

B2810  
MANILA

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

B281030264

FACILITY: DTE - Electric Company RIVER ROUGE		SRN / ID: B2810
LOCATION: 1 BELANGER PARK DR, RIVER ROUGE		DISTRICT: Detroit
CITY: RIVER ROUGE		COUNTY: WAYNE
CONTACT: Amanda Kosch , Environmental Manager and Resorces		ACTIVITY DATE: 07/20/2015
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Full Compliance Evaluation for FY 2015. Site visits conducted on 7/15/15 and 7/20/15 to evaluate compliance status.		
RESOLVED COMPLAINTS:		

SCHEDULED INVESTIGATION REPORT  
(PCE for an FCE source)

**Date of Investigation:** July 15 and July 20, 2015  
**Source:** DTE Electric Company, River Rouge Power Plant  
**SRN:** B2810  
**Address:** 1 Belanger Park Drive, River Rouge, Michigan 48218-2601  
**Subject:** Scheduled Investigation  
**Author:** Nazaret Sandoval, Air Quality Division, Detroit Office

**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 BACKGROUND**

The DTE Electric Company River Rouge Power Plant (DTE River Rouge), formerly known as the Detroit Edison River Rouge Power Plant, is an electrical generating plant constructed in the 1950s. The plant comprises three large steam boilers and associated turbines, a portable auxiliary steam boiler installed permanently at the plant in November 2014, coal and ash handling equipment, and four diesel turbine peakers. The three steam boilers are known 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.

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. The three large steam boilers are subject to the federal Acid Rain and Clear Air Interstate (CAIR) regulations. 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. Units 2 and 3 are subject to the MACT standards at 40 CFR 63, Subpart UUUUU. Units 2 and 3 and their respective 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 Plan (SIP) Order No. 9-1993, which has been incorporated into the ROP.

The 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 to be an existing source regulated under the National Emissions Standards for Hazardous Air Pollutants (or MACT) at 40 CFR 63, Subpart DDDDD. DTE agreed on submitting a notification letter to AQD indicating that the "former" Auxiliary Boiler installed in 1987 is permanent inoperable. AQD will remove the EU\_AUX Boiler requirements during the ROP renewal. The two minor changes to the ROP for the IB MACT would be to conduct a one-time energy

assessment and an annual tune-up. Compliance with these requirements is required no later than 1/31/2016.

### **3 - PROCESS DESCRIPTION**

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 to the Unit 2 and Unit 3 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 processor for the U.S. Steel blast furnaces on Zug Island and A.K. Steel (formerly known as Severstal) blast furnaces in Dearborn. This coal, known as the PCI coal, is pulverized in one of five 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 (or Mill 3-4) is sent to an on-site Silo and trucked to A.K. 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 houses three electric utility steam boilers; from east to west the boilers are named Unit 1, Unit 2, and Unit 3. Unit 1 is a 2400 million British thermal unit (MMBtu) per hour unit originally designed to fire coal, then switched to burn oil in the early 1970s, and finally converted to combust natural gas, exclusively, in 1999. Unit 1 is used for backup or peaking power, is rarely in service, and last operated in 2005. Units 2 and 3 are 2280 MMBtu per hour and 2670 MMBtu per hour, respectively, coal-fired units that are also equipped with gas burners. Unit 2 is tangentially-fired and Unit 3 is wall-fired. Excess blast furnace gas and coke oven gas generated from operations on Zug Island may be combusted in Units 2 and 3 as a supplemental fuel. Units 2 and 3 are also permitted to combust up to 10,000 tons of dried paint solids annually from auto assembly plants.

Boiler emissions are vented vertically to the ambient air through stacks 385 feet high for Unit 1, 385 feet high for Unit 2, and 425 feet high for Unit 3. Particulate emissions from Units 2 and 3 are controlled by electrostatic precipitators (ESP) dedicated to each boiler. All three 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. Units 2 and 3 are equipped with continuous emissions monitors (CEMS) for NOx and SO2 and are equipped with a continuous opacity monitor (COMS) for visible emissions. Unit 1 is equipped with CEMs 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.

DTE River Rouge operated a natural gas-fired 235 MMBtu per hour auxiliary steam boiler until May 2013. The purpose of the Auxiliary Boiler was to provide steam to the plant and to other nearby customers if the main boilers are 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. Consequently, to comply with the contract steam supply to US Steel during outages of the main boilers, DTE has been leasing a portable boiler once or twice per year. However, since May 2013 the lease has been done in a more permanent basis. During the last rental period, in the fourth quarter of 2014, DTE purchased the approximately 40-year old portable boiler from the rental company. It is a natural gas-fired portable boiler nominally rated at 33.5 MMBtu per hour heat input and 150 psi. The boiler was brought on November 1, 2014 and started its operations on April 20, 2015. The Portable Boiler is now permanently installed at DTE and all the meters and monitoring system used with the former Aux Boiler have been connected to the new acquired boiler.

There are also four 28.4 MMBtu per hour diesel fueled generators connected to the electrical grid and operate as peaking units for black start. Each peaking unit can only be used 100 hrs. per peaker/year. No add-on emissions controls are associated with the Portable Auxiliary Boiler or diesel peakers; sulfur emissions from the peaking units are limited through the sulfur content of the fuel.

### **4 - FACILITY VISIT**

#### **Overview**

The inspection was conducted in two separate days, with approximately six hours of investigation including the plant tours, records request and meetings. The first visit was on July 15, 2015 and the second one was on July 20, 2015. On 7/15/15 I arrived at the site at about 2:05 PM and left the facility at 5:15 PM. On 7/20/15 I started

the inspection at 9:20 AM and left the site around 12:34 PM.

On 7/15/2015 I arrived at Belanger Park Drive and I took note of the weather conditions when I arrived at the site. According to "weather.com" the weather conditions at River Rouge, were as follows: sunny day with clear sky, visibility 10 miles, temperature 73°F, 42 % humidity and the wind from the NNE at 11mph. I signed in at the DTE Electric Company, River Rouge Power Plant (RRPP) and met with Amanda Kosch of DTE River Rouge's Environmental Management Resources. Amanda is AQD's main contact for permit compliance related issues.

We met at a conference room and after the introductions I stated the objective of the inspection. 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-B2810-2012 (ROP).

Then, I highlighted the topics I intended to evaluate during that visit (July 15). We started the meeting with the overall description of the operations and the location of the equipment in the area of the plant using a plant layout that had been provided by Amanda. As we were going over the description I asked for updates and revised the information as needed. Since the last inspection, the operations and equipment had remained mostly the same. The inspection on July 15, 2015 included: a) getting acquainted with the overall process operations at the plant, b) tour a portion of the facility: the Power House, the Electrostatic Precipitators (ESP), and the Pulverized Coal System (PCI). c) discuss/evaluate compliance with "a portion of" the ROP permit conditions and recordkeeping requirements.

Other member of the staff, from different areas of the plant, attended the opening meeting and/or accompanied us during the facility tour on July 15. Mr. Gary Toulouse, Production Manager, gave a brief overview of the plant at the opening meeting. Kyle Taylor, the Supervisor of Operations for the Technical Group showed us around the Power House and the Electrostatic Precipitators. Spenser Loiselle, the PCI Engineer, showed us the PCI control room and the PCI system. Both Mr. Taylor and Mr. Loiselle described the processes and answered questions during the tour. On July 15, Unit 2 was out of service for maintenance and the ESP serving that boiler was also down.

Before leaving the site at about 5:15 PM, 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 which served to enhance the appearance of visible emissions.

On July 20, 2015 we completed the tour of the facility, starting on the 9<sup>th</sup> floor where the CEMs shelter is located. Vincent Overby, Instrument and Control Technician, (CEMs Technician) showed us the displays where he monitors the emission for the different pollutants. We discussed the incident that DTE reported to AQD on June 9, 2015 in relation to a damaged probe for the Analyzer serving Unit 3. It appeared as if around May 25 firebricks (from the lining of the stack) fell into the stack and damaged the probe. The sample box was also damaged. As a result, Unit 3 had to be put off-line on 6/9/15 to replace the probe. CEMS for Unit 3 was not operating for about two weeks until the problem was fixed. Mr. Overby indicated that he realized that something was wrong when he noticed the values for CO<sub>2</sub> going down in the control chart indicating that the unit was out of specifications. Emissions data were obtained from the analyzers in the CEMS shelter for Unit 2 and 3 on July 20, 2015, when both units were operating. Opacity readings were also recorded at the location of the COMs analyzers for Unit 3. For safety reasons I could not access the location of the opacity monitor for Unit 2. The recorded data are provided later in this report. From this area we went to the boilers control room and we examined the data on the computer screens. We discussed the parameters that are regularly monitored and recorded at the facility. I asked Amanda to provide me with for a print out of the screen data for July 20. Thereafter, we went to the location of some of the cold cleaners and we talked to Mr. Dennis Doe, the supervisor in Reliability and Maintenance.

At about 10:20 AM, Amanda contacted Mr. Joe Slifco, Senior Fuel Supply Equipment Operator. We meet with Mr. Slifco and he described the operations occurring at the Fuel Supply System and their connection with the rest of the plant. At the end of his conversation, he showed us the equipment comprising the Fuel Supply System, which will be described later in this report. After the facility tour, at the closure meeting with Amanda, I indicated that an inspection report would be prepared. The report would include the on-site inspections observations and an evaluation of compliance with the air regulations. I indicated that additional records needed to be evaluated to determined final compliance. I showed Amanda a list of the records I would be requesting. We agreed on communicating via email to get those submitted to AQD for our evaluation.

Before leaving the site we stopped at the location of the Emergency Generators (Peakers), which are situated at the south-east corner of the plant. Amanda also showed me the Portable Auxiliary Boiler installed on November 1, 2014 which is replacing the Permanent Auxiliary Boiler.

On July 20, 2015 (as I did in my visit of July 15) I conducted stack observations. No visible emissions were observed from Unit 2 and 3 boiler stack or the two PCI coal mill stacks.

### Observations and Updates

For ease of documentation, I have combined the two site-visits and 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 or revised by DTE plant staff.

Coal is received by railcar at the southwestern edge of the plant. Current coal usage is approximately 5,000 tons per day, which is typical whenever all units are running. In July 2015, the plant was closer to 3,000 tons per day on average.

Trains arrive two to three days each week, depending on operational requirements. Train sizes vary with the type of coal carried. Eastern Coal trains will carry about 100 cars with a capacity of 115 tons per car. Western Coal trains will carry about 130 cars with a capacity of 115 tons per car. Generally, the plant will hold near to twenty days of supply stockpiled on the site, or about 100,000 tons. In July 2015, total coal inventory at the end of the month was near 200,000 tons because of unexpected outages on both units. In July 2015, the plant received four trains total for Units 2 and 3, each carrying between 15,600 and 15,900 tons of coal. The plant received three trains for the PCI system, each carrying between 11,600 tons and 13,200 tons of coal.

Coal is loaded into the bunkers Monday-Friday between 7am and 1pm. The Unit 2 and Unit 3 bunkers hold 3,000 tons each. The PCI bunkers hold 3,000 tons total; 2,000 for the US Steel system and 1,000 for the AK Steel system. Typically the PCI system will only consume 700-900 tons per day per system: 700 max for the AK Steel system and 900 max for the US Steel system. The bunkers were originally part of Unit 1, which explains their large capacity.

In July 2015, total coal usage was:  
67,000 tons Western Coal (Units 2 and 3)  
17,000 tons Eastern coal (Units 2 and 3)  
20,000 tons for US Steel (PCI)  
14,800 tons for AK Steel (PCI)

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. On July 20, 2015 at 11:12 AM, the unloading of railcars was observed at the Rail Car Dumper House from inside the structure. When walking outside, no visible emissions were observed emitting from the baghouse stacks or otherwise during this activity.

The stacker nearest the Drive House was depositing the incoming coal onto the nearest stockpile. A low drop height minimized emissions of particulate matter at the point of deposition and no dust was observed drifting away from the perimeter of the pile. A bulldozer was compacting and shaping the surface of the active stockpile to reduce the likelihood of wind entrainment. Coal piles were estimated at less than 50 feet but no more accurate measure of the piles was attempted aside from visual observation.

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 2 and Unit 3 each have a circular ash silo installed between the boiler and the respective ESP. The silos store fly ash from the ESP hoppers. They take the wet bottom ash from the ash hoppers in the plant and it is transferred to the silos through a different system. It is dewatered, added to the silos, 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 ESPs and associated supports overhang the area to the north and the boiler house is located to the south, so the only practical direction for particulate emissions to exit the area is to the east (for the Unit 2 silo) and to the west (for the Unit 3 silo). On July 20, at about 11:45 AM, ash loading at one of the silos was observed from the distance and no emissions were noted. Ash was loaded wet from a chute above the truck; water was flowing out

of one of the chutes not involved in the loading such that puddles of water formed in the ash loading area.

On July 20, 2015 both Unit 2 and Unit 3 were in operation at the time of the inspection. Unit 1 was not in operation. Units 2 and 3 usually run on the lower sulfur, lower Btu content western coal, however; occasionally, to maximize the load, the fuel supply to the boilers is a mixture of 30% eastern coal with 70% western coal. At about 9:30 AM we were at the 9<sup>th</sup> floor shelter where the CEMS Analyzers are located. Emission data were obtained from the CEMS display. The recorded time is from the clock on my mobile phone. Print-outs from the computerized data acquisition and handling system (DAHS) located at the boiler control rooms were provided by Amanda Kosch. The information collected is presented on the table below. 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 real 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. 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	2	2	3	3
Date	7/20/2015	7/20/2015	7/20/2015	7/20/2015
Time (*)	8:45 AM	9:45 AM	8:35 AM	9:35 AM
Data Source	DAHS Printout	Analyzer	DAHS Printout	Analyzer
Opacity (% instantaneous)	3.76	-----	7.00	6.90
Opacity (% 6-min. avg. current)	3.23	-----	7.41	-----
Opacity (% 6-min. avg. previous)	2.79	-----	6.85	-----
NOx (ppm)	77.2	0.788	215.8	2.16
NOx (lb/MMBtu)	0.163	-----	0.482	-----
NOx (lb./hr.)	335.7	-----	1228	-----
SO2 (ppm)	293	2.92	234.2	2.27
SO2 (lb./MMBtu)	0.87	-----	0.73	-----
SO2 (lb. /hr.)	1788.7	-----	1852.8	-----
SO2 (ton/day actual)		-----		-----
SO2 (ton/day predicted)	21.9	-----	19.7	-----
CO2 (%)	10.09	-----	10.72	-----
CO2 (ppm)		1004	-----	1064
Exhaust flow (kscfm)	600.9	606.1	794.3	809.9
Stack temperature (°F)		-----		-----
Steam load (k#/hr)		-----		-----
Dilution ratio	100.00	101.5	100.00	100.5
Dilution ratio corrected	-----	-----	-----	-----
Power (gross/net MW)	251.3/236.4	253/-----	258.8/238.1	262/-----

(\*) From the second Sunday in March and the first Sunday in November the DAHS time is one hour behind operating time due to Daylight Savings Time

Flue gases from Unit 2 and Unit 3 are vented through ESPs prior to discharge. Each ESP is constructed of four parallel chambers identified as A, B, C and D. Each chamber has six fields (1 to 6). Therefore, there are a total of 24 ESP fields for each unit boiler. Flue gas is apportioned among the chambers to achieve the best performance. Most particles shall 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. During the inspection of July 15, digital readings of operational parameters were recorded for Unit 3, Chamber A (Unit 2 was not operating on July 15). The parameters are displayed for fields 3 and 6, with the readouts given below:

Unit	3	3
Date	7/15/15	7/15/15
Time	3:28 PM	3:28 PM
Chamber/Field	A/3	A/6
Sparks per minute	43	0
Arcs per minute	0	0
Primary amps	293	182
Primary volts	390	285
Secondary amps	1.74	1.46
Secondary kilovolts	37	24
Kilowatts	69	43
Firing angle	130	130

The 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. I noted a red light for all parameters for Chamber A/ Field 5 and the operator indicated that it was "unbalanced".

The status of each Chamber/Field is given below, with a "Y" to indicate the field was operational or "N" to indicate it was down; if operational the kilowatts displayed for the field is noted. Fields that were down were noted by a continuous red light denoting either a "short" or "unbalance". The following observations were recorded at about 3:56 PM on July 15, 2015.

Unit 3	Field					
Chamber	1	2	3	4	5	6
A	Y - 2	Y - 51	Y - 73	Y - 73	N	Y - 43
B	Y - 13	Y - 52	Y - 58	N	Y - 48	Y - 56
C	Y - 48	N	Y - 51	Y - 0	Y - 23	Y - 15
D	N	Y - 21	Y - 0	Y - 59	Y - 63	Y - 40

For Unit 3, 20 of 24 ESP fields were operational at the time of the inspection with a total of 789 KW

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 newer 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 new 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. They are identified as Filterhouse No. 1, 2, 5 and 6. Thermocouple lines appeared to be present at the mills though no displays were observed.

The PCI computer displays are located in the Unit 2 control room. On July 15, at about 4:00 PM I observed the pressure drops values for the various PCI dust collectors and vent filters, in inches of water column. Most of the pressure drop values were zero, except for the Alstom Mill that serves AK Steel. According to the PCI operator, the coal grinders serving Unit 2 and 3 and those serving Zug Island were not operating at the time we visited the control room. Alarms and broken bag detectors appear to be incorporated into the software as required, though this was not confirmed.

The portable auxiliary steam boiler was in operation at the time of the inspection. No visible emissions were observed.

In our tour we visited the maintenance room and there were two "Zep Dyna 143" cold cleaners located in the maintenance shop. Lids were observed closed and instructions for proper operation were posted. Mr. Dennis Doe, Supervisor of Maintenance indicated that the part cleaners and the solvent in that room have not been used lately. He said that they were evaluating the usage of a greener cleaner. The Zep Dyna 143 cold cleaner in the Tractor House and Fuel Supply Maintenance Shop were also inspected and I was informed that those part cleaners were still using Dyna 143.

Three diesel generators are located in the coal yard to provide emergency lighting in the event of a blackout. Clocks are installed on each generator with operational hours displayed as follows at the time of the inspection on 7/20/15: 553.3 hours for Generac 1 outside the Breaker/Tractor Houses, 702.5 hours for Generac 2 outside the Unloading House, and 498.9 hours for Generac 3 outside the Rail Car Dumper House. Each generator is equipped with a tank capable of holding about 40 gallons of diesel fuel. The generators are run for about 20 minutes each week to ensure reliability; to date, none of the generators have been used for emergency purposes. Upon initial installation, faulty electronics caused some of the units to start abruptly and operate without cause until the manufacturer was able to correct the circuitry; this is the reason for the differing clock totals among the three units.

No underground fuel tanks remain at the site. There are two (2) - 1,000 gallon diesel tanks behind the Tractor House and one (1) - 1,000 gallon gasoline tank by the Dumpster House for fueling plant vehicles. Two open-topped storage tanks are installed near the western edge of the boilerhouse. 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.

On July 20, 2015 at about 11:43 AM we stopped at the Breaker House to collect a split of the coal sample from the Elevating Conveyor No 2.

## **5 - COMPLIANCE EVALUATION**

DTE River Rouge was issued the renewal MI-ROP-B2810-2012 on 4/1/2012; the initial ROP was issued 9/22/2003. Since the last renewal, the facility has been issued three Permits to Install (PTI) not yet incorporated into the ROP and some permits have been voided.

PTI 215-06B, issued on 5/30/12, clarifies requirements relating to the pulverized coal injection process at the plant; the permit updated and replaced the flexible group FG-PCI\_COAL\_HAND currently in the ROP.

PTI 40-08G, issued on 7/24/15, establishes new SO<sub>2</sub> limits to support of the 1-hour SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS). DTE River Rouge has elected to establish lower pound per hour and pound per million Btu, federally enforceable SO<sub>2</sub> emission limits by managing the sulfur content in the fuel concentrations and fuel consumption to achieve new unit specific SO<sub>2</sub> limits. DTE River Rouge shall comply with the new emission limits on and after January 1, 2017.

PTI 82-15, issued on 7/24/15, includes the installation of air emission control systems 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. DTE River Rouge received a waiver to start the construction of that project before the permit was issued. They also received an extension until April 16, 2016 to comply with the cited regulations. Permits 40-08D and 40-08E, which had been approved between 4/1/12 and 7/20/15, were voided. PTI 40-08D was for the addition of liquid and solid sorbents to the coal combusted in Units 2 and 3. The fuel additives were intended to reduce mercury, nitrogen oxides and sulfur dioxide emissions. However, the project was not executed and the permit was voided on 1/29/2014.

PTI 40-08E was for an increase in the annual usage of Recovered Paints Solids (RPS) up to 10,000 tons per year. The initial permit (PTI 40-08C) allowed the usage of 1,000 tons per year of RPS as part of the fuel burned in Units 2 and 3. This permit was voided on 7/24/15 because the flexible group "FG-RPSProject" was incorporated into PTI 40-08G when that permit was issued.

Prior to the inspections of 7/15/15 and 7/20/15, the last site inspection was conducted on 9/17/13, with full compliance evaluation covering the period from 10/1/2012 to 9/30/2013. In general, this report covers compliance activities that have occurred from 7/20/14 to 7/20/15, although historical data is presented in some sections of the report.

### **GENERAL PROVISIONS: MI-ROP-B2810-2012, GENERAL CONDITIONS**

**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 – Controls were installed and operating properly during the dates when the facility was inspected. Dust suppressants are utilized in addition to add-on particulate controls.

**11 – Compliance** – Visible emissions 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%, 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 site inspections conducted on 7/15/15 and/or 7/20/15.

**12 – Compliance** – Nuisance emissions prohibited – No citizen complaints have been received by the AQD's Detroit Office related to fallout or odors attributed to DTE River Rouge in the period since the last inspection.

**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 2014 estimated emissions from DTE River Rouge plant were reported on line through the Michigan Air Emission Report System (MAERS). The information was timely submitted and received by AQD on 3/12/15. The certification was received (or postmarked) on 3/16/15. Please see audit report B281029677.

### **UNIT 1: MI-ROP-B2810-2012, 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 the federal CAIR program. According to the quarterly reports submitted by DTE River Rouge, Unit 1 has not operated since 10/22/2005 and is therefore in compliance with the emissions limits and operational requirements within EU-BOILER#1.

NSPS Da regulates electric utility steam generating units that commenced construction after 9/18/1978 and have a maximum heat input capacity greater than 250 MMBtu per hour. Unit 1 has a heat input capacity of 2400 MMBtu per hour, supplies more than 25 MW to the grid, supplies more than one-third of its power to the grid, and was last modified in 1999. Unit 1 is therefore subject to this regulation. This is a natural gas-fired unit. This regulation contains standards for nitrogen oxides, sulfur dioxide and particulate matter. Only NOx and SO2 data collected on "boiler operating days", wherein the boiler operates for 24 hours, are used for NSPS Da compliance purposes. DTE River Rouge was granted waivers from the PM and SO2 initial performance tests and was granted an alternative testing method for the NOx initial performance test; please see reports A-WC-00801 and A-WC-01235. NSPS Da was re-promulgated on June 13, 2007 and has been amended since such that the NSPS Da conditions cited within MI-ROP-B2810-2012 require revision. Though Unit 1 has not been in operation, DTE River Rouge complies with NSPS Da by continually submitting records required by EU-BOILER#1, SC VII.4 and 40 CFR 60.51Da on a quarterly basis.

Please also see the section below on MACT DDDDD.

#### **AUXILIARY BOILER: MI-ROP-B2810-2012, EU-AUX BOILER**

The "former" Auxiliary Boiler was a 235 MMBtu per hour natural gas-fired unit without add-on air pollution control equipment installed in 1987. This unit was subject to NSPS Db and MACT DDDDD. The emission unit operated infrequently; and provided steam to customers in the event the boilers in the main plant are down.

As indicated earlier in the report, the Auxiliary Boiler has been inoperable since May 2013. DTE River Rouge has included Auxiliary Boiler data in the quarterly CEMS/COMS reports submitted for Units 2 and 3. According to the 2013 quarterly reports, 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. Starting 2014, the terms and conditions cited on the ROP for EU-AUX\_BOILER are no longer applicable. DTE agreed on submitting a notification letter to AQD indicating that the Auxiliary Boiler is permanent inoperable. AQD will remove the EU\_AUX Boiler requirements during the ROP renewal.

Since the equipment did not operate in 2014 and 2015, the following ROP conditions for EU-Aux Boiler are evaluated for year 2013.

I.1, I.2, VI.3 – Compliance – Nitrogen oxides emissions not to exceed 0.20 pounds per MMBtu heat input based on an average of three 1-hour time periods nor 20.6 tons per 12-month rolling time period; 12-month NOx emissions records maintained monthly.

Please see reports dated 10/6/1989 and 5/16/1990 in the file regarding the NOx test performed on 4/27/1989 and 4/28/1989, where NOx emissions were measured at 0.145 pounds per MMBtu over a 24-hr period and the boiler operated at the maximum heat input capacity of 235 MMBtu per hour.

The Auxiliary Boiler Calendar year 2013 emissions of NOx reported to MAERS were 1475.92 pounds (approx. 0.74 tons). The previous inspection report indicated that NOx emissions totaled 1.3 tons NOx for the period 7/2012 through 7/2013.

II.1, III.1, VI.1, VI.2, VII.4 – Compliance – Only fuel with natural gas; capacity factor not to exceed 10% per 12-month rolling time period; record natural gas usage and hourly steam load (when operating); record and semiannually report 12-month rolling capacity factor, hours of operation, hours of operation since last NOx test, and results of NOx testing (if any).

The facility reported 7.768 million cubic feet of natural gas combusted in 2013 to MAERS; natural gas is the only fuel reported. The capacity factors and hour operated per quarter for 2013 calendar year, have been reported as follows: 1<sup>st</sup> Q = 0.52 %, 121 hrs.; 2<sup>nd</sup> Q = 0.68 %, 1 hrs.; 3<sup>rd</sup> Q = 0.62 %, 0 hours and 4<sup>th</sup> Q = 0.38%. These figures are the revised information provided by DTE after the amendments of the 1<sup>st</sup> and 2<sup>nd</sup> quarter report in accordance to comments provided by Jeff Korniski after his inspection of 9/17/2013.

In the quarterly report ending 12/31/2013, the Auxiliary Boiler is reported to have operated 1571 hours since the last NOx test.

IX.1 – Compliance – Comply with all applicable requirements of NSPS A and Db – Please see section below on NSPS Db.

IX.2 – Compliance – Comply with all applicable requirements of MACT A and DDDDD – Please see section below on MACT DDDDD.

### **AUXILIARY BOILER: NSPS Db FOR STEAM BOILERS**

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. The Auxiliary Boiler was installed on 1/1/1987, has a heat input capacity of 235 MMBtu per hour, and is therefore subject to this regulation. This regulation contains standards for nitrogen oxides, sulfur dioxide, and particulate matter. NSPS Db was repromulgated on 6/13/2007 and has been amended since.

**60.42b, 60.43b, 60.44b – Not Applicable** – Emissions standards for sulfur dioxide, particulate matter/opacity, and nitrogen oxides – Sulfur dioxide standards and particulate matter/opacity standards are at 60.42b and 60.43b, respectively; no emissions standards are published for natural gas-only units constructed prior to 2/28/2005. Per 60.44b(k), a unit sized under 250 MMBtu per hour combusting only natural gas at a capacity factor of 10 percent or less, and with both as enforceable conditions, is not subject to the emission limitations for NOx. This unit has heat input capacity of 235 MMBtu per hour and the ROP contains the enforceable conditions at SC II.1 and III.1 of EU-AUX\_BOILER.

**60.46b(g) – Compliance** – Maximum heat input capacity demonstration – Under this paragraph, a 60.44(k) source is required to conduct an initial performance test to document the maximum heat input to the boiler for the purpose of determining a baseline for the annual capacity factor calculations. Please see reports in the file dated 10/6/1989 and 5/16/1990 regarding a NOx test performed on 4/27/1989 and 4/28/1989; the test measured an emission rate of 0.145 pounds per MMBtu (the NSPS NOx limit, if it was applicable, is 0.20 pounds per MMBtu) over a 24-hour period while the Auxiliary Boiler operated at a maximum heat input capacity of 235 MMBtu per hour (149,600 pounds per hour steam flow).

**60.49b – Compliance** – Recordkeeping and reporting – Initial records and test data for 60.49 b(a) and (b) were provided as a follow-up compliance demonstration for Wayne Co. Installation Permit C-7487. For a 60.44b (k) source, 60.49b(p) requires records on dates operated, hours operated per day, and hourly steam load.

For a 60.44b(k) source operating on natural gas, 60.49b(q)(1) requires reports on the annual capacity factor in order to demonstrate the factor remains less than 10%. DTE River Rouge includes the annual capacity factor in each of the quarterly reports; the annual capacity factor has not exceeded 1% since at least the third quarter of 2005. Per 60.49b(q)(3) and SC VI.2 of EU-AUX\_BOILER, a source that meets the criteria in 60.44b(j) is to include within the periodic report the results of any NOx tests conducted, the boiler's hours of operation, and the boiler's cumulative hours of operation since the last NOx test. As indicated earlier in this report DTE River Rouge includes this information in each of the quarterly reports. After the last inspection (9/17/2013) and subsequent email discussions with J. Korniski, DTE updated the 1<sup>st</sup> and 2<sup>nd</sup> Quarter 2013 reports to reflect the actual Aux Boiler operating hours.

60.49b(r)(1) requires documentation on the sulfur content of the natural gas only for those natural gas units constructed after 2/28/2005.

Steam load records for the main aux boiler during 2013 are not available because the hours recorded were test hours and attempts to start up the Auxiliary Boiler. When the operators realized the extent of the damage from the frozen equipment they had to bring a portable boiler to support the plant during a dual unit outage. For the period between May 2013 and November 2014 DTERR has been leasing a portable boiler which is not subject to the regulations cited above for the former Aux Boiler. This compliance evaluation covers a period from July 20, 2014 to July 20, 2015. The Auxiliary Boiler was last used in May 2013. A portable boiler was installed on 11/1/2014 and it started normal operations on 4/20/2015.

Although not a requirement under the current ROP permit, the 9/27/2015 email submittal, titled "Auxiliary Boiler Summary" DTE River Rouge provided the monthly records for the "new" Portable Auxiliary Boiler for the period from November 2014 through July 2015. The records showed run hours and fuel usage.

### **UNIT 1 AND AUXILIARY BOILER: MACT DDDDD for Steam Boilers and Process Heaters**

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. Please see report B281022032.

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 2, Unit 3, and the Auxiliary Boiler all produce steam or electricity and therefore are

considered industrial boilers. However, Units 2 and 3 are electric utility steam generating units (EGU) regulated by MACT UUUUU and therefore, by 40 CFR 63.7491(a), are 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 Auxiliary 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 Auxiliary Boiler thus default to regulation under MACT DDDDD.

Construction on both Unit 1 and the Auxiliary 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 "[u]nit 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 Auxiliary 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) and post marked by AQD on June 3, 2013 was received from DTE River Rouge for this standard for Unit 1 and the Auxiliary Boiler. No further requirements were enforceable at that time for either Unit 1 or the Auxiliary Boiler.

In January 2015, DTE submitted a revision to the Initial Notification which requested to revise the classification of EU\_AUX\_BOILER to the limited use subcategory as defined in 40CFR 63.7545. However, later on in the year, DTE River Rouge dismissed the request due to the possible replacement of the existing auxiliary boiler with a Portable Boiler.

#### **AUXILIARY 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 now 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)). The Auxiliary Boiler does not qualify under either category.

#### **UNITS 2 & 3: MI-ROP-B2810-2012, FG-BOILERS 2 & 3**

Installed in 1954, Boiler No. 2 (or Unit 2) is a 2280 MMBtu per hour coal-fired unit. Installed in 1955, Boiler No. 3 (or Unit 3) is a 2670 MMBtu per hour coal-fired unit. Both are equipped with Low-NOx burners and an electrostatic precipitator. Both are subject to the federal Acid Rain and CAIR programs. The requirements for Units 2 and 3 are nearly identical and so are grouped together in a single flexible group in the ROP.

**11 (from the General Conditions), VII.5.i.A and iii – Compliance** – Visible emissions from each boiler 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%; quarterly report on visible emissions exceedances.

I did not observe visible emissions exceeding 20% opacity during any of the two dates the facility was inspected (07/15/15 and 07/20/15) and the COMS on each boiler on July 20, 2015 measured values below 20%.

Periods of excess opacity represent periods of non-compliance and have been reported by DTE both in the quarterly CEMS/COMS and as deviations in the ROP semiannual reports. Please refer to report B281027910 for the review/analysis of the most recent quarterly reports, for the period from July 1, 2014 to June 30, 2015. During the last four quarters, previous to the inspection of July 20, 2015, Unit 2 is reported to have exceeded the visible emissions limit two times. For 30 minutes in the 2<sup>nd</sup> quarter 2015; and for 42 minutes during the 3<sup>rd</sup> quarter of 2014. That's equivalent to say that Unit 2 was not in compliance for 1.02 seconds per hour of operation during the 2<sup>nd</sup> quarter 2015 and for 1.37 seconds per hour of operation in the 3<sup>rd</sup> quarter 2014. Unit 3 exceeded the visible emissions in three different quarters, with a maximum of 18 minutes exceedance in the 4<sup>th</sup> quarter 2014, or 0.59 seconds per hour of operation. Though periods of excess emissions have occurred, DTE has maintained these periods to a minimum. Therefore, I consider DTE to be in compliance with these conditions.

For the review of past quarterly reports, from the most recent records to the oldest, for the period between the second quarter of year 2014 and the third quarter of 2013; please see reports B281026296, B281025101, B281024596 and B281024594.

**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 within 270 days of ROP issuance (by 12/27/2012) and thereafter 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 at Units 2 and 3 had been scheduled for the second and third weeks of June 2015. However; testing at Unit 3 was delayed by DTE River Rouge due to problems with the CEMs probe. They put Unit 3 out of service for several days to make the repairs and to replace the probe. AQD was informed that PM testing at Unit 3 has not been formally scheduled because it is still pending Unit 3's return from the scheduled outage. Tentatively, they are looking at the last week of December 2015. PM testing on the exhaust of Unit 2 was conducted on June 8, 2015. Measured emissions averaged 0.001 pounds PM per thousand pounds of exhaust air, wet, and corrected to 50% excess air under an average gross load of 257 megawatts. Visible emissions averaged 2.76 % opacity over the duration of the test.

Previous PM tests at Units 2 and 3 (originally scheduled for 12/2012 and approved to be postponed) were performed on 2/5/2013 and 9/17/2013 respectively. Unit 2 measured emissions at 0.003 pounds PM per thousand pounds of exhaust air, wet, and corrected to 50% excess air under an average gross load of 257 megawatts. Visible emissions averaged less than 1% opacity over the duration of the test. Please see report B281022300. The Unit 3 PM test was conducted on 9/17/2013 concurrent with that year's inspection. The particulate matter emission rate averages to 0.010 pounds per thousand pounds of exhaust air, wet, and corrected to 50% excess air under an average gross load of 256 megawatts. Visible emissions averaged 1.50 % opacity over the duration of the test. Please see report B281024608.

Previous PM tests at Units 2 and 3 have measured the following (in units of pounds PM per 1000 pounds of exhaust gas on a wet basis): 0.032 for Unit 2 on 9/11/2008; 0.008 for Unit 3 on 9/12/2008; 0.016 for Unit 2 on 4/8/2009; 0.015 for Unit 2 on 4/28/2009. Please see reports B281007804 and B281004864.

**I.2 through I.4, VII.4 – Compliance** – Sulfur dioxide emissions 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 43.2 tons per day in Unit 2 and 50.5 tons per day in Unit 3; quarterly report on operating hours and daily sulfur emissions.

For this compliance evaluation, quarterly reports of daily SO<sub>2</sub> emissions were examined from the third quarter 2014 to the end of the second quarter 2015. Please see report B281027910. For Unit 2, the maximum reported emissions were 1.12 pounds per million Btu heat input (08/31/14) and 25.3 tons per day (7/13/2014). For Unit 3 the maximum reported emissions were 1.07 pounds per million Btu heat input (08/28/2014) and 37.2 tons per day (8/26/2014).

For a detailed evaluation of quarterly reports on sulfur dioxide emissions previous to the inspection of July 20, 2015 and far back to the third quarter of year 2013, please see reports: B281026296, B281025101, B281024596, and B281024594.

**III.1 and 2, IV.1 and 2 – Compliance** – Units 2 and 3 not to be operated unless the Low-NO<sub>x</sub> burners and electrostatic precipitators (ESP) are installed and operated properly; ESPs are to be equipped with a saturable core, silicon-controlled rectifier linear reactor or equivalent; each 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 implemented for ESP, Low-NO<sub>x</sub> burners, abnormal conditions, startup/shutdown, malfunction, and excess emissions.

Please see the submittal of 11/14/2003, page 6. DTE River Rouge states the ESPs for Units 2 and 3 have saturable core reactors and both qualify as "very large" precipitators having specific collection areas over 400. DTE River Rouge states 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. During the inspection of 7/15/15 I noted the primary voltage, primary amps, secondary amps, and average spark rate displayed on Unit 3 ESP control panels. Unit 2 was out for service on 7/15/15 and I couldn't record the operational parameters for that boiler. During the inspection of 7/20/15, both ESPs for Units 2 and 3 were observed to be installed and operating properly as the boilers operated. Since I consider Units 2 and 3 to be in compliance with their visible emissions limits, then I consider DTE River Rouge to have operated the respective ESP properly.

DTE River Rouge submitted a Malfunction Abatement Plan for the ESPs and Low-NOx burners dated 3/12/2004. The Plan 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. As of September 30, 2015 the Plan has not been modified. Records are not required to be maintained under the Plan. The 9/21/2015 DTE records request response/submittal contains information on the most recent ESP inspections, as well as the most recent inspection for the Low-NOx burners. The most recent Unit 2 and Unit 3 ESP inspections were conducted during dual outage in June and July 2015. Unit 2 ESP repairs have been ongoing through turbine outage, which will be ending on mid October 2015. Unit 3 ESP repairs would take place during the unit periodic outage from mid October to December 2015. NOx testing and Unit 3 tuning was completed in 2014. Unit 2's burner's inspection was conducted during the unit, periodic outage in November 2014.

**III.3 – Compliance** – Only burn processed coke oven gas in Units 2 and 3; unprocessed coke oven gas to be prohibited by the contract between DTE River Rouge and the coke oven gas supplier – Please see the 9/29/2015 submittal for a transcription of the relevant section of the contract. 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 – Unknown** - Plans dated 3/28/2001 for Unit 3 and 5/15/2002 for Unit 2 are current. Monitoring the air to fuel ratio is the primary technique utilized by DTE River Rouge to minimize CO. AQD requested records of some of the measures implemented by DTE River Rouge during the month of July 2015 to minimize CO. However, DTE indicated that the online database was temporarily down during the month of July due to forced outage, and records of 'air to fuel ratio" were not provided. Under these circumstances, DTE could have selected records for other months of the year, as it was suggested by AQD in the original written request, but records were not submitted. Therefore, this condition could not be evaluated.

**VI.1 through 3, VII.5.ii and iii, VII.6 and 7 – 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 SO<sub>2</sub>, 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 SO<sub>2</sub> monitors serve the dual roles of Acid Rain accounting and compliance monitoring for SO<sub>2</sub> emission limits. The CEMS and COMS for Units 2 and 3 measured visible emissions, SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub> and exhaust gas flow during the 7/20/2015 inspection. Information of those parameters was provided earlier in this report as part of the Facility Visit summary.

During the first semester of 2015 the CEMS at Unit 2 failed to monitor visible emissions during 96 minutes, and the downtime at Unit 3 was reported to be 18 minutes. During 2014 the opacity monitoring downtime for Unit 2 was 300 minutes down of 5,508 hours of total operating time in that year (equivalent to 1.3 min per day of operation). For Unit 3, 618 minutes down of 7,140 hours of total operating time (equivalent to 2 mins per day of operation). Please see report B281027910 for a detailed evaluation of the CEMS and COMS monitor performance for the last four quarters. For the evaluation of quarterly reports previous to the inspection of July 20, 2015 and far back to the third quarter of year 2013, please see reports B281026296, B281025101, B281024596, and B281024594. Reports B281026759 (for Unit 2) and B281027909 (for Unit 3) review the annual COMS audits performed in 2014. Report B281022921 (for Units 2 & 3) reviews the annual COMS audits performed in 2013.

DTE River Rouge had not experienced SO<sub>2</sub> monitoring downtimes problems since the fourth quarter of year 2012 (when Unit 2 SO<sub>2</sub> monitor experienced 38.1 % downtime) and up to the first quarter of 2015. For Unit 2, the monitor downtime for SO<sub>2</sub> emissions reported periods with "no" downtime to 0.4 % of the operating time and up to 3.9 % for Unit 3. However, during the second quarter of 2015, an extended period of monitoring downtime for SO<sub>2</sub> at Unit 3 was reported. Specifically, Unit 3 SO<sub>2</sub> monitor experienced 25.2% downtime: 402 hours down out of 1598 hours of boiler operation. . The longest downtime period during the second quarter of 2015 (378 hours) was between May 25 and June 10. Unit 3 had some problems during May and June, which had been brought to the attention of AQD during the 7/20/15 inspection. DTE River Rouge confirmed that the root cause of the downtime was found to be damage to the monitor probe inside the stack. AQD will further investigate this issue.

**VI.5 through 7, VII.8 and 9, IX.9 and 10 – 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.i.A. Since the fourth quarter 2013 up to the second quarter of 2015, Unit 2 had three quarters with greater than 6 minutes of excess visible emissions (30 minutes in the 2<sup>nd</sup> Qt. 2015, 42 minutes in the 3<sup>rd</sup> Qt. 2014 and 18 minutes in the 2<sup>nd</sup> Qt. 2014). Unit 3 experienced the longest period of excess opacity during the fourth quarter of 2013; with 54 minutes of excess visible emissions. Periods of excess opacity, with duration above 6 minutes, also occurred at Unit 3 during the 2<sup>nd</sup> Qt. 2015 (12 minutes), the 4<sup>th</sup> Qt. 2014 (18 minutes) and the 1<sup>st</sup> Qt. 2014 (18 minutes). However, no CAM excursions have been reported in the CAM semiannual reports, which are received concurrent with the semiannual ROP deviation reports. Please see reports B281029817 and B281027752 for the most recent semiannual records for year 2014. Report B28102720 evaluates the CAM records for the 2<sup>nd</sup> semester of 2013. CAM monitor downtime reports are also submitted concurrent with the semiannual ROP deviation reports and provide the same information regarding COMS downtime as is provided in the quarterly CEMS/COMS reports required under Special Condition VII.5.ii.

**IX.1 through 8 – Compliance** – Compliance with the Phase II Acid Rain permit and the Clean Air Interstate Rule (CAIR) permits incorporated into the ROP – AQD reviewed the “preliminary” emission data submitted by DTE River Rouge in compliance with the CAIR NOx Annual Program and the CAIR NOx Ozone Season Program. NOx Allowance Deduction Information for the 2014 ozone season and calendar year were received on 11/18/2014 and on 2/20/2015 respectively. The evaluation of the emission data showed no excess emissions for NOx.

DTE reported NOx emissions of 1,145 tons for the ozone season and 3,669 tons for the calendar year. To evaluate compliance with CAIR Rule for SO<sub>2</sub>, AQD consulted the EPA Clean Air Market website. The most recent EPA quality assured data reported on the website at the time of the issuance of this report were for year 2014. Allowances were granted to DTE River Rouge on a facility-wide basis. At the trading deadline the facility held allowances of 14,894 tons SO<sub>2</sub> and the 2014 SO<sub>2</sub> emissions totaled 9,214 tons. DTE River Rouge appears to be in compliance with the Acid Rain permit and CAIR permits during the 2014 reporting year. The CAIR program is currently winding down and will likely be replaced with the Cross State Air Pollution Rule (CSAPR). Some issues are still being addressed.

**IX.11 and 12 – Not Applicable** – Permit application for Part 15 (State mercury) rules due by 6/20/2012; comply with Part 15 rules by 1/1/2015 – On 6/1/2012 and again on 5/31/2013, the AQD suspended the enforcement of all applicable Part 15 rules and granted a variance from the requirement to make various submittals, including the requirement to submit a permit application pursuant to Rule 1512. Each suspension and variance remains effective for a period of one year following issuance. On 10/28/2013, the Part 15 rules were modified so that, in effect, any equipment subject to the federal mercury standards within MACT UUUUU, such as Unit 2 and Unit 3, would not be subject to the mercury standards within Part 15. Therefore, these two conditions are obsolete. For more information see next section.

**IX.13 – Compliance** – Comply with all applicable requirements of MACT A and UUUUU – Please see section below on MACT UUUUU.

### **UNITS 2 & 3: MACT UUUUU FOR COAL- AND OIL-FIRED ELECTRIC STEAM GENERATING UNITS**

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). DTE River Rouge submitted an Initial Notification for MACT UUUUU on 8/14/2012 informing that Unit 2 and Unit 3 are existing affected sources under the standard. By 40 CFR 63.10030(b), an affected source existing prior to 4/16/2012 must submit an Initial Notification within 120 days of 4/16/2012, or by 8/14/2012; therefore, DTE River Rouge's submittal met the deadline. The Initial Notification provides the information required at 40 CFR 63.9(b)(2) and is given on the DEQ template form for 40 CFR 63.9. The first compliance date for an existing source is 4/16/2015 (40 CFR 63.9984 (b)). On 5/29/2013, AQD granted to DTE River Rouge a one year extension of compliance for the requirements of MACT UUUUU as allowed under Section 112(i)(3)(B) of the Clean Air Act. The extension was granted until 4/16/2016. On 4/21/2015 AQD received a permit application from DTE River Rouge requesting the installation of

Dry Sorbent Injection (DSI) and activated Carbon Injection (ACI) on Unit 2 and 3 to comply with the Mercury and Air Toxic Standards (MATS). They also requested a waiver to start construction previous to the permit issuance. On 4/28/2015 the waiver was granted by the AQD Detroit Office. PTI 85-15 was issued on 7/24/2015 and will be in effect on 4/16/2016. This permit will be incorporated into the ROP during the renewal process.

**PERMIT TO INSTALL NO. 40-08G: FG-RSPROJECT AND FG-BOILERS 2 & 3 (New SO2 limits)**

This permit allows for the limited combustion of paint solids in Units 2 and 3. The original permit for the combustion of paint solids (RPS), PTI 40-08C, allowed for the combustion of 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 7/24/15 and the flexible group "FG-RSPProject" was incorporated into PTI- 40-08G issued on 7/24/15.

**FG-Boilers 2 & 3 (New SO2 limits)**

PTI 40-08G also establishes new SO2 limits and recordkeeping for DTE River Rouge Plant's coal-fired boilers 2 and 3, in support of 1-hr SO2 NAAQS. The new limits will take effect after December 31, 2016.

Please note that compliance evaluation of PTI 40-08G conditions regulating FG-BOILERS 2 & 3 & FG-Flash-HANDLG has been included in other sections of this inspection report with the exemption of FG-BOILERS 2 & 3 -Section I (New Emission Limits), the rest of the conditions have not been modified and are already part of MI-ROP-B2810-2012.

The following conditions refer to PTI-40-08G: FG-RSPProject:

**II.1, II.2, VI.4, VI.5 – Compliance** – Collective amount of recovered paint solids combusted in Units 2 and 3 limited to 40 tons per calendar day and 10,000 tons per 12-month rolling time period; daily, monthly, and 12-month rolling time periods records to be kept – Paint solid records for 5/1/2015 through 7/31/2015 were requested of DTE River Rouge and included in the 9/21/2015. After DEQ comments regarding the reported monthly totals, the information was revised by DTE River Rouge and re-submitted via email on 10/22/2015. The monthly amount of paint solids combusted for May, June and July were reported to be 253.53 tons, 257.96 tons and 254.08 tons respectively. The 12-month rolling at the end of July 2015 was 3,968.43 tons. Therefore, the plant is tracking to substantially less than the 10,000 ton annual limit granted in the new PTI. The records indicate that zero to three shipments are received per day, with each shipment holding from 8 to 43 tons of paint solids. Paint solids are usually mixed in with coal for the next loading of the bunkers, so paint solids received on a calendar day are typically combusted later that day or the next morning. AQD noted that the RPS daily loads were over the 40 tons/day permit limit for 6/8/15 and 7/31/15. AQD contacted DTE River Rouge to verify if the total daily loads were burned the same day. DTE River Rouge indicated that on June 8, 2015 the deliveries were in anticipation of the Unit 2 PM2.5 testing for RPS. They needed a certain amount of paint solids for the testing. The RPS deliveries were spaced throughout the week according to the test needs. Monday delivery allowed them to make sure that they would have enough paint solids for the tests and they could mix the RPS accordingly and not leave it on the ground. Since they have to incorporate the deliveries into the fuel blend within 24 hours, generally RPS is mixed in the day it is delivered. With respect to the July 31 delivery, that was a Friday delivery date, so it would have been allocated over the weekend for Unit 3, and not burned all in one day.

**V.1, V.2 – Compliance** – Verification of PM2.5 emissions from Units 2 and 3 while combusting recovered paint solids (RPS), by testing, once each during calendar years 2013, 2014, 2015 –  
For the purposes of NSR accounting PM2.5 is the sum of filterable PM2.5 and condensable PM.

PM2.5 testing was conducted in calendar years 2011 (on 10/12/2011 and 10/13/2011) and 2012 (on 9/11/2012 and 9/13/2012) to comply with a similar condition in PTI 40-08C; please see reports B281017260 and B281021146.

Since the last inspection of 9/17/2013, two PM2.5 testing have been completed while combusting RPS at Units 2 and 3:

For calendar year 2013, PM2.5 test was conducted on 11/12/2013 and 11/13/2013. The results were received by AQD on 1/14/14. For a detailed evaluation of the test results please see report B28024737.

For year 2014, PM2.5 testing was conducted on 12/9/2014 (for Unit 3) and 12/30/2014 (for Unit 2). The results were received by AQD on 2/17/15. See DTE River Rouge files for details.

For year 2015, the PM2.5 testing had been scheduled for 6/8/2015. However, several difficulties made it impossible to run the test. Unit 2 had been taken offline for inspection and repair due to strong vibrations in the turbine during the summer of 2015. Unit 3 was not available for full load, so they could not burn the RPS required for the PM2.5 test before the periodic outage. That put Unit 3 in the same dilemma as Unit 2 as far as the PM2.5 testing goes. In conclusion, testing has not been conducted for year 2015 at the completion of the evaluated period.

The analysis of the test results from 2011, 2012, 2013 and 2014 indicates that the total PM<sub>2.5</sub> pound per hour figures show some degree of consistency for Unit 3 (ranging from 28 to 34 pounds / hr.) during testing years 2011, 2012 and 2014 and around 14 pounds / hr. for Unit 2 during the testing years 2011 and 2012. However, the underlying filterable PM<sub>2.5</sub> and condensable PM data vary considerably. Condensable PM and total PM<sub>2.5</sub> figures vary considerably for 2013 compared to the other testing years, especially for Unit 2.

In summary, the permit to install does not contain short-term PM<sub>2.5</sub> emission limits. The stack test data is to be utilized to better develop accurate estimates for the annual reporting of PM<sub>2.5</sub> emissions. The compliance status is entered as "compliance" for the reason that DTE River Rouge conducted the annual PM<sub>2.5</sub> tests adequately and in timely manner and therefore satisfied the testing requirements within PTI 40-08 (C,E, G), FG-RPSProject, Special Conditions V.1 and V.2 for calendar year 2011 through 2014.

**VI.1 through 3, VII.1 – Compliance** – For a period beginning 4/1/2011 and continuing for 60 consecutive months, calculate and keep records of PM<sub>2.5</sub> and SO<sub>2</sub> emissions from the boilers and fly ash silos; submit calendar year records to the AQD within 60 days following the end of each calendar year – 2013 and 2014 calendar year reports were received on 2/28/2014 and 3/3/2015, respectively.

**VIII.1 and 2 – Compliance** – Stack maximum diameters and minimum exhaust heights as follows: Unit 2 (145 inches, 385 feet), Unit 3 (154 inches, 385 feet). Exhaust gases must vent unobstructed vertically upwards – Visual observation of the stacks during the inspection of 7/20/15 did not raise a question of compliance with the diameter and exit point specifications though physical measurements were not performed.

#### **UNITS 2 & 3: PERMIT TO INSTALL NO. 40-08D, FG-SORBPROJECT**

This permit allowed for the addition of sorbents to the coal in order to reduce post-combustion emissions of mercury, nitrogen oxides, and sulfur dioxide. According to DTE River Rouge, the equipment associated with "FG-SorbProject" was never installed at the plant. During the inspection of 7/20/2015 DTE River Rouge confirmed that the project had been cancelled and substituted by the MATS project described under PTI 82-15

#### **FLY ASH HANDLING EQUIPMENT: MI-ROP-B2810-2012, 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 in progress at the west ash silo during the inspection of 9/20/2015; loading operations were viewed and no visible emissions were detected. The 9/21/2015 submittal provides an example of the fly ash silo observations for a week worth of data from 7/15/2015 through 7/22/2015. All visual inspections from both silos showed clear conditions with no visible emissions observed.

#### **COAL HANDLING EQUIPMENT: PTI 215-06B, 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; NO<sub>x</sub> 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 NO<sub>x</sub> 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 NO<sub>x</sub> emissions at 0.006 pounds per MMBtu. The NO<sub>x</sub> annual emission limit is correlated to the pound per heat input limit and annual natural gas usage. Records for 7/1/2015 through 7/31/15 (9/29/2015 submittal) indicated a calendar month sum of 1.5 million cubic feet in 7/2015 and a 12-month rolling total of 23 million cubic feet combusted as of 7/2015

**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 tons 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.

In the 9/29/15 submittal, DTE River Rouge provided 12-month rolling data in tpy for each regulated PCI equipment/emission point, for period ending on 7/31/15. All records showed values below the permit limits

Emissions are based on MAERS emission factors and an assumed 99% control. For each PCI emission point, PM emissions are calculated at less than 100 pounds per year.

**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 7/20/15; no visible emissions were noted from any operation or stack. The 9/29/2015 submittal contains records of visible emissions observations for 7/15/15 through 7/22/15; observations are made twice a day at 7:00 AM and 7:00 PM.

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 submitted on 9/29/2015 indicate 219,666 tons of coal were processed during the 12-month period from 8/2014 through 7/2015.

**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.

During the inspection I was told 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 7/15/2015 through 7/22/2015 were provided in the 9/29/2015 submittal. Measured pressure drops are within the 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 7/15/15 it was observed that monitors devices were recording exhaust temperatures. According to the 9/29/15 submittal, thermocouples were last replaced on 3/25/2015 under an annual preventive maintenance plan.

**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 9/19/2013 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 below on 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 [c]ontain 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 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 PTI 215-06B above.

#### **COAL HANDLING EQUIPMENT: MI-ROP-B2810-2012, 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 lbs. uncontrolled and 500 lbs. 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. No visible emissions were observed on viewing any of the coal transfer points during the 9/20/2015 inspection.

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 9/29/15 submittal listed the estimated PM10 emissions from each dust collector unit. The controlled emissions were calculated based on 99% control efficiency. The monthly total for July reached 15.56 pounds. An example of visible emissions recordkeeping is included in the 9/29/2015 submittal for the month of July 2015. The logs records show no visible emissions.

#### **FUGITIVE DUST SOURCES: MI-ROP-B2810-2012, 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.

I observed the coal handling operations on 7/20/15, including the conveyors, front end loaders, ash loading, and vehicular traffic; I did not observe opacity from any of these operations that I judged in excess of 5% opacity over a 3-minute average, though formal Method 9D readings were not taken.

**III.1, VI.1, VII.4, IX.1 – Compliance** – Fugitive dust plan in Appendix 9-S1 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-S1. 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-B2810-2012, APPENDIX 9-S1 AND SIP CONSENT ORDER 9-1993**

Appendix 9-S1 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. Minimal emissions were observed during coal transfer and stockpiling operations. Coal unloading was viewed and no visible emissions were observed exiting the Rail Car Dumper House. Ash loading was observed and no visible emissions were noted escaping the tarped area.

The 9/29/2015 submittal indicated that sweeper has been used on April 15, May 2 and June 20 of 2015. The roads and storage piles are watered five times a week from April to June 2015

#### **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 336.1282(b) (ii) exempts fuel-burning equipment with a capacity not more than 20 MMBtu per hour while operating on distillate oil or number 2 fuel oil (both very similar to diesel fuel) when used for electric power generation. 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 either the Rule 282(b)(ii) or the 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 prior to 6/12/2006. Per 63.6590(c) and (c)(6), emergency generators such as these (less than 500 hp) need only comply with the NSPS IIII requirements. Based on the order date, these generators are subject to the NSPS IIII through 60.4200(a)(2)(i). The 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 NO<sub>x</sub> + 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, DTE River Rouge is choosing to comply with these requirements based on a manufacturer's certification (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)" wherein it states "for 1996 and later model year non-road diesel engines" that the engine was "[d]esigned, built and equipped so as 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. The manufacturer certification should be on file from previous inspections.

**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. In the past inspection period (2013), DTE River Rouge submitted a letter from Marathon Petroleum indicating that all Certificates of Analyses for the fuel oil sold within the previous five years show the sulfur content was less than 15 ppm by weight.

**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 9/20/2015 and appeared well-maintained. An example of maintenance activities is provided in the 9/29/2015 submittal.

**III.3, IV.1, VI.3 – Unknown** – Each emergency unit 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 submittal of 9/29/2015 included the Emergency Generators Maintenance Logs dated 7/15/15. The meters clocked 553.3 hours for Generac 1, 702.5 hours for Generac 2, and 498.9 hours for Generac 3. Those figures agreed with the readings I observed during the inspection on 7/20/15. It makes sense because they were not used between 7/15 and 7/20. The generators are run for 20 minutes each week to ensure reliability. Based on previous records the total hours of operation seem to be higher than allowed if the generators were only operated for non-emergency purposes. AQD needs to further investigate the specific usage of the emergency generators to determine the percentage of the time they were used for emergency and non-emergency situations.

**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 with the permit conditions at this time.

#### **COLD CLEANERS: MI-ROP-B2810-2012, 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 boilerhouse maintenance shop, a third in the Tractor House, and a fourth in the Fuel Supply Maintenance Shop. All are alike in structure and use Zep Dyna 143 as the cleaning solvent. The cold cleaners in the boilerhouse and maintenance shop were viewed during the 7/15/15 inspection and they have not been used lately. The other two part cleaners, at the Tractor House Fuel Supply and at the Maintenance Shop, were viewed during the 9/20/2015 inspection. The MSDS for the cleaning solvent was included in the 9/29/2015 submittal.

**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 MSDS 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 9/29/2015 submittal, DTE River Rouge reports the air/vapor interface of each cold cleaner at 4.7 square feet; I agree based on visual observations of 9/20/2015. 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.

Three cold cleaners were observed during the inspection. The solvents is neither heated nor agitated, and according to the MSDS provided in the 9/29/2015 submittal, 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 are given in the 9/29/2015 submittal.

**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-B2810-2012, 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 – In the 9/29/2015 submittal, DTE River Rouge included a letter from Marathon Petroleum, indicating that all Certificates of Analyses for the fuel oil sold within the last five years show the sulfur content was less than 15 ppm by weight. The emissions reported from the Peakers in the 9/29/15 submittal showed "zero" SO<sub>2</sub> emissions.

**VI.1 – Compliance** – Monitor and record monthly fuel usage in gallons – Monthly fuel use records at each peaker for a 12-month period from 7/1/2014 through 6/30/2015 were requested. However, the 9/19/2013 submittal only included the 12-month rolling as of July 30, 2015 and it was reported as a total fuel usage for all four peakers. The 12-month rolling as of July 30, 2015 was 13,136 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**

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) "do[es] 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".

As reported in the 9/29/2015 submittal, the peakers operating hours for a 12-month period from 7/01/2014 through 7/30/2015 total 86.4 run hours. This total accounts for the combined operation of all peakers (Peaker #1, Peaker #2, Peaker #3, and Peaker #4) in a year-operation. Therefore, each peaker and the combined source (when all of them are running) currently qualify as a limited use stationary RICE and is/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 NO<sub>x</sub> Budget Program and now 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 NO<sub>x</sub> 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 NO<sub>x</sub> 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 NO<sub>x</sub> 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 NO<sub>x</sub> 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 boilerhouse. 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 and waste chemical cleaning solutions that are used to de-rust the boilers every 10-20 years. The southern tank has a capacity of 237,000 gallons and is used to store "oily waste". DTE informs the chemical waste is typically an aqueous detergent 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 281(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 281(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 above mentioned regulations.

**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 remain unresolved as of the date of this report. Until resolved, the AQD will report the DTE River Rouge Power Plant as not in compliance, based on EPA's findings.

**6 - CONCLUSION**

At the time of completion of this report, the DTE River Rouge power plant is not in compliance with all of its applicable requirements. U.S. EPA's NOV/FOVs of 7/24/2009 and 3/13/2013 to DTE River Rouge remain outstanding and based on EPA's finding AQD must report the facility as not in compliance until the issues alleged in the NOV/FOV are resolved.

NAME Negand Pandoral

DATE 12/11/15

SUPERVISOR JK