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

B281023239

FACILITY: DTE - Electric Company RIVER ROUGE		SRN / ID: B2810
LOCATION: 1 BELANGER PARK DR, RIVER ROUGE		DISTRICT: Detroit
CITY: RIVER ROUGE		COUNTY: WAYNE
CONTACT: Johnnie Campbell , Senior Environmental Specialist		ACTIVITY DATE: 09/17/2013
STAFF: Jeffrey Korniski	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

SCHEDULED INVESTIGATION REPORT
(PCE for an FCE source)

Date of Investigation: September 17, 2013
Date of Report: January 21, 2014
Source: DTE Electric Company, River Rouge Power Plant
SRN: B2810
Address: 1 Belanger Park Drive, River Rouge, Michigan 48218-2601
Subject: Scheduled Investigation
Author: Jeff Korniski, Air Quality Division, Detroit Office

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 boilerhouse. 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 boilerhouse; otherwise, a visitor can usually park in the contractor/employee lot in the foreground of the guardhouse.

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 smaller auxiliary steam boiler, 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 and the Auxiliary Boiler are subject to New Source Performance Standards (NSPS) at 40 CFR 60, Subparts Da and Db, respectively. Both Unit 1 and the Auxiliary Boiler are 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 Plant (SIP) Order No. 9-1993, which has been incorporated into the ROP.

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 the Severstal blast furnaces in Dearborn. This coal, known as the PCI coal, is pulverized in one of five coal mills and is either piped across the Rouge River to Zug Island or trucked to Severstal. Particulate emissions from the PCI coal mills and PCI handling equipment are controlled by fabric filters.

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 CEMSs for NOx and CO. Boiler ash is wetted and discharged to trucks for transport to the Sibley Quarry; these operations are conducted in partial enclosures underneath the overhang of the ESPs.

DTE River Rouge also operates a natural gas-fired 235 MMBtu per hour auxiliary steam boiler and four 28.4 MMBtu per hour diesel fueled generators. The purpose of the Auxiliary Boiler is to provide steam to the plant and to other nearby customers if the main boilers are down; the Auxiliary Boiler is not connected to a turbine and generates no electricity for the grid. The four diesel generators are connected to the electrical grid and operate as peaking units. No add-on emissions controls are associated with the Auxiliary Boiler or diesel peakers; sulfur emissions from the peaking units are limited through the sulfur content of the fuel.

Summary of Facility Visit:

I arrived at the intersection of Marion Ave. and Belanger Park Drive the morning of 9/17/2013 and signed in at the DTE Electric Company, River Rouge Power Plant at 8:42 AM. The sky was mostly cloudy with the temperature in the middle 40s°F and the wind from the northeast to the southwest at 5 to 10 mph, based on the track of steam plumes in the area.

No visible emissions were observed from the three boiler stacks or the two PCI coal mill stacks as I drove along Marion Ave. and Belanger Park Drive west and south of the plant. 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. The lack of observed visible emissions under such circumstances allowed me to conclude the visible emissions met the 20% regulatory limit without reliance on formal Method 9 readings.

I met with Mr. Johnnie Campbell of DTE River Rouge's environmental staff and expressed my intention to observe a portion of the particulate matter (PM) test on Unit 3 and then to conduct a scheduled compliance inspection of the plant. We proceeded to the CEMS/COMS monitoring deck and met with BT Environmental Consulting, who had been contracted by DTE River Rouge to conduct the PM test at Unit 3. The first run of the test started at 8:33 AM.

We then commenced the tour of the plant. It is noted here the order of topics presented below do not represent an exact sequence of the site visit; for ease of documentation, observations that relate to one another or that are common to an emission unit or group of emission units are presented together. Unless a time stamp was readily observable at a display, the times given are by my personal watch; 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.

Coal is received by railcar at the southwestern edge of the plant. Current coal use is approximately 5,000 tons per day. About 10,000 tons are received by rail every other day; a typical train will carry about 100 cars with a capacity of 100 tons per car. Each of the three bunkers (e.g. Unit 2, Unit 3, PCI) holds about 1,000 tons, so the boilers are usually charged each morning and evening. Generally, the plant will hold near to 20 days of supply stockpiled on the site, or about 100,000 tons.

Particulate control in the coal yard is accomplished through preventative measures, except at the Rail Car Dumper House. The Rail Car Dumper House consists of an enclosed structure overtop an excavated pit. A railcar charged with coal enters the Rail Car Dumper House, is secured, and then revolved to discharge coal into the pit below. The air within the structure is filtered through baghouses and vented vertically to ambient air through two stacks. Collected coal particles are returned to the coal pit below. An underground riser lifts the coal to the aboveground enclosed conveying system and the Drive House, where an enclosed stacker diverts the coal to the stockpile. The dust suppressant Benetech is sprayed onto the coal as it is lifted from the pit; although the other major transfer points (the Coal Unloading House, etc.) were originally equipped with add-on particulate control devices and exhaust stacks, the application of the Benetech coal suppressant at various stages in the conveying process has supplanted the filtering systems as the particulate control system for these transfer points. At 10:35 AM, the unloading of several railcars was observed at the Rail Car Dumper House from outside and inside the structure. 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 both bottom ash from the boilers and fly ash from the ESP hoppers. 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 boilerhouse 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). At 11:00 AM ash loading at the west silo was observed 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.

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, the fuel supply to the boilers on this day was a mixture of 30% eastern coal with 70% western coal in order to maximize the load at Unit 3 during the stack test. Unit operations and emissions data were obtained from the analyzers in the CEMS shelter and from the computer displays in the boiler control rooms. Net and gross power data was 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	9/17/2013	9/17/2013	9/17/2013	9/17/2013
Time	9:38 AM	9:10 AM	9:33 AM	9:06 AM
Data Source	Computer	Analyzer	Computer	Analyzer
Opacity (% instantaneous)	2.38	----	1.41	----
Opacity (% 6-min. avg. current)	2.40	----	1.47	----
Opacity (% 6-min. avg. previous)	2.41	----	1.47	----
NO _x (ppm)	63.7	0.662	151.2	1.519

NOx (lb/MMBtu)	0.142	-----	0.304	-----
NOx (lb/hr)	196.6	-----	755.6	-----
SO2 (ppm)	298.1	2.94	365.2	3.69
SO2 (lb/MMBtu)	0.92	-----	1.09	-----
SO2 (lb/hr)	-----	-----	-----	-----
SO2 (ton/day actual)	-----	-----	-----	-----
SO2 (ton/day predicted)	14.0	-----	28.0	-----
CO2 (%)	9.79	-----	10.83	-----
CO2 (ppm)	-----	918	-----	1072
Exhaust flow (kscfm)	397.8	390.5	683.3	690.3
Stack temperature (°F)	252.7	-----	320.6	-----
Steam load (k#/hr)	1134.4	-----	1724.6	-----
Dilution ratio	100.00	99.5	100.00	99.0
Dilution ratio corrected	-----	-----	-----	-----
Power (gross/net MW)	144/133	142/-----	252/234	256/-----

At 11:40 AM the computer display registered sulfur dioxide daily actual and predicted emission rates at 4.7 tons and 13.5 tons, respectively, for Unit 2 and 9.5 tons and 28.8 tons, respectively, for Unit 3.

Flue gases from Unit 2 and Unit 3 are vented through ESPs prior to discharge. Each ESP is constructed of four parallel chambers of six fields each; flue gas is apportioned among the chambers to achieve the best performance. Digital readings of the following parameters are displayed for each field, with the readouts for Unit 2's Chamber A/Field 2 and Unit 3's Chamber A/Field 2 given below:

Unit	2	3
Date	9/17/2013	9/17/2013
Time	9:55 AM	10:03 AM
Chamber/Field	A/2	A/2
Sparks per minute	3	38
Arcs per minute	0	0
Primary amps	249	270
Primary volts	289	221
Secondary amps	1.85	1.89
Secondary kilovolts	46	27
Kilowatts	61	62
Firing angle	128	90

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. For Unit 2's Chamber A/Field 2, I noted ramp and limit lit, and counted zero spark "blinks" over the course of a minute while the digital value tracked to zero. For Unit 3's Chamber A/Field 2, I noted spark, ramp, search, and limit lit, and counted 50 spark "blinks" over the course of a minute while the digital display tracked to 51.

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", with the exception of one field whose display was completely dark.

Unit 2	Field					
	1	2	3	4	5	6
Chamber						
A	N	Y - 61	Y - 56	N	Y - 59	N - 1
B	Y - 5	Y - 44	Y - 65	Y - 51	Y - 53	Y - 18
C	Y - 50	Y - 43	N	Y - 0	Y - 61	Y - 51

D	Y-53	Y-57	Y-2	Y-62	Y-50	Y-47
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For Unit 2, 20 of 24 ESP fields were operational at the time of the inspection with a total kW of 888 (not including the 1 kW displayed for A/6 despite the field being down).

Unit 3	Field					
Chamber	1	2	3	4	5	6
A	N	Y-61	Y-92	Y-57	N	Y-43
B	N	Y-63	Y-61	N	Y-48	Y-57
C	Y-27	N	Y-36	Y-62	N	Y-66
D	N	Y-54	Y-0	Y-0	Y-64	Y-69

For Unit 3, 17 of 24 ESP fields were operational at the time of the inspection with a total kW of 860.

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 Severstal. Zug Island PCI coal is transferred to one of two 75 ton silos and then piped across the Rouge River. Severstal 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 Severstal.

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).

At 9:17 AM, the pressure drop gauges installed across the dust collectors at the mills registered 0% for #1 (identified as Filterhouse #1), 2% for #2 (Filterhouse #2), 1.6% for #3 (Filterhouse #5), and 38% for #4 (Filterhouse #6). The gauges for mill nos. 1, 2, and 4 are analog; a newer gauge for mill no. 3 is digital. A display for the pressure drop gauge across the dust collector at the Alstom mill was not located. 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. At about 9:45 AM the following pressure drops were noted for the various PCI dust collectors and vent filters, in inches of water column: 0.0" for mill #1, 0.1" for mill #2, 0.1" for mill #3, 3.3" for mill #4, 2.94" for the Alstom mill, 6.8" and 3.9" for the two transfer collectors, 5" for the transport filter, 5.0" for the coal silo filter, and 0.2" for the truck loading filter. Alarms and broken bag detectors appear to be incorporated into the software as required, though this was not confirmed for every dust collector and filter; broken bag indicator lights, unlit at the time of the inspection, were noted for various collectors. According to the PCI operator, #4 was the only mill of the original four grinding coal at the time of the inspection; mill #2 had been in use earlier. Thermocouple data observed at the PCI displayed the following temperatures: 81.5°F at mill #1, 130.9°F at mill #2, 48.7°F at mill #3, 147.7°F at mill #4, 140.8°F at the Alstom mill.

Neither the peaking units nor the auxiliary steam boiler was in operation at the time of the inspection.

The two cold cleaners located in the maintenance shop and the cold cleaner in the Tractor House were observed during the inspection. Lids were observed closed and instructions for proper operation were posted on each cleaner.

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 9/17/2013: 124.7 hours for Generac 1 outside the Breaker/Tractor Houses, 175.9 hours for Generac 2 outside the Unloading House, and 195.6 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. A 1,000 gallon gasoline tank is installed 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.

A split of the coal sample was obtained in the Unit 3 control room just prior to leaving the plant at 11:50 AM. Run #2 was near completion and Mr. Tom Maza of AQD's Technical Programs Unit was on-site observing the test.

Compliance Status:

DTE River Rouge was issued the renewal MI-ROP-B2810-2012 on 4/1/2012; the initial ROP was issued 9/22/2003. The facility has been issued three Permits to Install (PTI) not yet incorporated into the ROP: 40-08D, 40-08E, and 215-06B. PTI 40-08D is for the addition of liquid and solid sorbents to the coal combusted in Units 2 and 3; the permit adds a flexible group FG-SorbProject that is not currently in the ROP. PTI 40-08E is for the annual addition of 10,000 tons of paint solids to the coal combusted in Units 2 and 3; the permit adds a flexible group FG-RPSProject that is not currently in the ROP. PTI 215-06B clarifies requirements relating to the pulverized coal injection process at the plant; the permit updates and replaces the flexible group FG-PCI_COAL_HAND currently in the ROP. Prior to the inspection of 9/17/2013 the last site inspection was conducted on 7/26/2011, with the last full compliance evaluation covering compliance activities reviewed through approximately 9/30/2011. In general, this report covers compliance activities that have occurred since 10/1/2011.

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 9/17/2013 inspection. 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 the 9/17/2013 inspection.

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 – Semiannual deviation reports and annual certifications received or postmarked for Section 1 on 9/12/2013, 3/15/2013, 9/11/2012, 3/13/2012, and for Section 2 on 9/9/2013, 2/26/2013, 8/28/2012, 3/14/2012. Please see reports B281023208, B281022346, B281019112, B281017279.

24 – Compliance – Submissions to the Emissions Inventory – The AQD received this facility's 2012 and 2011 MAERS databases on (or postmarked) 3/8/2013 and 3/12/2012. Please see reports B281021072 and B281017448.

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 repromulgated 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 EUBOILER#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

Installed in 1987, the Auxiliary Boiler is a 235 MMBtu per hour natural gas-fired unit without add-on air pollution control equipment. This unit is subject to NSPS Db and MACT DDDDD. The emission unit operates infrequently; it provides steam to customers in the event the boilers in the main plant are down.

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. Calendar year 2012 emissions of less than 1.0 ton NOx are reported to MAERS; as reported in the 9/19/2013 submittal 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 6.032 million cubic feet of natural gas combusted in 2012 to MAERS; natural gas is the only fuel reported. The capacity factor over the 2012 calendar year is therefore 0.29% and historically has been reported at less than 1% in the quarterly reports. DTE River Rouge includes Auxiliary Boiler data in the quarterly CEMS/COMS reports submitted for Units 2 and 3. For the quarterly report ending 6/30/2013, the Auxiliary Boiler is reported to have operated 1 hour in the quarter and 1450 hours since the last NOx test. Based on the 9/19/2013 submittal and its 1/21/2014 supplement, this total is inaccurate, should be 101 hours, and will be revised in an amended quarterly report.

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 60.49b(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.

In the 9/19/2013 submittal, DTE River Rouge provides the daily records for the Auxiliary Boiler during the period from 1/1/2013 through 6/30/2013; the Auxiliary Boiler operated on a total of 15 days and for a total of 221 hours. A record of the hourly steam load required at SC VI.2 of EU-AUX_BOILER and 40 CFR 60.49b(p)(3) is lacking. In a follow-up to the 9/19/2013 submittal received 1/21/2014, DTE explains that the Auxiliary Boiler is often run to ensure reliability but seldom operated to produce steam. Therefore, the 221 hours of operation and “blank” steam production, representing an absence of steam production, is not a failure in recordkeeping. DTE River Rouge provides steam to U.S. Steel. Usually, the steam is provided concurrent with electricity generation through the operation of Units 2 and/or 3. The Auxiliary Boiler is only needed if both Units 2 and 3 are inoperable, therefore, the Auxiliary Boiler must be operated in preparation for emergency use but is rarely operated in steam service.

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. DTE River Rouge includes this information in each of the quarterly reports. However, the 2nd Quarter 2013 report must be updated; in the 9/19/2013 submittal the Auxiliary Boiler is reported to have run for 101 hours in the 2nd Quarter 2013, but only reported to have run for 1 hour in the quarterly report for that period.

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.

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: “[p]rocess 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 has been received from DTE River Rouge for this standard; no further requirements are enforceable at this time for either Unit 1 or the Auxiliary 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 the 9/17/2013 inspection and the COMS on each boiler 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 see reports B281022564, B281022224, B281022217, B281019838, B281018960, B281017678, B281017047, and B281016387 for the review of recent quarterly reports.

Though periods of excess emissions have occurred, DTE has maintained these periods to a minimum. From the previous inspection on 7/26/2011 through to the inspection on 9/17/2013, Unit 2 has not experienced a quarter with greater than 6 minutes of excess visible emissions and Unit 3 has not experienced a quarter with greater than 12 minutes of excess visible emissions. Therefore, I consider DTE to be in compliance with these conditions.

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 (condensables not included) without speciation to PM10 or PM2.5.

PM tests scheduled for 12/2012 were delayed by DTE River Rouge due to equipment issues. AQD agreed to the delays because the tests, had they proceeded, would have measured emissions while the boilers were operating at significantly less than full load. AQD's agreement to the delay is contingent upon DTE River Rouge reporting the delay as a deviation in the ROP semiannual reports and contingent upon DTE River Rouge keeping to the original schedule for PM testing, which would call for the next round of tests to occur in calendar year 2015.

The Unit 2 test was performed on 2/5/2013 and 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 the inspection.

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 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.

During the inspection of 9/17/2013, the CEMS predicted end of day sulfur dioxide emissions at 13.5 tons for Unit 2 and 28.8 tons for Unit 3. Please see reports B281022564, B281022224, B281022217, B281019838, B281018960, B281017678, and B281017047 for an evaluation of quarterly reports on sulfur dioxide emissions for the period since 10/1/2011. For Unit 2, the maximum reported emissions are 1.21 pounds per million Btu heat input (12/21/2012) and 26.5 tons per day (3/5/2013, 3/7/2013). For Unit 3 the maximum reported emissions are 1.06 pounds per million Btu heat input (12/2/2011) and 28.8 tons per day (7/6/2012), with the following exception described below.

Unit 3 was out of service from 3/31/2012 through 4/20/2013. On restart, Unit 3's emissions were reported at 1.34 pounds per million Btu and 0.6 tons on 4/21/2012, 2.23 pounds per million Btu and 0.0 tons on 4/22/2012, and 1.02 pounds per million Btu and 0.4 tons on 4/23/2012. Numerically, the pounds per heat input figure on 4/22/2012 represents a violation of the 1.67 limit, however the actual quantity of SO₂ released was less than a ton. Under low loads an abnormally high pound per million Btu result is not unexpected because a numerically small numerator (pounds of SO₂) is being divided by a smaller denominator (heat input). The emissions standards are in place to protect against an exceedance of the SO₂ National Ambient Air Quality Standards (NAAQS). No matter the pound per heat input figure the threat to the NAAQS is minimal when the actual quantity of SO₂ emitted is so low. Therefore, I do not consider DTE River Rouge to be in violation of the 1.67 pounds per million Btu limit during this restart period when the load on the boiler was minimal.

III.1 and 2, IV.1 and 2 – Compliance – Units 2 and 3 not to be operated unless the Low-NO_x 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_x 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 9/17/2013, I noted the primary voltage, primary amps, secondary amps, and average spark rate displayed on the Unit 2 and Unit 3 ESP control panels. The ESPs for Units 2 and 3 were observed to be installed and operating properly as the boilers operated during the inspection of 9/17/2013. As I consider Unit 2 and Unit 3 to be in compliance with their visible emissions limits, I consider DTE River Rouge to have operated the respective EPSS properly.

DTE River Rouge submitted a Malfunction Abatement Plan for the ESPs and Low-NO_x burners dated 3/12/2004. The Plan calls for daily review of emissions (e.g. NO_x emission rate), control parameters (e.g. voltages), and certain equipment (e.g. observe combustion flame) as well as periodic maintenance during downtime. Records are not required to be maintained under the Plan. The 9/19/2013 submittal contains information on the most recent ESP inspections at Units 2 and 3.

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 9/19/2013 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 – Compliance – Implement the CO minimization plan and record actions – The CO Minimization Plans dated 3/28/2001 for Unit 3 and 5/15/2002 for Unit 2 are current. A record of actions taken at Units 2 and 3 during 6/2013 are provided in the 9/19/2013 submittal; monitoring the air to fuel ratio is the primary technique utilized to minimize CO.

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 SO₂, in the event not one quality assured monitor operating hour is established for the CEMS in the calendar day, then daily coal sampling shall replace the CEMS as the monitoring method.

NO_x monitor downtime is governed by the data substitution protocol of the Acid Rain Program. The SO₂ monitors serve the dual roles of Acid Rain accounting and compliance monitoring for SO₂ emission limits. The CEMS and COMS for Units 2 and 3 measured visible emissions, SO₂, NO_x, CO₂ and exhaust gas flow during the 9/17/2013 inspection. Please see reports B281022564, B281022224, B281022217, B281019838, B281018960, B281017678, and B281017047 for a review of the quarterly reports for CEMS and COMS monitor performance for the period since 10/1/2011. Reports B281022921, B281019955, and B281016394 review the annual COMS audits performed in 2013, 2012, and 2011.

For the 4th quarter 2012, DTE River Rouge reported the Unit 2 SO₂ monitor experienced 38.1% downtime: 280 hours down out of 735 hours of boiler operation. On 2/28/2013, the Technical Programs Unit of the AQD issued a Violation Notice to DTE River Rouge for the excessive downtime and DTE River Rouge's response of 3/27/2013 was received on 4/2/2013. DTE River Rouge replaced the dilution probe in the Unit 2 CEMS during an extended outage and failed to open the probe's valve at boiler restart. As stipulated by the ROP, the sulfur content of daily coal samples were used to measure SO₂ emission rates for calendar days when the SO₂ CEMS data was unavailable. The downtime has since been reduced and the facility returned to compliance.

The 1/21/2014 submittal, supplementing the information of 9/19/2013, contains minute-by-minute records of emissions data for Unit 2 and Unit 3 on 6/24/2013, as well as QA/QC procedures implemented on that day. Both the CEMS and COMS undergo a daily calibration; on 6/24/2013, the calibrations began at 6:02 AM on both Unit 2 and Unit 3. At 5:28 PM, the Unit 2 COMS malfunctioned and opacity six-minute values were unavailable from 5:30 PM on 6/24/2013 until 10:12 AM on 6/26/2013, as reported in the 2nd Quarter 2013 report.

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 4/1/2012, Unit 2 has not experienced a quarter with greater than 6 minutes of excess visible emissions and Unit 3 has not experienced a quarter with greater than 12 minutes of excess visible emissions. Therefore, no CAM excursions have been reported in the CAM semiannual reports, which are received concurrent with the semiannual ROP deviation reports; please see reports B281023208, B281022346, and B281019112. 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 Clean Air Interstate Rule (CAIR) permits incorporated into the ROP – Based on the information provided on the EPA's Clean Air Markets website, Unit 2 and Unit 3 complied with the Acid Rain permit and CAIR permits during the 2011 reporting year, which was the latest year reviewed at the time of the inspection. Please see report B281020035. The annual NO_x ozone season report is usually received from DTE River Rouge in the November following the ozone season; since the data is not yet quality assured by EPA, AQD evaluates the most recent data that has been quality assured at that time, which is usually the annual data and ozone season data from the previous reporting year.

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.

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.

Units 2 & 3: Permit to Install No. 40-08E, FG-RPSProject

This permit allows for the limited combustion of paint solids in Units 2 and 3. The original permit for the combustion of paint solids, 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.

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 4/2013 through 6/2013 were requested of DTE River Rouge and included in the 9/19/2013 submittal: the total amount of paint solids combusted in this 3-month period was 541.38 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 two shipments are received per day, with each shipment holding from 5 to 17 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. Calendar day combustion totals therefore range up to about 34 tons.

V.1, V.2 – Compliance – Verification of PM_{2.5} emissions from Units 2 and 3 while combusting recovered paint solids, by testing, once each during calendar years 2013, 2014, 2015 – At the time of the inspection, the PM_{2.5} tests and report submission had not yet been completed for calendar year 2013. PM_{2.5} 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.

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_{2.5} and SO₂ 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 – 2011 and 2012 calendar year reports were received on 2/29/2012 and 3/1/2013, 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 9/17/2013 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 allows 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, as stated in the 9/19/2013 submittal, the equipment associated with FG-SorbProject has not been installed at the plant.

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 9/17/2013; loading operations were viewed and no visible emissions were detected. An example of the fly ash silo observations is provided for 6/22/2013 through 6/29/2013 in the 9/19/2013 submittal. One observation was recorded during the week instead of the daily observations required at SC VI.1 of FG-FLYASH-HANDLG. This deviation was reported in the semiannual ROP Deviation Report for 1/2013 through 6/2013 received 9/12/2013; please see report B281023208. The deviation is considered minor provided it is corrected.

Coal Handling Equipment: Permit to Install No. 215-06B, FG-PCI COAL HAND

This permit addresses the equipment for the handling and processing of PCI coal; the conditions in this permit replace the flexible group conditions currently in the ROP.

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

Please see Appendix A to the submittal of 11/14/2003, where it is reported NOx emissions were measured at 0.095 pounds per MMBtu during a stack test of 1/9/1997 on the heaters for the four B & W coal mills. AQD has not requested a test on the Alstom coal mill heater, however, in the supplement to the 9/19/2013 submittal received 1/21/2014 DTE River Rouge reports a stack test of 7/29/2008 measured NOx emissions at 0.006 pounds per MMBtu. The NOx annual emission limit is correlated to the pound per heat input limit and annual natural gas usage. Records for 7/2012 through 6/2013 (9/19/2013 submittal) indicate a monthly maximum of 9.6 million cubic feet in 6/2013 and a 12-month total of 78.2 million cubic feet combusted for the period.

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 supplement to the 9/19/2013 submittal received 1/21/2014, DTE River Rouge provides annual PM data for the period 7/2012 through 6/2013. 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 9/17/2013; no visible emissions were noted from any operation or stack. The 1/21/2014 submittal, supplementing the information of 9/19/2013, contains records of visible emissions observations for 6/22/2013 through 6/29/2013; 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 9/19/2013 indicate 366,366 tons of coal were processed during the 12-month period from 7/2012 through 6/2013.

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 of 9/17/2013, the following pressure drops, in inches of water column, were noted at the PCI display in the control room: mill #1 – 0.0; mill #2 – 0.1; mill #3 – 0.1; mill #4 – 3.3; transfer system – 6.8 and 3.9; transport system – 5; Alstom mill – 2.94; coal silo – 5.0; truck loading system – 0.2. Alarms and broken bag detectors appear to be incorporated into the PCI software; though this was not confirmed for every dust collector/vent filter, unlit broken bag indicator lights were noted on the display screen for various collectors.

PCI pressure drop records for the period 6/23/2013 through 6/30/2013 are provided in the 1/21/2014 supplement to the 9/19/2013 submittal. Measured pressure drops are within the required ranges with the exception of two readings at the truck loading system's "East Loading Spout" on 6/23 and on 6/26 which were corrected by the next day.

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 – Thermocouple data observed during the 9/17/2013 inspection displayed the following temperatures: mill #1 – 81.5°F; mill #2 – 130.9°F; mill #3 – 48.7°F; mill #4 – 147.7°F; Alstom mill – 140.8°F. The thermocouples were last calibrated on 2/10/2013 (9/19/2013 submittal).

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 9/17/2013 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.

Monthly emissions information is given in the 9/19/2013 submittal for 7/2012 through 6/2013. PM10 emissions are on the order of 10 pounds per month for each emission unit. An example of visible emissions recordkeeping is included in the 9/19/2013 submittal for 6/22/2013 through 6/29/2013.

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 9/17/2013, 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.

Please see the 9/17/2013 inspection description above. 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 tarpred area. Roadwork for 4/2013 through 6/2013 is provided in the 9/19/2013 submittal.

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 NOx + NMHC per kilowatt-hour, and 0.80 grams PM per kilowatt-hour; tests, if conducted, to be performed in accordance with the procedures at 60.4212; compliance to be determined by one of the methods listed at 60.4211(b)(1) through (5).

Based on the 9/19/2013 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.

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 9/19/2013 submittal, DTE River Rouge includes a letter from Marathon Petroleum, dated 6/5/2013, 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.

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 9/17/2013 and appeared well-maintained. An example of maintenance activities is provided in the 9/19/2013 submittal.

III.3, IV.1, VI.3 – Compliance – 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 meters clocked 124.7 hours for Generac 1, 175.9 hours for Generac 2, and 195.6 hours for Generac 3 as viewed during the inspection on 9/17/2013. The generators are run for 20 minutes each week to ensure reliability.

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. 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 the Tractor House were viewed during the 9/17/2013 inspection. The MSDS for the cleaning solvent was included in the 8/25/2011 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 9/19/2013 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 9/17/2013. 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 9/17/2013 inspection. The solvents is neither heated nor agitated, and according to the MSDS provided in the 8/25/2011 submittal the solvent is a light aliphatic naphtha with a vapor pressure of 0.5 mmHg (0.01 psia), presumably near ambient temperature though none is given in the MSDS. 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 9/19/2013 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 9/19/2013 submittal, DTE River Rouge includes a letter from Marathon Petroleum, dated 6/5/2013, 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.

VI.1 – Compliance – Monitor and record monthly fuel usage in gallons – Monthly fuel use at each peaker for the twenty-month period from 1/1/2012 through 8/1/2013 is given in the 9/19/2013 submittal. The highest use at each peaker in this period came in 7/2012: 4,657 gallons for Peaker #1, 4,657 gallons for Peaker #2, 4,549 gallons for Peaker #3, and 4,676 gallons for Peaker #4.

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 9/19/2013 submittal, peaker operating hours for the twenty-month period from 1/1/2012 through 8/1/2013 total 42 for Peaker #1, 48 for Peaker #2, 44 for Peaker #3, and 43 for Peaker #4. Therefore, each peaker currently qualifies as a limited use stationary RICE and is not subject to the requirements of MACT ZZZZ. However, the four peakers still remain a part of the affected source and will become subject to the requirements within the MACT standard if ever the operating hours exceed 100 per year.

Peaking Units: Part 8 Rules for NOx Sources

Michigan's Part 8 rules were promulgated in response to interstate ozone transport issues identified under Section 110(a)(2)(D)(i)(I) of the Clean Air Act. The Part 8 rules incorporate requirements imposed first by the federal NOx Budget Program and 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)). Each of the four peaking units is used to generate electricity for the grid, however, at 2.5 MW and 28.4 MMBtu per hour each unit does not qualify for regulation under either category.

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

On 4/5/2007 I 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 de minimus 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 and not subject to Rule 201(1).

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.

Conclusion:

At the time of completion of the FCE, 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 Jeff Kuntz DATE 1/21/2014 SUPERVISOR W. M.