

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

M419923243

FACILITY: GENERAL MOTORS HAMTRAMCK		SRN / ID: M4199
LOCATION: 2500 E GENERAL MOTORS BLVD, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Jessica Jeffery, Senior Environmental Engineer		ACTIVITY DATE: 09/25/2013
STAFF: Jeffrey Korniski	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

**SCHEDULED INVESTIGATION REPORT  
(PCE for an FCE source)**

**Dates of Investigation:** September 25, 2013

**Date of Report:** January 9, 2014

**Source:** General Motors Company, Detroit-Hamtramck Assembly Center

**SRN:** M4199

**Address:** 2500 E. General Motors Blvd., Detroit, Michigan 48211-2002

**Subject:** Scheduled Investigation

**Author:** Jeff Korniski, Air Quality Division, Detroit Office

**Safety Equipment/Safety Training/Security:**

Shoes or boots are required in all areas of the facility. Coveralls and a hairnet (will be provided by the plant) are required in the paint shop. Safety glasses with side shields and cut-resistant arm sleeves (will be provided by the plant) are required in the body shop. Safety glasses and hearing protection are required in the boilerhouse. A hard hat is not required. Plant personnel must be notified in advance to gain access to the topcoat booth area or the paint mixing area because the clearcoat guns spray a diisocyanate and GM requires all visitors to these areas to have passed a respirator test.

The main entrance to the plant is off the I-94 service drive; a visitor is required to sign in at the guard shed and give vehicle make and license plate number. After turning right at the end of the entrance road the visitor's lot is the second on the right in front of the visitor's entrance. A visitor must sign in at the front desk and show ID. A visitor must obtain belt buckle, ring, and watch coverings from bins near the front desk (to prevent these objects from scratching the cars). A safety video must be viewed once per calendar year, after which time a Safety Protocol Program card will be issued for that calendar year.

**Facility Background:**

The General Motors Corporation's (GM) Detroit-Hamtramck Assembly Center (DHAC) is an auto assembly plant capable of producing approximately 78 vehicles per hour. DHAC is the sole production facility for the Chevrolet Volt and its overseas versions, the Opel Ampera (Europe), the Holden Volt (Australia), and the Vauxhall Ampera (Great Britain). The plant produces limited amounts of the Chevrolet Malibu and the Chevrolet Impala, and will also be the main production facility for the new Cadillac ELR in 2014, its first model year. Vehicles formerly produced at the site include the Cadillac DTS, Buick Lucerne, Pontiac Bonneville, Buick LeSabre, Cadillac Deville, and Cadillac Seville. The plant typically runs one production shift per weekday from about 6 AM to 2 PM with maintenance shifts on off-production hours. Major areas of the plant include the boilerhouse, the body shop, the paint shop, and the assembly area.

When constructed in the early 1980s this facility underwent Prevention of Significant Deterioration (PSD) permitting for sulfur oxides (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>x</sub>), and underwent Nonattainment New Source Review permitting for particulate matter (PM), volatile organic compounds (VOC), and carbon monoxide (CO). The source is a Clean Air Act Section 112 major source for Hazardous Air Pollutants (HAPs) and is therefore subject to the Title V program, known as the Renewable Operating Permit (ROP) program in Michigan. Paint shop operations are subject to both the New Source Performance Standards (NSPS) at 40 CFR 60, Subpart MM and the National Emissions Standards for Hazardous Air Pollutants (or MACT) at 40 CFR 63, Subpart IIII. The boilers are subject to the MACT standards at 40 CFR 63, Subpart DDDDD but due to size or date of construction are not subject to the NSPS, Subpart D-series of regulations. Portions of the coal handling system are regulated

under the NSPS at 40 CFR 60, Subpart Y. The thermal oxidizers in the paint shop and the baghouses in the boilerhouse are subject to the federal Compliance Assurance Monitoring (CAM) regulation at 40 CFR 64.

**Process Description:**

The DHAC assembles and paints automobiles from vehicle parts shipped to the site. Vehicle bodies are first ground and welded during various steps in the body shop. Some grinding and welding booths are equipped with add-on fabric filters that vent back into the plant; otherwise, these operations vent uncontrolled to the in-plant atmosphere, which itself is filtered and returned.

Vehicle shells exiting the body shop are submerged in a tank and passed through a series of washes in the pretreatment system. The pretreatment begins with a deluge of water to remove any loose metal, dust, welding slag, etc. on the vehicle, followed by detergent washes, water rinses, and finally a solution wash to enhance paint adhesion. Minimal VOCs are used in these washes and the pretreatment system vents uncontrolled to ambient air. Vehicle shells are then dip-coated with a water-based prime coat, called the electrocoat or ELPO, and then passed through a multi-staged curing oven. One electrocoat line serves all the vehicles at the plant. Formerly, exhaust from the electrocoat oven vented uncontrolled to atmosphere; now, the oven exhaust is controlled by a regenerative thermal oxidizer (RTO).

Following the ELPO, vehicles are painted with a solvent-based prime coat, called the guidecoat or primer surfacer, and dried in a curing oven. One primer surfacer line serves all the vehicles at the plant; two parallel curing ovens (north and south) serve the primer surfacer line. The primer surfacer is colored white or gray depending on the topcoat to follow. The primer surfacer is applied robotically with electrostatic spray applicators in an enclosed booth with a downdraft "waterwash" system wherein the flow of air in the booth is blown down from the ceiling through a grated floor and into a water stream flowing belowground. The spray applicators are purged internally to a collection tank. Wet sand ovens, anti-chip coating, and basecoat replacement (BCR) coating activities formerly associated with the primer surfacer booth are no longer utilized. The BCR refers to the manual application of basecoats to the underside of the gas cap, hood, and trunk within the primer surfacer booth; in 2007, these basecoats were moved to the topcoat.

After the primer surfacer, the vehicles are coated with a colored, water-based basecoat and then a transparent, solvent-based clearcoat, followed by drying in a curing oven; this coating combination is termed the topcoat. Seven topcoat lines serve the vehicles at the plant; each topcoat line has its own dedicated curing oven. An eighth topcoat line with curing oven is installed but has not been used for a number of years. As with the primer surfacer, both the basecoat and clearcoat are applied robotically with electrostatic spray applicators in enclosed booths equipped with downdraft waterwash systems; the spray applicators purge basecoat into the waterwash and clearcoat into a collection tank.

Emissions from each curing oven are incinerated in a thermal oxidizer dedicated to that oven. Each thermal oxidizer is of recuperative design; the oxidizer exhaust, prior to its vent to atmosphere, is used to preheat the curing oven. Interlocks installed at the primer and topcoat ovens automatically shut down the line associated with the oven if the oven thermal oxidizer registers a temperature less than 1300°F; the line will not restart until the temperature stabilizes above 1300°F for one minute. These interlocks were installed in response to multiple occasions in the early 2000s when the incinerator temperature at a topcoat oven fell below 1300°F for an extended period of time.

Various sealers and adhesives are applied to vehicle bodies throughout the body shop and paint shop to improve structural stability and reduce noise. The sealers and adhesives are applied from wands as a paste or putty, therefore, 100% transfer is achieved and the application is performed open-air in the plant. Ultraviolet dyes in the sealers/adhesives allow plant inspectors to corroborate proper application when the vehicles pass under UV light. An acoustical/structural foam operation to improve crash worthiness from side impacts ceased in 2006. A sound deadener application to the underbody of the wheel housings ceased in 2010. Improved vehicle designs have rendered both operations obsolete.

After leaving the paint shop, the coated vehicle shell is merged with the vehicle's undercarriage, interior, engine, etc. in the final assembly area. The vehicle is filled with gasoline, brake fluid, and other necessary liquids, tested to ensure that it will start, inspected, and then parked prior to shipping. If imperfections or scratches are observed in the surface coat during the final inspection the vehicle is driven into stand-alone enclosures, called the final repair booths, for the manual application of touch-up paint. The booths are equipped with fabric filters for particulate control. Solvent wipedowns and booth-cleaning operations throughout the plant are a source of volatile organic compound emissions.

Steam for the assembly plant operations are provided by four spreader stoker coal-fired boilers located at the northern end of the plant. Boilers #2, #3, and #4 each have a maximum rated heat input capacity of 247.2 million British thermal units (MMBtu) per hour; Boiler #1 is an 85.0 MMBtu/hr unit also capable of firing natural gas. The plant is permitted to temporarily install up to two 92 MMBtu/hr natural gas-fired rental boilers if the boilerhouse must be shutdown in whole or in part.

#### **Summary of Facility Visit:**

I arrived at GM DHAC the morning of 9/25/2013. The sky was mostly sunny with nearly calm conditions and a temperature in the middle 60s°F. No odors were noted from surveillance around the plant and no visible emissions were observed from the boilerhouse stack (the orange and white striped stack) or the building stacks (assembly, body shop, and paint area) at any time during surveillance or during the inspection.

I obtained the safety certification, was met by Ms. Jessica Jeffrey, Senior Environmental Engineer, of GM DHAC's environmental staff, and we proceeded to start the site inspection at about 11:00 AM. When last inspected in August 2011, the plant had recently ceased production of the Cadillac DTS and the Buick Lucerne, and had converted to the production of the (then new) hybrid electric Chevrolet Volt. The plant has since added production of the Chevrolet Malibu and Chevrolet Impala, and was scheduled to add the Cadillac ELR hybrid electric vehicle beginning the 2014 model year. The plant currently operates one eight-hour production shift (about 6 AM through 2 PM) Monday through Friday. For ease of reading the inspection narrative will generally follow the flow of a typical vehicle through the plant, though the inspection itself did not follow this exact sequence.

The body shop was observed from 11:20 AM to 11:35 AM. The body shop consists of various welding and grinding stations designed to assemble the outer shell of the vehicle and prepare it for painting. Various stations for the application of sealers and adhesives are also located here. All emissions are directed to the in-plant air which itself is filtered and returned. Particulate emissions are controlled by fabric filters on some equipment. Minimal visible emissions were observed within the body shop area and no visible emissions were observed exiting the body shop area.

The pretreatment system collectively describes all detergent washes and rinses after the body shop and prior to the electrocoat. Minimal VOCs are used in these washes and the pretreatment system continues to vent uncontrolled to ambient air. The waterborne electrocoat is relatively low in VOCs and the transfer efficiency is near 100%. Prior to 2010 emissions from the dip tank and curing oven vented to atmosphere uncontrolled. In 2010, GM installed a natural gas-fired two chamber (alternating) regenerative thermal oxidizer (RTO) to incinerate VOC emissions from the curing oven. The RTO was observed operating at 11:58 AM with an active combustion chamber temperature of 1467°F. The RTO is located along the eastern wall of the plant; both the primary exhaust stack following the oxidizer and the bypass stack preceding it appear to equal the stack heights of the former oven exhaust vents.

The primer surfacer booth was observed at 12:35 PM. Formerly, the sides of the vehicle were coated by robotic arms while the top of the vehicle was coated from overhead by a row of spray nozzles on a lowered beam, termed the "bells". Since the last inspection in August 2011, the overhead bells have been removed from the primer surfacer booth and replaced by eight new robotic coating arms. The robotic spray guns were observed to purge into an enclosed cup between color changes. The waterwash system was observed operating in the primer surfacer booth during the inspection. At 12:05 PM, at the display near the south oven the oxidizer temperature registered 1331°F.

The topcoat booths were viewed from an observation area at their entrance. The clearcoat lines spray diisocyanate, a sensitizer, and GM requires a respirator test for all employees and visitors who are to enter the topcoat booth or the paint mix room. Seven of the eight topcoat lines are in regular use; line #8 has not been in use for several years. As with the primer surfacer, all the overhead bells formerly installed in the topcoat booths have been replaced with robots; this change was in progress during the last inspection of August 2011 and has since been completed. At 12:41 PM, topcoat lines #4, #5, #6, and #7 were observed receiving cars. The oven oxidizer temperatures registered the following from a computer display at this location: north prime – 1313°F, south prime – 1331°F, topcoat #1 – 1310°F, topcoat #2 – 1310°F, topcoat #3 – 1310°F, topcoat #4 – 1324°F, topcoat #5 – 1307°F, topcoat #6 – 1310°F, topcoat #7 – 1303°F. The display also indicated that 36 jobs had been processed in the primer surfacer booth within the past hour.

A final repair activity was not viewed at the time of the inspection though the booths were observed. Filters are regularly inspected and replaced a few times per year. A cold cleaner installed near the final repair booths was viewed. The cover was observed to be closed and a sign posted with proper procedures (keep cover closed

when not in use, etc.); the emissions vent to the plant environment. Roll test stations (chassis dynamometers) are installed to test engine and powertrain performance; emissions are vented uncontrolled to atmosphere.

The gasoline and fluid (transmission, powersteering, etc.) fueling operation is conducted open-air in the final assembly area. Fuel and fluid tanks are located just to the east of the powerhouse; a dozen horizontal tanks are installed though not all are in use. All the tank inlets and returns are located on a pipe break a few feet above the ground on the east side of the tanks. The connections appear to have interlock and vapor-tight disconnect systems, though their presence was not definitively confirmed by visual observation. The tanks are filled via permanent submerged fill pipes.

An inspection from the roof was not conducted during the site visit; a roof inspection has been conducted during previous visits. Viewing the stacks from ground level outside the paint shop none raised a question of noncompliance with the stack height or diameter conditions within the ROP. The stacks to the east are for the pretreatment and electrocoat; stacks to the north vent the primer surfacer and topcoat ovens. The tall tan-colored stack is the combined exhaust for the primer surfacer and topcoat booths. No visible emissions were noted from any stack.

The boilerhouse is located at the northern end of the plant. All boilers are fueled by coal and Boiler #1 may also run on natural gas. Boiler #2 was the only boiler in operation at the time of the inspection. Nitrogen oxide (NOx) is measured through a continuous emissions monitoring system (CEMS) and opacity is measured through a continuous opacity monitoring system (COMS). The CEMS/COMS measures aggregate emissions from all four boilers; the flue gases are combined and discharged to the ambient air through a common stack. At 1:00 PM the CEMS/COMS within the boilerhouse control room read as follows: NOx – 144.5 ppm, NOx – 0.5117 lb/MMBtu, O2 – 14.1%, opacity – 3.29%, steam – 70.611 thousand pounds steam/hr. The NOx lb/MMBtu value is calculated from the ppm and percent oxygen. In addition to the digital readout, electronic graphs are also displayed to allow the operators to view trends in the emissions and process parameters. The CEMS and COMS are calibrated quarterly by an outside contractor and calibrated daily with calibration gases. Each boiler has a dedicated baghouse consisting of six cells in series for the control of particulate matter. A baghouse cell is reverse-air cleaned approximately once every four hours or whenever the pressure drop reaches 6.0 inches water. At 1:00 PM, each of the six cells for Boiler #2 registered a pressure drop in the range of 1.9 to 2.1 inches water at the control room.

Coal is stored in open-air piles northwest of the boilerhouse next to the receiving hopper. The receiving hopper is enclosed except for openings to allow trucks and bulldozers to enter and exit. The floor is grated so coal may be dumped or bulldozed into the receiving pit beneath. A spray wetting system is installed at the receiving hopper to control dust. The conveying system that transports the coal from the pit to the bunkers is entirely enclosed. Boiler bottoms ash and baghouse fly ash are blown into an ash silo equipped with a cyclone-type primary collector and a fabric filter baghouse. Ash is sprayed with water as it is discharged to trucks for transport to a landfill. There was no activity in this area at the time of the inspection, aside from a minor amount of coal stockpiling by a bulldozer within the yard, and therefore the coal and fly ash systems were not observed during this site visit. No visible emissions were observed and spillage was minimal in these areas.

Coal sampling is conducted daily off the feed conveyor. A monthly composite of all the daily samples are sent for sulfur and heat content; GM also retains a copy of the analysis from the coal supplier. I split with GM a sample of coal taken from the monthly composite accumulated to-date.

The inspection concluded, I informed Ms. Jeffrey that I had not observed violations during the facility visit. We did discuss deviations reported for the topcoat incinerators, primarily for topcoat #1, in the past two Semiannual ROP Deviation Reports and I indicated that I might be issuing a Violation Notice for those deviations. I signed out of the plant and left the property just prior to 2:00 PM.

#### **Compliance Status:**

The General Motors Corporation's Detroit Hamtramck Assembly Center was issued renewal MI-ROP-M4199-2010 on 2/17/2010; the initial ROP was issued 12/4/2003. No Permits to Install (PTI) have been issued to the facility since ROP renewal. Prior to the inspection of 9/25/2013 the last site inspection was conducted on 8/23/2011, 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 through approximately 9/30/2013. A request for information from GM DHAC was also received on 9/25/2013.

MI-ROP-M4199-2010, 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 as directed by the ROP during the 9/25/2013 inspection.

11 – Compliance – Visible emissions limited to 20% over a six-minute average, with the exception of one 27% six-minute period per hour, unless otherwise specified in the ROP or in a federal new source performance standard. This limit applies to point source (non-fugitive) emission units at the plant – I did not observe visible emissions exceeding 20% opacity during the 9/25/2013 inspection.

12 – Compliance – Nuisance emissions prohibited – No citizen complaints have been received by the AQD's Detroit Office for GM DHAC 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 Sections 1 and 2 on 9/13/2013, 3/14/2013, 9/13/2012, 3/15/2012. Please see reports M419923242 (covering the last two reports), M419919465, M419917356.

24 – Compliance – Submissions to the Emissions Inventory. The AQD received this facility's 2012 and 2011 MAERS databases on (or postmarked) 3/14/2013 and 3/15/2012. Please see reports M419921116 and M419917499.

#### MI-ROP-M4199-2010, SOURCE-WIDE

III.1 and 2, VI.1 through 3 – Compliance – Production limited to 78.5 jobs per hour averaged over the hours of operation for a calendar month and 337,500 jobs per calendar year; records to be maintained.

Monthly jobs and hours of production are reported in the semiannual VOC reports submitted by GM; the jobs are reported in both the primer surfacer and topcoat reports and the hours are reported in the electrocoat section. Since the last inspection in 8/2011 AQD has received four reports covering the period 7/2011 through 6/2013. Over this period, the primer surfacer has averaged 28 jobs per hour with a monthly high of 44 jobs per hour in 8/2012 and the topcoat has averaged 41 jobs per hour with a monthly high of 68 jobs per hour in 5/2012. Jobs for calendar years 2011 and 2012 are reported at 39,268 and 39,986, respectively, through the primer surfacer and 59,783 and 59,426, respectively, through the topcoat. The actual number of vehicles produced by the plant is closer to the primer surfacer figure than the topcoat figure because a vehicle may pass through the topcoat booths multiple times (e.g. to add a two-tone coat, etc.).

#### MI-ROP-M4199-2010, EUPRETREATMENT

VI.1 – Compliance – Maintain chemical data for materials used in the pretreatment process – MSDSs for the pretreatment chemicals are provided in the 9/25/2013 submittal.

VIII.1 through 9 – Compliance – Each of nine stacks to vent unobstructed vertically at a height not less than 53 feet above ground and with no minimum diameter – These stacks were from ground level during the inspection of 9/25/2013 and judged in compliance with these requirements, though measurements were not performed. In the ROP Deviation Report for the period 1/1/2013 through 6/30/2013, GM reports stack SV006 covered by SC VIII.4 was damaged during windy conditions on 4/3/2013 and a section of the stack broke away, leaving it 48 feet high until it could be restored to a height of 65 feet on 4/6/2013. AQD considers the deviation minor and corrected in a timely manner. Please see report M419923242.

#### MI-ROP-M4199-2010, EUELPOSYSTEM

I.1 through 4, VI.1 through 3 – Compliance – VOC emissions limited to: 76.8 pounds per hour averaged over the operating hours in a calendar month (LAER); 0.16 pounds kilograms per liter of applied coating solids, on a calendar month volume weighted average (NSPS); 1.2 pounds per gallon of coating, minus water, as applied, on a calendar month volume weighted average (Rule 610); 172.8 tons per calendar year (LAER). Records to be maintained.

Monthly emissions and operations data are reported for the electrocoat in the semiannual VOC reports submitted by GM. Since the last inspection in 8/2011 AQD has received four reports covering the period 7/2011 through 6/2013; reports were received on 7/30/2013, 1/30/2013, 7/31/2012, 1/31/2012 (NSPS MM), 1/30/2012 (VOC Protocol). Maximum monthly VOC emissions in this period are 11.79 pounds per hour (6/2012), 0.08 kilograms per liter of applied coating solids (6/2012), and 0.62 pounds per gallon of coating minus water (6/2012). Annual emissions for 2011 and 2012 are reported as 11,907.32 pounds (6.0 tons) and 8,191.05

pounds (4.1 tons), respectively. Each semiannual VOC report contains usage and production information. As an example, the most recent report received indicates 6/2013 usage totaled 9,036 pounds of E6433 resin and 1,200 pounds of E6434 paste, and that production hours totaled 147.50. Please see reports M419922982, M419920366, M419918659, and M419917050. It is noted GM DHAC reports ELPO emissions data without applying a credit for VOCs abated by the RTO that now controls emissions from the ELPO oven exhaust; the VOC emissions data for the ELPO emissions unit is therefore conservative.

V.1 – Compliance – VOC content determined by EPA Method 24 with formulation data as an alternative; records maintained – The VOC content of the electrocoat is reported with each semiannual VOC report; MSDSs are provided in the 9/25/2013 submittal. Per the MSDSs, the analytical VOCs by Method 24 are 0.15 lb/gal minus water for the E6433 resin and 1.37 lb/gal minus water for the E6434 paste; as seen in the VOC reports, the resin to paste use ratio is typically about 8 to 1 by volume, which brings the electrocoat bath VOC content down to about 0.3 lb/gal minus water and into compliance with the NSPS and Part 6 limits.

VIII.1 through 14 – Compliance – Each of fourteen stacks to vent unobstructed vertically at a height not less than 53 feet above ground and with no minimum diameter – These stacks were viewed from ground level during the inspection of 9/25/2013 and judged in compliance with these requirements, though measurements were not performed. It is noted that the nine oven stacks (SV012 through SV020) have been replaced and are no longer in use. The oven exhaust from the electrocoat ovens have been redirected to an RTO which vents unobstructed vertically through a stack at a height equivalent to the listed oven stacks.

IX.1 – Compliance – Electrocoat must meet the requirements of NSPS MM – Please see section below on NSPS MM. SC I.2 is based on the NSPS and semiannual reports have been received to demonstrate compliance with the emission limit.

#### MI-ROP-M4199-2010, EUPRIMERSURFACER

I.1 and 2, VI.11 and 12 – Compliance – PM emissions limited to 2.42 pounds per hour averaged over the operating hours in a calendar month and 5.45 tons per calendar year; records to be maintained – PM emission rates for the period 7/2012 through 6/2013 are provided in the 9/25/2013 submittal. During this period, the maximum monthly emission rate is 0.58 pounds per hour (8/2012 and 9/2012) and the total PM emissions are 0.31 tons for the 12-month period; although the annual emission limit is only to be applied at the end of each calendar year, the 12-month total indicates the annual calendar year PM emissions are likely far below the annual PM emission limit.

I.3 through 6, VI.1.a through f, VI.2.a and b – Compliance – VOC emissions limited to: 109 pounds per hour averaged over the operating hours in a calendar month (LAER); 1.40 pounds kilograms per liter of applied coating solids, on a calendar month volume weighted average (NSPS); 14.9 pounds per gallon of applied coating solids on a calendar day volume weighted average (Rule 610); 245 tons per 12-month rolling time period (LAER). Records to be maintained.

Monthly coating usage, coating composition, vehicle data, and VOC emissions are reported for the primer surfacer in the semiannual VOC reports submitted by GM. Since the last inspection in 8/2011 AQD has received four reports covering the period 7/2011 through 6/2013; reports were received on 7/30/2013, 1/30/2013, 7/31/2012, 1/31/2012 (NSPS MM), 1/30/2012 (VOC Protocol). Jobs are reported for the primer surfacer and production hours are reported for the electrocoat. The data is acceptable because the variance between the operating hours of the electrocoat and the primer surfacer will not vary greatly in a given month. Based on this data, maximum monthly VOC emissions in this period are 37.7 pounds per hour (6/2012) accounting for oven abatement; without oven abatement, emissions remain compliant at 72.7 pounds per hour. GM does not account for oven abatement in the NSPS emissions calculations and reports a maximum of 1.32 kilograms per liter of applied coating solids (12/2011). Oven abatement is utilized for the Auto Protocol calculations and GM reports a maximum 7.05 pounds per gallon of coating of applied coating solids (12/1/2011, 12/12/2011); without oven abatement, the maximum reported emissions remain compliant at 13.04 pounds per gallon of applied coating solids (12/1/2011). Please see reports M419922982, M419920366, M419918659, and M419917050. Annual emissions for 2012 and 2011 tabulate to 24,319 pounds (12.2 tons) and 31,120 pounds (15.6 tons).

I.7 and 8, VI.13 and 14 – Not Applicable – Anti-chip limited to 12.6 pounds VOC per hour averaged over the operating hours in a calendar month and 28.5 tons VOC per 12-month rolling time period; records to be maintained – The anti-chip application was last utilized in the 1990s and is not currently in operation.

III.1, VI.9 – Compliance – Primer surfacer booths shall not be operated unless the downdraft waterwash system is installed and operating properly; daily visual inspections – The waterwash system was observed operating at

the primer surfacer booth during the 9/25/2013 inspection. In the 9/25/2013 submittal are the waterwash inspection logs for the primer surfacer booth for 6/2013.

III.2, IV.1, VI.3 through 8, 15 and 16 – Compliance – Primer surfacer booths shall not be operated unless the associated oven incinerators are installed and operating properly, including maintaining either a minimum 1300° F oven temperature or a 1300°F average over three hours in each incinerator, and maintaining a minimum retention time of 0.5 seconds in each incinerator; temperature measuring device installed, temperature recorded at least once every 15 minutes, and device accurate to either 0.75% of temperature or within 2.5°C; monthly summary of thermal oxidizer data and operational status of oxidizers; calibration of temperature devices kept; inspections of oxidizers (annual) and heat exchangers (18 months) and records kept of annual/maintenance inspections; records kept of bypass events.

North and south prime oxidizer temperatures registered 1313°F and 1331°F when viewed during the inspection. Prime oven oxidizer temperature records for 6/21/2013 and the monthly summaries for 6/2013 are provided in the 9/25/2013 submittal. No deviations are reported for either oven oxidizer in the month. Both the north and south prime ovens were in operation on 6/21/2013. Prime oven oxidizer temperature records are given in 10-minute intervals and demonstrate the 1300°F minimum was met during production hours (beginning about 6 AM and lasting through about 4 PM); the temperature of the north prime oxidizer generally read near 1310°F and the south prime oxidizer generally read near 1330°F. Calibrations were last performed on 12/10/2012 and both were found to measure within at least 3°F (which represents about 0.2% of 1300°F). Inspections were conducted on the primer surfacer incinerators and heat exchangers from 10/2012 through 11/2012. Incinerators are designed to achieve the 0.5 second retention time; please see 9/26/2007 submittal where the residence times are calculated at 0.94 seconds and 0.88 seconds for the north prime and south prime, respectively. In the submittal of 9/25/2013, GM reports bypass lines have not been used in the period since the last inspection (beginning 10/1/2011).

V.1 through 3, VI.2.c through e, VI.10 – Compliance – Tests for transfer efficiency, oven loading rates, and oxidizer destruction efficiency within 180 days of permit issuance if not conducted in the last five years; records of tests maintained; description of paint system maintained with a records of changes made and annual reviews required to determine if the performance tests remain representative of current operations.

Transfer efficiency tests on the prime lines were conducted on 11/13/2012 (please see report M419920343), oven loading rates tests were conducted on 8/10/2010 (please see report M419912809), and oxidizer destruction efficiency tests were conducted 12/15/2008 through 12/17/2008 (please see report M419907508). Values utilized in VOC calculations and the 2012 annual reviews are reported in the 9/25/2013 submittal. The transfer efficiency tests conducted in 2012 followed the replacement of the overhead bells applicators with robotic arm applicators in the prime booth.

V.4 – Compliance – VOC content to be determined according to EPA protocol – VOC content of the coatings are given in the semiannual VOC reports and MSDSs are provided in the 9/25/2013 submittal.

VII.4, IX.2 and 3 – Compliance – CAM compliance; semiannual reporting of exceedances and excursions – 40 CFR 64 requirements are covered by the monitoring conditions in the emission unit. CAM semiannual reports or postmarked for Sections 1 and 2 on 9/13/2013, 3/14/2013, 9/13/2012, 3/15/2012. Please see reports M419923242 (covering the last two reports), M419919465, M419917356. No CAM exceedances or excursions have been reported in the FCE period.

VIII.1 through 13 – Compliance – Primer surfacer/topcoat booth stack to vent unobstructed vertically at a height not less than 147 feet above ground and with no minimum diameter; each of four oven stacks (two primary stacks and two bypass stacks) and eight wet sand oven stacks to vent unobstructed vertically at a height not less than 53 feet above ground and with no minimum diameter – These stacks were viewed from ground level during the inspection of 9/25/2013 and judged in compliance with these requirements, though measurements were not performed. It is noted that the wet sand operations have not been used for a number of years. According to GM during an earlier inspection, "wet sand" refers to manual sanding, conducted with water, to remove defects in the vehicle body and the ovens installed to dry the vehicles.

IX.1 – Compliance – Primer surfacer must meet the requirements of NSPS MM – Please see section below on NSPS MM. SC I.4 is based on the NSPS and semiannual reports have been received to demonstrate compliance with the emission limit.

MI-ROP-M4199-2010, EUTOPCOATSYSTEM



I.1 and 2, VI.11 and 12 – Compliance – PM emissions limited to 11.3 pounds per hour averaged over the operating hours in a calendar month and 26.6 tons per calendar year; records to be maintained – PM emission rates for the period 7/2012 through 6/2013 are provided in the 9/25/2013 submittal. During this period, the maximum monthly emission rate is 2.03 pounds per hour (8/2012) and the total PM emissions are 1.45 tons for the 12-month period; although the annual emission limit is only to be applied at the end of each calendar year, the 12-month total indicates the annual calendar year PM emissions are likely far below the annual PM emission limit.

I.3 through 6, VI.1.a through f, VI.2.a and b – Compliance – VOC emissions limited to: 367 pounds per hour averaged over the operating hours in a calendar month (LAER); 1.47 pounds kilograms per liter of applied coating solids, on a calendar month volume weighted average (NSPS); 14.9 pounds per gallon of applied coating solids on a calendar day volume weighted average (Rule 610); 796 tons per 12-month rolling time period (LAER). Records to be maintained.

Monthly coating usage, coating composition, vehicle data, and VOC emissions are reported for the topcoat in the semiannual VOC reports submitted by GM. Since the last inspection in 8/2011 AQD has received four reports covering the period 7/2011 through 6/2013; reports were received on 7/30/2013, 1/30/2013, 7/31/2012, 1/31/2012 (NSPS MM), 1/30/2012 (VOC Protocol). Jobs are reported for the topcoat and production hours are reported for the electrocoat. The data is acceptable because the variance between the operating hours of the electrocoat and the topcoat will not vary greatly in a given month. Based on this data, maximum monthly VOC emissions in this period are 112 pounds per hour (4/2012) accounting for oven abatement; without oven abatement, emissions remain compliant at 186 pounds per hour. GM does not account for oven abatement in the NSPS emissions calculations and reports a maximum of 1.14 kilograms per liter of applied coating solids (8/2011). Oven abatement is utilized for the Auto Protocol calculations and GM reports a maximum 7.70 pounds per gallon of coating of applied coating solids (8/8/2011); without oven abatement, the maximum reported emissions remain compliant at 10.65 pounds per gallon of applied coating solids (8/11/2011). Please see reports M419922982, M419920366, M419918659, and M419917050. Annual emissions for 2012 and 2011 tabulate to 86,849 pounds (43.4 tons) and 156,675 pounds (78.3 tons).

III.1, VI.9 – Compliance – Topcoat spray booths shall not be operated unless the downdraft waterwash system is installed and operating properly; daily visual inspections – The waterwash system was not observed during the 9/25/2013 inspection because of the necessity to wear a respirator in the topcoat area. In the 9/25/2013 submittal are the waterwash inspection logs for the topcoat booth for 6/2013.

III.2, IV.1, VI.3 through 8, 13 and 14 – Not In Compliance – Topcoat booths shall not be operated unless the associated oven incinerators are installed and operating properly, including maintaining either a minimum 1300° F oven temperature or a 1300°F average over three hours in each incinerator, and maintaining a minimum retention time of 0.5 seconds in each incinerator; temperature measuring device installed, temperature recorded at least once every 15 minutes, and device accurate to either 0.75% of temperature or within 2.5°C; monthly summary of thermal oxidizer data and operational status of oxidizers; calibration of temperature devices kept; inspections of oxidizers (annual) and heat exchangers (18 months) and records kept of annual/maintenance inspections; records kept of bypass events.

Topcoat oxidizer temperatures exceeded 1300°F when viewed during the inspection and were generally around 1310°F. Topcoat oven oxidizer temperature records for 6/21/2013 and the monthly summaries for 6/2013 are provided in the 9/25/2013 submittal. No deviations are reported for any oven in the month (topcoat #8 was not in use). Topcoat lines #1 through #7 were in operation on 6/21/2013. Topcoat oven oxidizer temperature records are given in 10-minute intervals and demonstrate the 1300°F minimum was met during production hours (beginning about 6 AM and lasting through about 4 PM); oxidizers generally read near 1310°F except topcoat #4, which ranged from about 1310°F up to about 1340°F, and topcoat #7, which generally read near 1305°F. Calibrations were last performed on 12/10/2012 and all were found to measure within at least 3°F (which represents about 0.2% of 1300°F). Inspections were conducted on the topcoat incinerators and heat exchangers from 10/2012 through 11/2012. Incinerators are designed to achieve the 0.5 second retention time; please see 9/26/2007 submittal where the residence times, in seconds, are calculated at 1.05, 0.98, 1.07, 1.18, 1.11, 0.82, 0.86, and 0.84 for oven incinerators #1 through #8, respectively. In the submittal of 9/25/2013, GM reports bypass lines have not been used in the period since the last inspection (beginning 10/1/2011).

The AQD received the Semiannual Deviation/CAM reports covering the periods 7/1/2012 through 12/31/2012 and 1/1/2013 through 6/30/2013. AQD's review of these reports is given in report M419923242.



GM reports the oven incinerator temperature for topcoat line #1 was below 1300°F for a total of 41.4 hours (i.e. 41 hours and 24 minutes) during the following 13 days: 10/18/2012, 12/11/2012, 12/12/2012, 12/13/2012, 1/9/2013, 1/10/2013, 1/11/2013, 1/29/2013, 1/30/2013, 2/11/2013, 2/27/2013, 2/28/2013, 3/6/2013. GM reports the lowest 3-hour average temperature recorded during this period was 1035°F. SC III.2 of EUTOPCOATSYSTEM requires "maintaining a minimum temperature of 1300°F in each oven incinerator . . ." or "[i]n lieu of a minimum temperature, an average temperature of 1300°F based upon a three hour average may be used." Each of the oven incinerators at the facility is equipped with a low temperature alarm and interlock that notifies plant personnel if the oven temperature drops below 1300°F and simultaneously shuts down the vehicle conveyor to that oven. GM reports topcoat #1 was operating in a simulation mode during this period, which provided for the monitoring and recording of oven temperature but bypassed both the alarm and the interlock when the monitored temperature fell below the 1300°F minimum. GM conducted a review of monitoring data and uncovered the temperature deviations reported in the semiannual reports. To prevent a recurrence GM removed the simulation mode function from the controls software for all of the topcoat lines. In addition, GM reports plant environmental staff and paint shop staff have been granted computer access to the real-time oven temperature data.

GM reports the oven temperatures in each of the seven topcoat lines were not recorded at a frequency of at least one record per 15 minutes of operation spanning 13 production days from 2/20/2013 through 3/8/2013. SC VI.4 requires that whenever the topcoat process is in operation, the facility "shall monitor and record the temperature in the thermal oxidizers on a continuous basis and in a manner with instrumentation acceptable to the Air Quality Division. Continuous recording is defined as at least one record every 15 minutes." GM reports the failure was caused by the "renaming of a PLC resulting in a broken link; therefore, the database could not collect and record the temperature data as it should." The link was repaired and proper data collection was restored.

A Violation Notice was issued on 10/18/2013 for the two deviations. Included are citations for SC III.2, SC VI.4, and Rule 910. No citations relating to VOC emissions limits were included because the VOC emissions data given in the semiannual VOC reports indicates all emission limits at SCs I.3 through 6 were met during this period, irrespective of the deviations, as seen above in the compliance review for those conditions.

GM's actions appear sufficient to address the violations cited, however, the facility is considered not in compliance with these SCs III.2 and VI.4 until subsequent reports demonstrate compliance has been continually achieved following the corrective measures.

III.3, V.5 – Compliance – Purge capture system for solventborne materials installed and operating to provide 85% VOC capture; test for purge capture within 180 days of permit issuance if not conducted in the last five years – Purge capture system tests were conducted on 8/3/2010 through 8/4/2010 (please see report M419912167).

V.1 through 3, VI.2.c through e, VI.10 – Compliance – Tests for transfer efficiency, oven loading rates, and oxidizer destruction efficiency within 180 days of permit issuance if not conducted in the last five years; records of tests maintained; description of paint system maintained with a records of changes made and annual reviews required to determine if the performance tests remain representative of current operations.

Transfer efficiency tests on the topcoat lines were conducted on 11/21/2011 through 11/23/2011 (please see report M419917618), oven loading rates tests were conducted on 8/10/2010 (please see report M419912809), and oxidizer destruction efficiency tests were conducted 12/15/2008 through 12/17/2008 (please see report M419907508). Values utilized in VOC calculations and the 2012 annual reviews are reported in the 9/25/2013 submittal. The transfer efficiency tests conducted in 2011 followed the replacement of the overhead bells applicators with robotic arm applicators in the topcoat booths.

V.4 – Compliance – VOC content to be determined according to EPA protocol – VOC content of the coatings are given in the semiannual VOC reports and MSDSs were provided in the 9/25/2013 submittal.

VII.4, IX.1 and 2 – Not In Compliance – CAM compliance; semiannual reporting of exceedances and excursions – 40 CFR 64 requirements are covered by the monitoring conditions in the emission unit. CAM semiannual reports or postmarked for Sections 1 and 2 on 9/13/2013, 3/14/2013, 9/13/2012, 3/15/2012. Please see reports M419923242 (covering the last two reports), M419919465, M419917356. The thermal oxidizer monitoring deficiencies detailed in SCs III.2, et al, above are also reported as CAM excursions.

Under the CAM regulation, an exceedance is defined as "a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard . . . consistent with any averaging period specified for averaging the results of the monitoring." The depressed temperature events at oven incinerator #1 do not represent exceedances under CAM because the VOC emission limits themselves were not exceeded.

Under the CAM regulation, an excursion is defined as "a departure from an indicator range established for monitoring under this part, consistent with any averaging period specified for averaging the results of the monitoring." The depressed temperature events at oven incinerator #1 represent excursions under CAM because a three hour average temperature less than 1300°F is a departure from the established indicator range, as indicated at SC IX.1.a: "temperature excursion is defined as a confirmed three-hour period during which the average fails to meet the specified temperature requirements in special conditions III.2." GM properly identified these events as excursions within the semiannual CAM reports required under SC VII.4 of EUTOPCOATSYSTEM and 40 CFR 64.9(a)(2) and (2)(i).

At 40 CFR 64.7(d)(1), CAM requires: "Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emission unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions)."

The sequence of temperature drops within oven incinerator #1 represents a violation of 40 CFR 64.7(d)(1) because the incinerator was not restored to its usual manner of operation in a timely fashion. GM reports the temperature monitoring device installed at the incinerator was properly registering and recording the oven temperature, but the bypass of both the alarm and interlock due to the enablement of "simulation mode" meant that plant personnel were unaware of the excursions until many such events had already occurred. But for the simulation mode, the interlock would have been initiated each time the temperature dipped below 1300°F and each three-hour average excursion from SC III.2 would have been prevented.

The incinerators are subject to that portion of the CAM rule requiring control device monitoring and collection (e.g. in this case, incinerator temperature monitoring) at a frequency of not less than four data values equally spaced over the course of an hour (40 CFR 64.3(b)(4)(ii) and 40 CFR 64.7(c)); this requirement is established at SC VI.4 by requiring at least one temperature record every 15 minutes. In addition SC IX.1.b indicates that, for the purposes of CAM, "[a] monitoring excursion is defined as a failure to properly monitor as required in special conditions VI.4 or VI.15".

GM identified the failure to record the oven thermal oxidizer temperatures at a frequency of one record every 15 minutes as monitor downtime incidents within the semiannual CAM reports required under 40 CFR 64.9(a)(2) and (2)(ii). In the vernacular of the ROP, the monitoring deviation is considered a type of excursion at SC IX.1.b and to be reported as such under SC VII.4 and 40 CFR 64.9(a)(2)(i). A reading of the definition of a CAM excursion, given above, suggests GM's categorization of these events is more accurate. An excursion occurs when the monitor indicates a departure from an indicator range rather than a failure of the monitor to register a reading at all; that is, it is not possible to judge if there was a departure or not from the indicator range when no monitoring data is recorded. Nevertheless, whether reported as an excursion under SC IX.1.b and 40 CFR 64.9(a)(2)(i) or as monitor downtime under 40 CFR 64.9(a)(2)(ii), GM included the events in the CAM report and met the semiannual reporting requirement.

Since uncovering the excursions, GM has taken appropriate steps to prevent the likely recurrence of the causes. GM reports "simulate mode" has been removed from the controls software within the seven operating topcoat modules and GM reports the software recording error has been corrected. In addition, GM reports plant environmental staff and paint shop staff have been granted computer access to the real-time oven temperature data, thus allowing staff a greater opportunity to check and ensure the automated systems are functioning properly. Therefore, no quality improvement plan (QIP) under 40 CFR 64.8 is deemed necessary at this time.

The Violation Notice issued on 10/18/2013 included citations for SC IX.2, 40 CFR 64.7(c), and 40 CFR 64.7(d) (1). GM's actions appear sufficient to address the violations cited, however, the facility is considered not in compliance with SC IX.2 until subsequent reports demonstrate compliance has been continually achieved following the corrective measures.

VIII.1 through 17 – Compliance – Primer surfacer/topcoat booth stack to vent unobstructed vertically at a height not less than 147 feet above ground and with no minimum diameter; each of sixteen oven stacks (eight primary stacks and eight bypass stacks) to vent unobstructed vertically at a height not less than 53 feet above ground and with no minimum diameter – These stacks were viewed from ground level during the inspection of 9/25/2013 and judged in compliance with these requirements, though measurements were not performed.

#### NSPS MM for Automobile and Light-Duty Truck Coating Operations

The federal New Source Performance Standards (NSPS) at 40 CFR 60, Subparts A and MM regulates volatile organic compound emissions from automobile and light-duty truck surface coating operations installed after 10/5/1979. The electrocoat, primer surfacer, and topcoat lines at DHAC were all installed in the early 1980s and are subject to this subpart.

60.392(a)(1)(i), (b), (c) – Compliance – The electrodeposition prime coat (electrocoat) must meet a VOC emission rate equal to or less than 0.17 kilogram per liter of applied coating solids; the guidecoat (primer surfacer) must meet a VOC emission rate equal to or less than 1.40 kilogram per liter (equivalent to 11.7 pounds per gallon) of applied coating solids; the topcoat must meet a VOC emission rate equal to or less than 1.47 kilogram per liter (equivalent to 12.3 pounds per gallon) of applied coating solids.

60.303(b), 60.395(a)(1), 60.395(b) – Compliance – An initial performance test must be conducted by calculating the monthly volume weighted average mass of VOC emitted per volume of applied coating solids (60.303(b)) and this test shall be repeated monthly; these results shall be reported (60.395(a)(1)) initially; any exceedances during subsequent tests shall be reported (60.395(b)). Though incinerators control the oven exhaust from the electrocoat, primer surfacer, and topcoat coating operations, GM DHAC does not apply any credit for VOC reduction within these affected facilities when calculating for compliance with the NSPS MM standards, therefore, the performance of the incinerators does not fall under the regulatory scope of the NSPS at this time.

The emission limits have been incorporated into the ROP at SC I.2 of EUELPOSYSTEM, SC I.4 of EUPRIMERSURFACER, and SC I.4 of EUTOPCOATSYSTEM. The monthly calculations and records necessary to determine continued compliance with the emissions limits are also incorporated into the ROP. Semiannual NSPS MM reports for the period 7/2011 through 6/2013 were received 7/30/2013, 1/30/2013, 7/31/2012, 1/31/2012. Please see reports M419922982, M419920366, M419918659, and M419917050.

#### MI-ROP-M4199-2010, EUDEADNER

I.1 through 5, III.1, V.1, VI.1 through 5, VII.1 through 3, VIII.1 and 2 – Compliance – The deadener booth last operated in 5/2011 and is no longer in use (submittals of 9/27/2011 and 9/25/2013). According to GM, during the previous inspection in 2011, the design of the Volt rendered the deadener booth obsolete. In addition, in recent years non-VOC materials were used as the deadener and no VOCs have been reported emitted from this emission unit. While unused this emission unit does not release emissions to the ambient air and is therefore considered to be in compliance with all applicable requirements.

#### MI-ROP-M4199-2010, EUFINALREPAIR

I.1 through 3, VI.1 through 4 – Compliance – VOC emissions limited to: 3.1 pounds per hour averaged over the operating hours in a calendar month (LAER); 4.8 pounds per gallon of coating, minus water, as applied, on a calendar day volume weighted average (Rule 610); 6.8 tons per 12-month rolling time period (LAER). Records to be maintained; monthly records permitted unless an individual coating exceeds the 4.8 pounds per gallon of coating, minus water, as applied, and then daily records of the coating are required.

Final repair records for the period 7/2012 through 6/2013 are given in the 9/25/2013 submittal. A total of 137.7 gallons of coating were used with 420.2 pounds, or 0.21 tons, of VOCs emitted over 1,719 production hours. The highest monthly emission rate is reported for 6/2013, when 85.5 pounds VOC were emitted over 156 hours for a monthly average of 0.55 pounds per hour.

The AQD received the Semiannual Deviation/CAM reports covering the periods 7/1/2012 through 12/31/2012 and 1/1/2013 through 6/30/2013. AQD's review of these reports is given in report M419923242. GM reports a deviation associated with the final repair operations that span both semiannual reporting periods. SC VI.3 of EUFINALREPAIR requires the facility to monitor and record the VOC content for all coatings utilized in the final repair operations to ensure compliance with the 4.8 pounds VOC per gallon minus water, on a daily average, performance measure stipulated within Rule 610 and SC I.2. If all coatings utilized in the month meet the standard individually then only a monthly average need be reported, as any combination of coatings will calculate to a daily average less than the standard. If not, then daily averaging must be recorded on those days when coatings with an individual VOC content in excess of 4.8 pounds VOC per gallon minus water are utilized,

in order to ensure that the combination of coatings used in the day average to less than the standard. GM reports monthly records were maintained for all coatings, but daily records were not maintained on those days when the higher VOC content coatings were used. The deviation was addressed following the 5/7/2013 production day, when GM added language to the final repair daily checklist to account for daily averaging.

Final repair operations have been limited, as noted above, and VOC mass emissions are well beneath the permitted limits. Therefore, if the Rule 610 performance measure was exceeded the amount of excess VOCs emitted to atmosphere is minimal compared to the amount that would have been emitted if the Rule 610 limit had been met. As received in the 9/25/2013 submittal, GM tracked final repair operations in 6/2013 on a daily basis and the highest average recorded in the month was 4.14 pounds VOC per gallon minus water on 6/11/2013. AQD considers GM's responses sufficient to resolve the deviations without further action by AQD, and AQD considers GM to be in compliance with these conditions at this time.

III.1, VI.5 – Compliance – Each final repair booth not to be operated unless the associated dry filters are installed and operating properly – The 9/25/2013 submittal contains records of booth inspections for the first half of 2013, which occur every other week; filters were changed on 8/13/2013 and 8/14/2013. In the ROP deviation reports, GM reports not all filter inspections were recorded. To address the deviation, GM has instructed staff in this area on the need to document monthly filter inspections. AQD considers the deviation minor, properly addressed by the facility, and the facility in compliance with these conditions.

V.1 – Compliance – VOC content determined by EPA Method 24 with formulation data as an alternative; records maintained – The VOC content and MSDSs of the final repair coatings are provided in the 9/25/2013. The MSDSs provide VOC content information in four ways: formula VOC with water; formula VOC without water; EPA Method 24 with water; EPA Method 24 without water. GM uses the EPA Method 24 data without water for the final repair daily average; as an example, the daily VOC 101VR Silver Topaz MSDS reports an EPA Method 24 VOC content of 4.3 pounds per gallon minus water and this is the value used in the 6/2013 daily records for the final repair booths.

#### MI-ROP-M4199-2010, EUSEALERADH

I.1 through 7, VI.1 through 4 – Compliance – VOC emissions limited to: 60.8 pounds per hour averaged over the operating hours in a calendar month (LAER); either 4.8, 4.3, 3.5, or 3.0 pounds per gallon of coating, minus water, as applied, on a calendar day volume weighted average depending on the coating type (Rule 621); 137 tons per 12-month rolling time period (LAER). Records to be maintained.

Sealers and adhesives records for the period 7/2012 through 6/2013 are provided in the 9/25/2013 submittal. A total of 208,084.5 gallons of coating were used with 40,384.1 pounds, or 20.2 tons, of VOCs emitted over 1,621 production hours. The highest monthly emission rate is reported for 6/2013, when 3,918.5 pounds VOC were emitted over 112 hours for a monthly average of 35.0 pounds per hour. Monthly pounds VOC per gallon is reported at 0; this is because all of the sealers except one have a VOC content equal to or less than 0.30 pounds VOC per gallon (per EPA Method 24; the VOC and water contents of the sealers are so low that water content does not significantly alter the VOC content on a minus water basis). The High Tech Clear P10567 has a VOC content of 3.47 pounds per gallon but its use totals only 6.5 gallons in the 12-month period. Presuming this coating does not itself constitute the only coating within the Rule 621(1)(g) category of "other coatings", with an emission limit of 3.0 lbs. VOC/gal minus water, the daily average of all coating categories are less than the Rule 621 emission limits on each day of operation.

V.1 – Compliance – VOC content determined by EPA Method 24 with formulation data as an alternative; records maintained – The VOC content of the sealers and adhesives are provided in the 9/25/2013 submittal; MSDSs are also provided.

#### MI-ROP-M4199-2010, EUBOOTHCLEAN

I.1, V.1, VI.1 through 3 – Compliance – VOC emissions limited to 350 tons per 12-month rolling time period (LAER). Records to be maintained – Per the 9/25/2013 submittal, no cleaning activities occurred during the period from 7/2012 through 6/2013. Annual emissions of 0.00 pounds VOC and 138.52 pounds VOC, respectively, were reported to MAERS in calendar years 2012 and 2011.

#### MI-ROP-M4199-2010, EUPURGE

I.1, V.1, VI.1 through 3 – Compliance – VOC emissions limited to 650 tons per 12-month rolling time period (LAER). Records to be maintained – Purge solvent records for the period 7/2012 through 6/2013 are included in the 9/25/2013 submittal. VOC emissions total 217,969.75 pounds, or 109 tons, in the 12-month period.

#### MI-ROP-M4199-2010, EUMISCSOLV

I.1, V.1, VI.1 through 3 – Compliance – VOC emissions limited to 307 tons per 12-month rolling time period (LAER). Records to be maintained – Miscellaneous solvent emissions for the period 7/2012 through 6/2013 are given in the 9/25/2013 submittal, as well as individual solvent emissions for the month of 6/2013. VOC emissions total 2,503.49 pounds, or 1.25 tons, in 6/2013 and 28,927.51 pounds, or 14.5 tons in the 12-month period.

#### MI-ROP-M4199-2010, EU-Acoustical/Structural Foam

I.1 and 2, III.1, V.1, VI.1 and 2, VII.1 through 3, VIII.1 – Compliance – The acoustical/structural foam application has not been observed in operation since the 2005 inspection and according to the 9/27/2011 and 9/25/2013 submittals has not been operated since 8/2006. While unused this emission unit does not release emissions to the ambient air and is therefore considered to be in compliance with all applicable requirements.

#### MI-ROP-M4199-2010, FG-MACT

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63, Subparts A and IIII (MACT IIII) regulates hazardous air pollutants (HAP) emissions from the surface coating of automobiles and light-duty trucks. GM DHAC is a major source of HAPs. At 63.3082(g), GM is an existing affected source under MACT IIII for auto and light truck surface coating with an initial compliance date of 4/26/2007 (63.3083 (b)). The Notice of Compliance Status (NOCS) was received on 6/27/2007. Semiannual compliance reports required at 63.3120(a) are to cover the periods 1/1 through 6/30 and 7/1 through 12/31. Reports are due (postmarked) by 7/31 and 1/31, respectively.

In the NOCS, GM states that the compliance options at 63.3091(b), 63.3092, 63.3090(c), and 63.3090(d) have been chosen. Thus, the ELPO or electrocoat is separated from the other materials and evaluated on its own. The control devices installed at the electrocoat, primer surfacer, and topcoat operations are not employed to achieve compliance with the HAP emissions limitations, therefore, the testing and monitoring of control device performance is not required for purposes of this regulation.

I.2, I.5 and I.5a – Compliance – Organic HAP emissions from combined primer surfacer, topcoat, final repair, glass bonding primer, and glass bonding adhesive operations plus all coatings and thinners must meet 0.132 kilograms per liter (1.10 pounds per gallon) of coating solids deposited on a calendar month basis; under 63.3092(a) each material in the electrocoat must contain no more than 1.0 percent by weight of any organic HAP and 0.10 percent by weight of any organic HAP which is an OSHA carcinogen per 29 CFR 1910.1200(d)(4).

Since the last inspection in 8/2011 AQD has received four semiannual MACT reports covering the period 7/2011 through 6/2013. In this period, GM reports maximum monthly emissions (in pounds HAP per gallon solids applied) of 0.12 in 8/2011; a total of 3,985 pounds HAPs are reported emitted during the 24-month period. GM has asserted compliance with 63.3092(a) in the semiannual reports. Electrocoat MSDSs were provided with the NOCS and in the 9/25/2013 submittal. The MSDS for the E6433 Resin at page 7 lists ethylene glycol monobutyl ether (CAS #111-76-2) as a component; effective 11/29/2004, EPA delisted this substance from the HAP glycol ethers group category (69 FR 69320). The MSDS for the E6434 Paste at page 1 lists ethylene glycol (CAS #107-21-1) as a component with a weight percent in the range of 0.1% to 1%. Ethylene glycol is an organic HAP. It is also noted that the paragraph 29 CFR 1910.1200(d)(4) was removed during the rewriting of this OSHA standard in 2012; the evaluation for carcinogenicity was moved to Appendix A of the standard. However, ethylene glycol is not listed as a carcinogen in the National Toxicology Program's 12th report on carcinogens (RoC), in the International Agency for Research on Cancer (IARC) monographs 1 through 109, or in Subpart Z to 40 CFR Part 1910; this was the standard within the former 29 CFR 1910.1200(d)(4).

I.3 – Compliance – HAP emissions from all sealer and adhesive materials not components of glass bonding systems to no more than 0.010 kilograms HAP per kilogram (pound per pound) sealer/adhesive material on a calendar month basis.

In the semiannual reports, GM reports emissions of 0.000 pounds HAP per pound sealer/adhesive for each month operated from 7/2011 through 6/2013. Further information is provided in the 9/25/2013 submittal for the period 1/2013 through 6/2013. The only coating used in this period with a HAP content greater than 0.0% by weight is the High Tech Clear P10567 at 42.5% by weight HAP (toluene). However, the maximum amount sprayed totaled 1.0 gallon in 1/2013 for 3.3 pounds HAP emitted. 207,767 pounds of sealers and adhesives were used in the month, so the ratio of HAP to material is 0.00002.

I.4 – Compliance – HAP emissions from all deadener materials to no more than 0.010 kilograms HAP per kilogram (pound per pound) deadener material on a calendar month basis – In the semiannual reports, GM

reports deadener operations were not conducted in this period. From an information submittal of 9/27/2011, GM reports the deadener booth was last used in 5/2011. An acoustical/structural foam operation installed in 2004 to improve the crash worthiness of side impacts was discontinued in 8/2006.

III.1 – Compliance – Work practice plan to be developed and implemented – In the submittal of 9/25/2013 GM provides a copy of the "Work Plan for the Minimization of organic HAP emissions", last revised on 5/17/2013. The Work Plan, as written, addresses the subconditions of III.1 and the MACT as follows:

III.1.a through e – Compliance – HAP containing coatings, thinners, cleaning materials, and waste materials to be stored in closed containers (63.3094(b)(1)); risk of HAP spills minimized (63.3094(b)(2)); HAP materials to be conveyed in closed containers or pipes (63.3094(b)(3)); mixing vessels with HAPs closed except when adding, removing, or mixing in materials (63.3094(b)(4)); HAP emissions minimized during cleaning operations (63.3094(b)(5)) – Addressed at II.A through E of the Work Plan, pages 1 through 3.

III.1.f.i through viii – Compliance – Minimize organic HAP emissions from the cleaning and purging of the following equipment subject to the HAP emissions standards (63.3094(c)(1)(i) through (viii)): vehicle body wipes, coating line purging, coating line flushing, cleaning of spray booths (grates, walls, equipment, and external areas), and additional housekeeping – Addressed at III.A through H of the Work Plan, pages 4 through 12. Prevalent in the MACT standards and referenced in the Work Plan is the use of "low-HAP or no HAP" solvents and cleaners, however, EPA declines to define this phrase for the purposes of MACT IIII (unlike MACT GGGG, for example, where a "low-HAP solvent option" is defined as a solvent where the volume fraction of each HAP comprises 1% or less by volume of the solvent). As such, MACT IIII provides no standard by which to judge, for example, GM's use of a 6% by weight organic HAP Parcosol 266 for the cleaning of the topcoat booths (e.g. pg. 10 of the Work Plan). Therefore, AQD accepts GM's use of the cleaners specified.

V.1 and 3, VI.1, 2, 4, and 5, VII.4 and 5 – Compliance – Determine HAP content of materials and conduct compliance demonstrations in accordance with 63.3150 through 63.3152 (adhesives, sealers, and deadeners) and 63.3170 through 63.3173 (primer surfacer, topcoat, glass bonding primer, and glass bonding adhesive with separate electrodeposition); records kept and reports submitted.

The Notice of Compliance Status (NOCS) was received on 6/27/2007. Semiannual compliance reports required at 63.3120(a) are to cover the periods 1/1 through 6/30 and 7/1 through 12/31. Reports are due (postmarked) by 7/31 and 1/31, respectively. Since the last inspection in 8/2011 AQD has received four semiannual MACT reports covering the period 7/2011 through 6/2013 on 7/30/2013, 1/30/2013, 7/31/2012 and 1/31/2012. Please see reports M419922982, M419920366, M419918659, and M419917050. Calculations and HAP contents are given for 1/2013 through 6/2013 in the 9/25/2013 submittal.

IX.1 – Compliance – Facility to comply with all applicable requirements of MACT IIII – The relevant provisions are included in the flexible group FG-MACT.

#### MI-ROP-M4199-2010. FGFUELFILL

I.1, VI.1 through 3 – Compliance – VOC emissions limited to 12 tons per 12-month rolling time period (LAER); gasoline usage, gasoline VOC content, and the EPA TANKS program to be used to calculate emission rate; records maintained – In the 2012 MAERS, GM reports less than 1 ton VOC total emitted from FGFUELFILL and FGTANKS with a gasoline throughput of 148,640 gallons. In the ROP deviation report for the first half of 2013, GM reports the VOC content not recorded. AQD considers this deviation minor because the VOC content of the gasoline used by GM to fuel the vehicles is not expected to vary significantly from a standard default VOC content utilized for the TANKS program.

IV.1 and 2, IX.1 and 2 – Compliance – Gasoline tanks of greater than 2,000 gallons equipped with a permanent submerged fill pipe and must meet requirements of either Rule 606 (existing) or Rule 703 (new).

Per R 336.1104(h), GM meets the definition of a dispensing facility: "a location where gasoline is transferred to a motor vehicle tank from a stationary vessel". According to the 9/25/2013 submittal, each of the three gasoline tanks was installed in 1983 (and therefore "new" tanks) and have capacities of 20,000, 20,000, and 12,000 gallons, respectively. Therefore, under Rule 703(1) through (4) each storage tank shall be equipped with a permanently submerged fill pipe, a vapor balance system, a system to ensure a vaportight collection line is connected prior to gasoline loading, and a device to ensure the vaportight collection line closes on disconnection.

A schematic of the gasoline tanks is provided in the 11/4/2003 submittal. The schematic illustrates the submerged fill pipe and the vapor balance system. In the letter to the 11/4/2003 submittal, GM states "[t]he two connections are made with cam-lock fittings, and the valves are manually opened and closed to maintain vapors during the loading process". During the 9/25/2013 inspection, the storage tanks were observed to each have a liquid filling pipe and a corresponding vapor balance pipe side-by-side for tanker connection. The vapor balance lines were closed.

VI.4 and 5, IX.3 – Compliance – For each gasoline tank, records to be maintained on the tank's identification, location, capacity, date of installation/modification, material contained, and vapor pressure – This information is provided in the 9/25/2013 submittal. Since the NSPS Kb revisions of 7/23/1984, the requirement in SC VI.5 only applies to those tanks with a design capacity of 19,800 gallons and greater. Regardless, these gasoline tanks, installed in 1983, predate the 7/23/1984 applicability date of NSPS Kb (60.110b(a)). The tanks do not qualify for regulation under NSPS K or Ka because their capacities are less than 40,000 gallons (60.110 and 60.110a(a)).

VI.6 – Compliance – Notice to AQD to be given prior to the construction, reconstruction, or modification of any volatile organic liquid storage vessel greater than 19,800 gallons – No notices have been received since ROP issuance; AQD is unaware of any such tank that has been constructed, reconstructed, or modified without notice. All tanks currently in use at the tank farm were installed in 1983 (9/25/2013 submittal).

#### MI-ROP-M4199-2010, FGTANKS

III.1 and 2, IX.1 and 2 – Compliance – Gasoline tanks of greater than 2,000 gallons equipped with a permanent submerged fill pipe – The three gasoline tanks are covered under the FGFUELFILL and meet these same conditions in that flexible group.

IV.1.a through f – Compliance – Tanks within the flexible group shall meet either subparagraph (b), (c), (d), (e), (g), or (l) within the Rule 284 exemption. Exemption determinations were not asked of the facility in the information request following the 9/25/2013 inspection. Each gasoline storage tank would be exempt under Rule 284(e), however, these tanks are already permitted under the FGFUELFILL flexible group. The diesel fuel tank is likely exempt under Rule 284(d) for the storage of nos. 1 through 6 fuel oil. The tanks for the automatic transmission fluid, power steering fluid, and antifreeze are likely exempt under the Rule 284(g) exemption for the storage of volatile organic compounds in tanks less than 40,000 gallons with vapor pressures less than 1.5 psia; according to the 9/25/2013 submittal, none of the tanks exceed 20,000 gallons and the vapor pressures listed are less than 1.5 psia.

VI.1 and 2, IX.3 – Compliance – For each tank, records to be maintained on the tank's identification, location, capacity, date of installation/modification, material contained, vapor pressure, and annual emissions – This information is provided in the 9/25/2013 submittal and in the annual MAERS report; for 2012 MAERS, GM reports less than 1 ton VOC total emitted from FGFUELFILL and FGTANKS. Since the NSPS Kb revisions of 7/23/1984, the requirement in SC VI.2 only applies to those tanks with a design capacity of 19,800 gallons and greater. Regardless, all of the tanks in the tank farm were installed in 1983 and therefore predate the 7/23/1984 applicability date of NSPS Kb (60.110b(a)). The tanks do not qualify for regulation under NSPS K or Ka because their capacities are less than 40,000 gallons (60.110 and 60.110a(a)).

VI.3, IX.4 – Compliance – Notice to AQD to be given prior to the construction, reconstruction, or modification of any volatile organic liquid storage vessel greater than 19,800 gallons; a new emission unit may be installed provided it does not represent a minor or significant modification to the ROP – No notices have been received since ROP issuance; AQD is unaware of any such tank that has been constructed, reconstructed, or modified without notice. All tanks currently in use at the tank farm were installed in 1983 (9/25/2013 submittal).

#### MACT EEEE for Non-Gasoline Organic Liquid Distribution

The federal National Emissions Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63, Subparts A and EEEE (MACT EEEE) regulates hazardous air pollutants (HAP) emissions from the surface coating of automobiles and light-duty trucks. GM DHAC is a major source of HAPs. On 6/3/2004, the AQD received the Initial Notification from the facility. At that time, the facility believed the Final Rule would be revised to "not apply to end users of organic liquids such as automobile/light duty-truck assembly plants". AQD's records do not contain evidence that a Notification of Compliance Status (NOCS) was received.

Organic liquid storage tanks are regulated by the standard, where "organic liquid" is defined at 40 CFR 63.2406 as liquid mixture containing 5% by weight organic HAP (as listed in the subpart). Gasoline, distillate oils, hazardous waste, and wastewater are excluded from the definition. Therefore, MACT EEEE does not apply to



GM's three gasoline storage tanks and diesel fuel storage tank. In the 9/27/2011 submittal, GM indicates that none of the tanks in the tank farm are subject to the MACT EEEE regulation.

#### MI-ROP-M4199-2010, FGCOLDCLEANERS

II.1 – Compliance – Less than 5% of any combination of methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform – MSDSs were not requested for this inspection. Since ROP issuance, none of the cold cleaners at the facility have been found using chlorinated cleaning solvents in excess of 5%.

III.1 and 2, IV.1 through 5, VI.1 through 4 – Compliance – Cold cleaner operational requirements including draining parts, closing cover when not in use, posting operating procedures near the cleaner, and storing waste solvents in closed containers; cold cleaner operational requirements are based on the type of cleaner and the vapor pressure of the solvent; information on each cold cleaner to be maintained on file.

One cold cleaner near the final repair booths was observed during the 9/25/2013 inspection. The cover was observed to be closed and a sign posted near or on the cleaner with proper procedures (keep cover closed when not in use, etc.) and the cold cleaner was judged in compliance with SCs IV.3 and VI.3. I judged the air/vapor interface to be less than 10 square feet and therefore in compliance with SC IV.1.a. Information on cleaners currently installed at the plant is provided in the 9/25/2013 submittal. GM lists six cold cleaners utilizing a cleaning solution with a vapor pressure greater than 0.3 psia: these cleaners must have mechanically assisted covers per SC IV.4; this will be confirmed during the next FCE period. GM lists two cold cleaners utilizing a cleaning solution with a vapor pressure greater than 0.6 psia: these cleaners comply with Rule 707(2) by maintaining the ratio of the freeboard height to the width of the cleaner in excess of 0.7 (SC IV.5.a).

IX.1 – Compliance – Additional cold cleaners may be installed without modifying the ROP provided the installation is exempt and does not represent a minor or significant modification to the ROP – According to the information submittal of 9/25/2013, three cold cleaners have been installed since the renewal of the ROP and are exempt under either Rule 281(h) or Rule 285(r)(iv).

#### MI-ROP-M4199-2010, FGRULE287(c)

I.1 through 3, VI.2 – Compliance – Not more than 2000 pounds VOC per month per emission unit, 10 tons per 12-month rolling time period per emission unit, and 30 tons per 12-month rolling time period for all emission units combined; records kept – In the 9/25/2013 submittal, the facility reports that a maintenance spray booth operates under this flexible group. Use is limited. For 6/2013, 1.25 gallons of paint was sprayed resulting in 6.4 pounds of VOC emissions. In the 2012 MAERS, GM reports annual emissions at less than 1 ton.

II.1, VI.1.a – Compliance – Not more than 200 gallons per month, minus water, for each emission unit; records on usage to be maintained – In the 2012 MAERS, GM reports less than 50 gallons used for the entire calendar year.

III.1, IV.1, VI.1.b – Undetermined – The paint spray booth shall have a particulate control system installed and operating properly; records to be maintained on filter replacements – The maintenance spray booth was not observed during the 9/25/2013 inspection and information concerning the particulate control system was not asked of the facility during this inspection period.

IX.1 – Compliance – Additional Rule 287(c) emission units may be installed without modifying the ROP provided the installation is exempt and does not represent a minor or significant modification to the ROP – The maintenance spray booth was installed prior to the renewal date of the ROP.

#### MI-ROP-M4199-2010, FGRULE290

In the 9/25/2013 submittal, GM reports the facility does not operate a Rule 290 emission unit.

#### MI-ROP-M4199-2010, EUHOPPER

I.1, V.1 – Compliance – Visible emissions from the coal unloading system not to exceed 5% opacity on a six-minute average; visible emission observation to be conducted once per semiannual period as the coal unloading system operates and records kept – In the 9/25/2013 submittal, GM provides a visible observation record for 4/2/2012 and for 11/20/2012 (0% opacity measured each record).

IV.1, VI.1 – Compliance – The spray wetting system shall be installed and operating properly; records of maintenance activities – Coal unloading was not occurring at the time of the 9/25/2013 inspection and therefore

the spray wetting system was not observed in operation. Maintenance activities for 2012 are provided in the 9/25/2013 submittal.

IX.1 – Compliance – Comply with applicable requirements of the NSPS Y for coal preparation plants.

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 plant 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.” It is understood by AQD that screening operations at the hopper resize coal occasionally (e.g. break up frozen coal) and therefore appears to meet the definition, because the plant has utilized greater than 200 tons in a given day (e.g. the annual coal throughput in MAERS 2004 was 73,136.2 tons for an average of 200.4 tons per calendar day). At 60.250(b) and 60.254(a), coal processing and conveying equipment is prohibited from emissions which “exhibit 20 percent opacity or greater.” The 5% emission limit for the hopper is more stringent than the NSPS Y standard and the conveying system is enclosed.

MI-ROP-M4199-2010, FGASHSYSTEM

I.1 through 3, V.1 and 2, VI.1 – Compliance – PM emissions from the ash conveyor and the ash silo each limited to 0.01 pounds per 1000 pounds of exhaust gas, calculated on a dry basis; verification of PM emissions by testing upon request of AQD; PM emissions from ash system limited to 10.2 tons per 12-month rolling time period; calculate and record PM emissions – PM tests have not been requested by AQD. In the 9/25/2013 submittal, GM reports a 12-month emission rate of 4 pounds in calendar year 2012.

III.1 – Compliance – Wetted ash transported to disposal sites in covered truck to prevent fugitive emissions – Ash discharge was not in operation during the inspection, however, the AQD has not evidence, by citizen complaints or otherwise, that the facility generates fugitive dust in either the ash loading or transport operations.

IV.1, VI.2 – Compliance – Maintain and operate fabric filters servicing the ash system; records of maintenance and malfunction events for the fabric filters – Maintenance activities for 2012 are provided in the 9/25/2013 submittal.

MI-ROP-M4199-2010, FGPOWERHOUSE

I.1 and 2, III.2, V.1, VI.2 – Compliance – Particulate emissions limited to 0.03 pounds per million Btu heat input and 65.2 tons per year; testing to verify compliance with short-term limit; fabric filter maintenance – Testing was to have been conducted within 180 days of the ROP renewal date (or by 2/12/2011), but the test delayed by mutual agreement between GM and AQD to address irregularities in the stack ports (please see report M419914135); the test delay was reported by GM as an ROP deviation, as required. Testing was conducted on 1/4/2012 and the test report received 3/2/2012 (please see report M419917275) indicates an emission rate of 0.011 pounds PM per million Btu was measured; during the previous test in 2005 an emission rate of 0.0128 pounds PM per million Btu was measured. In the 9/25/2013 submittal, GM provides monthly PM emissions for 7/2012 through 6/2013 totaling 4.9 tons. Inspection, maintenance, and repair activities for the baghouses are given in the 9/25/2013 submittal. Boiler #2 was operating on coal during the inspection and the baghouse cells registered pressure drops ranging from 1.9 to 2.1 inches of water, less than the 6.0 inches maximum for proper operation.

I.3, VI.3, VII.4 – Compliance – Nitrogen oxides emissions not to exceed 0.6 pound per million Btu on a 24-hr average; CEMS shall be used to determine compliance and shall be operating properly; quarterly reports on emissions compliance and CEMS performance; annual RATA – Data from the NOx CEMS was viewed during the 9/25/2013 inspection and measured 0.5117 pound per million Btu. The 9/25/2013 submittal contains NOx CEMS data for 6/21/2013 in 15-minute intervals with individual readings generally ranging from 0.50 to 0.55 pounds NOx per million Btu until the monitor went off-line later in the day. NOx CEMS exceedances and downtime are reported quarterly. Please see reports M419922263, M419921786, M419920422, M419919956, M419918671, M419917684, M419917172, and M419916684 for a review of quarterly reports covering the period 7/2011 through 6/2013. No NOx exceedances are reported. NOx downtime has been deemed to be within an acceptable range. The NOx CEMS successfully completed RATAs on 12/4/2012 and 11/30/2011; please see reports M419920985 and M419917202.

I.4, I.5, II.1, V.2, V.3 – Compliance – Sulfur dioxide emissions not to exceed 1.1 pound per million Btu on a 24-hour average nor 420 ppm corrected to 50% excess air; sulfur in fuel shall not exceed 0.7 percent sulfur by weight; SO2 test upon request of AQD – Coal sampling is conducted to determine compliance with all SO2 limits; GM has not reported any deviations in the FCE period. GM’s monthly coal sampling show the following

sulfur contents (% S as received) for 1/2013 through 6/2013, respectively: 0.53, 0.66, 0.58, 0.58, 0.59, 0.49. The vendor analysis of 1/30/2012 shows a sulfur content (% S as received) of 0.42. Coal samples taken by AQD on 1/4/2012 during the PM test and on 9/25/2013 during the inspection measured sulfur contents (% S as received) of 0.555 and 0.635, respectively; these percentages correspond to sulfur dioxide emissions of 1.01 and 1.11 pounds SO<sub>2</sub> per million Btu, respectively.

I.6, V.4, VI.4 – Compliance – Volatile organic compound emissions not to exceed 2.4 pounds per hour; testing upon request of AQD; calculation of emissions – GM has not been requested to conduct a performance test. In the 9/25/2013 submittal, GM uses an emission factor of 0.05 pounds per ton of coal from the EPA's FIRE 6.25 database of emission factors, and this value is also listed in the AP-42, Table 1.1-19 for non-methane organic compound emissions from a spreader stoker boiler. GM uses an emission factor of 5.5 pounds per million cubic feet of natural gas combusted from the FIRE 6.25 database, and this value is also listed in the AP-42, Table 1.4-2. For the period 7/2013 through 6/2013, the maximum VOC emissions are reported at 0.29 pounds per hour (1/2013 and 2/2013) while on coal.

I.7, VI.5, VII.5 – Compliance – Visible emissions not to exceed 10% over a six-minute average; COMS shall be used to determine compliance and shall be operating properly; quarterly reports on emissions compliance and COMS performance; annual COMS audit – Data from the COMS was viewed during the 9/25/2013 inspection and visible emissions measured 3.29%. The 9/25/2013 submittal contains COMS data for 6/21/2013 in 6-minute intervals with individual readings between 3% and 4% except during a period of calibration. Visible emissions exceedances and COMS downtime are reported quarterly. Please see reports M419922263, M419921786, M419920422, M419919956, M419918671, M419917684, M419917172, and M419916684 for a review of quarterly reports covering the period 7/2011 through 6/2013. No visible emissions exceedances are reported. COMS downtime has been deemed to be within an acceptable range. Though one annual COMS audit is required by the ROP, GM runs a COMS audit during each quarter and submits the results with the CEMS/COMS quarterly report.

III.1 and 4, VI.1 and 6 – Compliance – Heat input for all boilers combined not to exceed 4,350,000 million Btu per year; records of fuel consumption; when combusting natural gas it must be of pipeline quality; when combusting coal it must be of heating value greater than 11,000 Btu per pound as a gross calorific value determined on a moist, mineral matter free basis; Boiler #3 must be equipped with Low-NOx burners prior to natural gas combustion.

According to the 9/25/2013 submittal, the boilerhouse combusted 31,379 tons of coal and 29.62 million cubic feet of natural gas in the period 7/2012 through 6/2013; at approximately 11,000 Btu per pound of coal and 1,000 Btu per cubic foot of natural gas, the heat input equates to about 720,000 million Btu in the 12-month period. Daily fuel tracking for 1/2013 through 6/2013 is also given in the 9/25/2013 submittal. The natural gas burners are not installed on Boiler #3; all natural gas combustion occurs in Boiler #1. In the 9/26/2007 submittal, GM provides an email indicating the gas is pipeline quality and contains 4 ppm hydrogen sulfide per hundred cubic foot.

Based on coal sampling performed by the plant and by the vendor, the Btu content is in excess of 11,000 Btu per pound, even on the conservative "as received" measure (the basis for compliance is a "moist, mineral matter free" measure); the value from the vendor is 12,420 Btu per pound on a moist (as received), mineral matter free basis. Coal samples taken by AQD on 1/4/2012 during the PM test and on 9/25/2013 during the inspection measured heat contents at 12,116 Btu per pound and 12,650 Btu per pound, respectively, on a moist (as received), mineral matter free basis.

III.3, VI.7 through 9, VIII.6, IX.1 – Compliance – Comply with CAM requirements for PM using the COMS as a parametric monitor; 2 consecutive 1-hr block averages above 10% is considered an excursion from the PM limit – No CAM deviations have been reported since the issuance of the ROP renewal.

VIII.1 – Compliance – Powerhouse stack shall emit vertically upwards at a height no less than 250 feet above ground and with a maximum diameter of 120 inches. This stack was observed during the inspection of 9/25/2013 and judged in compliance with these requirements, though measurements were not performed.

#### 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. GM DHAC is a major source of HAPs. Please see report M419922989.

On 1/31/2013, the EPA issued revised standards within MACT DDDDD (78 FR 7138) and on 5/30/2013 the AQD received GM's Initial Notification for the revised standard. Per 40 CFR 63.7545(b), the Initial Notification must be submitted within 120 days from 1/31/2013, or by 5/31/2013; therefore, the AQD considers the submittal to be timely.

MACT DDDDD applies to industrial boilers, commercial boilers, institutional boilers, and process heaters located at Section 112 major sources (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." Each of the four boilers produces steam for use at the plant and therefore meets the definition of an "industrial boiler" under the standard. Construction of each boiler commenced prior to 6/4/2010 and therefore each is considered an "existing" industrial boiler (40 CFR 63.7490(d)). Per the Initial Notification, each boiler is a coal-fired spreader stoker design and therefore falls within the subcategory "[s]tokers designed to burn coal/solid fossil fuel" at 40 CFR 63.7499(b). 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, the four boilers combine to form an affected source under MACT DDDDD. Because it also has the capability of combusting natural gas, Boiler #1 may also be classified as a "[u]nit designed to burn solid fossil fuel" subcategory under 40 CFR 63.7499(p), but the capability does not appear to preclude Boiler #1 from classification as a stoker unit.

Compliance with MACT DDDDD is required not later than 1/31/2016 for existing boilers and process heaters (40 CFR 63.7495(b)). Aside from the submittal of an Initial Notification, the standards are not yet enforceable.

MI-ROP-M4199-2010, FGTEMPBOILERS Conditions

In the 9/25/2013 submittal, GM reports the facility did not utilize a temporary boiler in 2012 or (to date) in 2013. A temporary boiler was last utilized from 6/13/2011 through 6/24/2011 and is no longer on-site.

**Conclusion:**

At the time of completion of the investigation the facility, though in compliance with the majority, is not in compliance with all of its applicable requirements. A Violation Notice was issued to GM DHAC for noncompliance with the ROP at SCs III.2, VI.4, and IX.2 of EUTOPCOATSYSTEM, with R 336.1910, and with 40 CFR 64.7(c) and (d)(1). The citations address certain deviations at the topcoat thermal oxidizers reported by GM DHAC in the ROP Semiannual Deviation reports covering the periods 7/1/2012 through 12/31/2012 and 1/1/2013 through 6/30/2013, as described above in this report and in AQD report M419923242. GM DHAC's responses to the deviations appear sufficient to address the violations cited, however, the facility is considered not in compliance until subsequent reports demonstrate compliance has been continually achieved following the corrective measures.

NAME Jeff Komate

DATE 1/9/2014

SUPERVISOR W.M.