to ensure reliability. DTE explained that when there are electrical issues at either the dumper house, bunker house, or unloading house, the generator associated with the specific area automatically powers on for lighting purposes. The hourly meters account for the total hours of operation and do not differentiate between the time the generators are used for emergency and non-emergency situations. Based on the records collected from the non-resettable hourly meters on 7/19/2019, and the estimated calculations, the number of hours of operation per year for each generator do not exceed the 100-hour allowed for emergency generators. Typically, the generators are only used for readiness test but there were instances where electrical failures occurred which caused the generators to auto run. Separate records were not collected at this time, but subtracting the time used for the routine readiness testing it is possible estimate the time they were used for power supply. During the evaluated period, it seems like Generac 1 and 2, were used for certain emergency events.

IX.1 and 2 – Compliance – Comply with all applicable requirements of NSPS IIII and MACT ZZZZ – Requirements are incorporated into the ROP and the facility appears to be in compliance.

COLD CLEANERS: MI-ROP-B2810-2012b, FGCOLDCLEANERS

This flexible group encompasses each cold cleaner currently installed or to be installed at the plant that is exempt from the requirement to obtain a Permit to Install requirements at Rule 201(1) pursuant to either the Rule 281(h) or the Rule 285(r)(iv) exemptions. As indicated earlier in the plant tour discussion, four cold cleaners are currently installed at the facility: two in the boiler house maintenance machine shop, a third in the tractor house, and a fourth in the fuel supply maintenance shop. The part cleaner located at the tractor house fuel supply and the one at the fuel supply maintenance shop were not inspected on 7/19/2019, but according to the records provided by Ms. Wilson all cold cleaners all alike in size and structure, and all use Zep Dyna 143 as the cleaning solvent.

II.1 – Compliance – Cleaning solvents shall not exceed more than 5% by weight in aggregate of methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform; these are federal hazardous air pollutants (HAPs) – Section 15 of the SDS on file indicates no HAPs were found in the solvent.

III.1 and 2, IV.1 through 3, VI.3 – Compliance – Each cold cleaner must either have an air/vapor interface of not more than 10 square feet or, if cleaning metal parts, emissions only released into the general in-plant environment; cleaners to be equipped with a devices to drain parts and parts to be drained not less than 15 seconds or until dripping ceases; cover to be closed when not in use; written operating procedures posted near the cleaner; routine maintenance performed as recommended by manufacturer.

In the 7/19/2019 submittal, DTE River Rouge reports the air/vapor interface of each cold cleaner at 4.7 square feet (no changes from previous inspection). Based on visual observations of the cold cleaners on 7/19/2019, the value seems to be accurate. Emissions are released into the general in-plant environment. The cleaners were not in use during the inspection and the covers were observed to be closed. The cleaners appeared in good repair.

IV.4 and 5, VI.1 – Not Applicable – Cover mechanically assisted if Reid vapor pressure greater than 0.3 psia or if solvent is heated or agitated; if solvent has vapor pressure greater than 0.6 psia or heated above 120°F additional controls and monitoring are required.

There are no changes in the size, type of cold cleaner, or the solvent used to clean the parts. The solvent is neither heated nor agitated, and according to the SDS the solvent (CAS number 64742-88-7) is a light aliphatic naphtha with a vapor pressure < 0.01 psia (0.5 mmHg) at 20°C. Therefore, the covers need not be mechanically assisted, and additional controls are not required.

VI.2 – Compliance – Required records include the date of installation of each cold cleaner, the identification number, the air/vapor interface area, and the type of solvent including the Reid vapor pressure and VOC content – Cold cleaner characteristics were given in the 7/19/2019 records submittal and the records are attached.

VI.4 – Compliance – Storage in non-closed containers prohibited unless a safety hazard and then further

requirements apply – DTE River Rouge reuses the solvent enclosed within the cleaner until evaporative loss requires addition.

PEAKING UNITS: MI-ROP-B2810-2012b, FG-DG_PEAKERS

This flexible group comprises four peaking units, each diesel fueled and each with a heat input of 28.4 million Btu per hour (2.75 MW). The peaking units were installed on or before 1/1/1967.

I.1, II.1, V.1, VI.2 – Compliance – Sulfur dioxide emissions from each peaker not to exceed 120 parts per million by volume at 50% excess air; verification by stack testing upon request of AQD; sulfur content of fuel oil not to exceed 0.30 percent by weight on the basis of an instantaneous sample; documentation to be maintained of sulfur content in fuel oil – Stack test for sulfur content in the exhaust have not been requested by AQD. However, the information of sulfur content in the fuel oil is always requested. Certificates of analyses were not provided in this inspection, but DTE provided the SDS for the diesel fuel sold to them by Marathon. The SDS label identifies the product as "Ultra Low Sulfur No.2 Diesel" and the product specifications showed a maximum sulfur content of 15 ppm by weight. In addition, a letter dated June 5, 2013 from Marathon Petroleum Company to DTE, indicated that all Certificates of Analyses for the fuel oil sold by them within the last previous years showed sulfur content less than 15 ppm by weight.

VI.1 – Compliance – Monitor and record monthly fuel usage in gallons – Monthly fuel use records at each peaker are maintained by DTE River Rouge. During the inspection of 7/19/2019 I requested the monthly records for year 2018. However, the facility provided the total for the year. Records for the 12-month period, from January to December of 2018 were provided via email on 8/14/2019. For year 2018, the diesel fuel usage for all four peakers was reported to be 12,067 gallons.

IX.1 – Compliance – Comply with all applicable requirements of MACT ZZZZ – Please see section below on MACT ZZZZ.

PEAKING UNITS: MACT ZZZZ AND NSPS IIII FOR ENGINES – COMPLIANCE UNKNOWN

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP), Subparts A and ZZZZ (MACT ZZZZ) regulates hazardous air pollutants (HAP) emissions reciprocating from internal combustion engines (RICE) and these regulations integrate NSPS Subpart IIII for stationary compression ignition (i.e. diesel fueled) internal combustion engines.

The four-diesel fired peaking units were installed in 1967 and therefore prior to the 7/11/2005 applicability date in NSPS IIII (60.4200(a)). For MACT ZZZZ, each peaking unit is classified as an existing stationary RICE under 63.6590(a)(1)(i) because each is a 2.75 MW unit (3,683 hp) constructed prior to 12/19/2002 located at a major HAP source. These are non-emergency units and therefore the first compliance date for emissions and operating limitations is 5/3/2013 (63.6595(a)(1)). However, at 63.6590(b)(3) and (b)(3)(iv), an existing limited use stationary RICE of this type (i.e. greater than 500 hp at a major HAP source) "does not have to meet the requirements of this subpart [ZZZZ] and of subpart A of this part [63], including initial notification requirements". At 63.6675, a limited use stationary RICE is defined as "any stationary RICE that operates less than 100 hours per year".

During the inspection of 7/19/2019 I requested the hours of operation for the peakers to verify that each peaking unit did not operate above the 100 hours per year limit. DTE River Rouge emailed me the information via email on 8/14/2019. The peakers operating hours for a 12-month period from 1/01/2018 through 1/1/2018 total 100 run hours. This total accounts for the combined operation of all peakers in a year-operation, as follow: Peaker #1 (27.3 hrs), Peaker #2 (27.1 hrs), Peaker #3 (26.9 hrs), and Peaker #4 (18.6). Therefore, each peaker qualifies as a limited use stationary RICE and they are not subject to the requirements of MACT ZZZZ. However, the four peakers still remain a part of the affected source and will become subject to the requirements within the MACT standard if ever the operating hours exceed 100 per year.

PEAKING UNITS: PART 8 RULES FOR NOX SOURCES

Michigan's Part 8 rules were promulgated in response to interstate ozone transport issues identified under Section 110(a)(2)(D)(i)(I) of the Clean Air Act. The Part 8 rules incorporate requirements imposed first by the federal NOx Budget Program and by the federal CAIR program, with some additional provisions. Broadly, the Part 8 rules apply to fossil fuel-fired steam generating units producing electricity for sale while serving a generator with a nameplate capacity of 25 MW or more (e.g. Rules 801(2), 802(1)(a), 821(1)(a), 821(1)(b)) and any other source of NOx with a heat input capacity greater than 250 MMBtu per hour (e.g. Rules 801(4), 802(1)(b), 821(1)(c)). Each of the four peaking units is used to generate electricity for the grid, however, at 2.5 MW and 28.4 MMBtu per hour each unit does not qualify for regulation under either category.

Rule 818 regulates NOx emissions from certain internal combustion engines. Under R 336.1818(2), "the requirements of this rule apply to the owner or operator of a large NOx SIP call engine located in the Michigan fine grid zone defined in R 336.1803(1)." Wayne County is in the fine grid zone. A large NOx SIP call engine is defined at R 336.1818(1)(f) as "a stationary internal combustion engine emitting more than 1 ton of oxides of nitrogen per average ozone control period day in 1995."

On 4/5/2007 AQD-Detroit Office received from AQD's Emissions Reporting Unit a spreadsheet of the 1995 emissions inventory data supplied by DTE River Rouge. The peaking units are referenced as point source #4 on B2810_POINT_1995 and named River Rouge DG11. Four pieces of equipment are identified in this group. The capacity of each piece is given at 200 gallons of diesel fuel per hour (at 0.137 MMBtu per gallon of diesel fuel, this equates to 25.4 MMBtu per hour and approximates the 28.4 MMBtu per hour maximum rate given by DTE). DTE River Rouge reports the peaking units operated for 12 days in 1995 and combusted 48,240 gallons of diesel fuel (B2810_SEGMENT_1995). AQD estimated 11.312 tons NOx (B2810_SEGMENT_EMISSION_1995) were emitted due to this activity. In addition, DTE's 9/21/2007 submittal reports total NOx emissions from the peaking units at 0.91 tons for calendar year 1995.

The ozone season, for purposes of the Part 8 rules, extends from May through the end of September, or 153 days. To be regulated under R 336.1818 NOx emissions from an emission unit must exceed 153 tons during this time period. Based on the information from the 1995 emissions inventory and from the 9/21/2007 submittal, none of the peaking units emitted 153 tons or greater during the 1995 ozone season and therefore none of these four peaking units are regulated under Rule 818.

STORAGE TANKS: NSPS KB, R 336.1281(E), AND R 336.1281(M)

The federal New Source Performance Standards at Subparts A and Kb regulates volatile organic liquid storage tanks that commenced construction or modification after July 23, 1984. The affected facility is defined at 40 CFR 60.110b as storage vessels containing volatile organic liquids (as defined in the subpart) and with capacities greater than or equal to 75 cubic meters (19813 gallons).

Two open-topped storage tanks are constructed on the western edge of the boiler-house. According to DTE (submittals of 8/26/2005 and 9/21/2007), the northern tank has a capacity of 590,000 gallons and is used to temporarily store boiler blowdown water. In the past, this northern tank was also used for the storage of a chemical waste generated from a solution used to de-rust the boilers every 10-20 years. However, in this inspection I was informed that they no longer perform that activity or used that solution.

The southern tank has a capacity of 237,000 gallons and is used to store "oily waste". DTE informs that the chemical waste is typically an aqueous solution with small amounts of ammonia and EDTA. The oily waste is typically a synthetic hydrocarbon with vapor pressure less than 0.1 mmHg. Therefore, DTE argues the materials stored in these tanks have vapor pressures less than the threshold limits of NSPS Kb (5.2 kPa) and the Part 6 rules (1.5 psia). DTE claims Rule 281(e) exempts the chemical waste tank and Rule 285(m) exempts the oily waste because "the oil is not a VOC".

Based on the vapor pressures of the materials, it appears these tanks are not subject to the NSPS K-series of storage tank regulations or the State Part 6 storage tanks regulations. Rule 281(e) applies, provided the vapor pressure of the VOC does not exceed 0.1 mmHg, as it appears not to. There is no minimum vapor pressure in Rule 285(m); however, wastewater tanks are exempt provided the primary purpose of the treatment is not for VOCs, and it appears not to be in this case.

Therefore, based on the information known at this time, these tanks appear to be exempt from the regulations mentioned above.

EPA NOV/FOVs

On 7/24/2009 and again on 3/13/2013, the U.S. EPA Region 5 issued a Notice of Violation and Finding of Violation (NOV/FOV) to DTE Energy for the Monroe, St. Clair, River Rouge, Belle River, and Trenton Channel power plants. EPA cites violations of Rule 301, major New Source Review, NSPS Da, and Title V at the DTE River Rouge Plant. The asserted violations have been unresolved for several years.

6 - CONCLUSION

At the time of completion of this report, DTE River Rouge is substantively in compliance with the applicable state and federal requirements that were evaluated during the inspection period. The NOV/FOVs of 7/24/2009 and 3/13/2013 issued by the U.S. EPA's to DTE River Rouge remain outstanding.

NAME Gandoval DATE 8/27/2019 SUPERVISOR JK