



DEQ-AQD

MAR 14 2014

Saginaw Bay

March 13, 2014

Kathy Brewer, Environmental Quality Analyst  
 Air Quality Division, Saginaw Bay District Office  
 Michigan Department of Environmental Quality (MDEQ)  
 401 Ketchum Street, Suite B  
 Bay City, MI 48708

Re: Additional Evaluation of Potential Abatement System and Permit Modifications  
 Permit Number: MI-ROP-B1991-2009a

Dear Ms. Brewer,

General Motors LLC – Saginaw Metal Casting Operations (GM SMCO) submits the following review of historical planned maintenance activities, review of process and abatement system operations and schedule of compliance to evaluate potential abatement system and permit modifications to the Michigan Department of Environmental Quality, Air Quality Department (MDEQ AQD). The MDEQ AQD issued a Letter dated January 23, 2014 to the facility following the submittal of the compliance evaluation of particulate matter (PM) and volatile organic compounds (VOC) emission rates from various exhaust stacks associated with the with Mold Line 6 operations. GM SMCO's initial response to the MDEQ AQD Letter was submitted January 27, 2014. The enclosed is a follow-up to GM's letter of January 27<sup>th</sup>, and is a summary of the actions that have been taken to date and that are proposed to be taken to correct and prevent a reoccurrence.

First, in an effort to identify a root cause of the variation from allowable emission rates, GM SMCO reviewed historical planned maintenance activities as presented in Table 3 (Compliance Plan and Schedule of Expected Completion Dates) of the GM letter dated January 27, 2014. Summarized below are the historical planned maintenance activities that were conducted across the period of January 2012 through November 4, 2013. These activities were verbally reviewed during the January 24, 2014 meeting with representatives from the Michigan Department, Air Quality Division Saginaw Bay District Offices (Kathy Brewer, Environmental Quality Analyst and Chris Hare, District Supervisor) and General Motors (Renee Mietz, SMCO Sr. Environmental Engineer and Jennifer Tegen, GECS Facility Air Compliance & Permit).

Table 1 Review of Historical Planned Maintenance Activities

Emission Unit	Maintenance Activity	Quantity Conducted	Follow-up Action & Date
EU-6ML-DC-67	Predictive <sup>1</sup>	111	1. Electrical connection, 4/2/2012 2. Mist eliminator drain blocked, 5/21/2012 3. Bearing replaced, 5/28/2012 4. Differential Pressure tube plugged, 8/15/2012 5. Differential Pressure tube plugged, 8/21/2012 6. Differential Pressure tube plugged, 8/22/2012 7. Sandblast rotor, 9/10/2012 8. Balance motor following sandblasting, 9/20/2012 9. Housing hole repair, 11/19/2012 10. Weld cracks on housing, 1/2/2013 11. Replace Diff Press Tubing, 2/17/2013 12. Fabricate and install flow straightening vanes, 8/5/2013 13. Clear partially plugged spray nozzles, 8/6/2013 14. General Housekeeping, clean deck 8/23/2013 15. Replace grease in bearing with Molybdenum based grease, 10/7/2013
	Preventative <sup>2</sup>	88	
	Corrective	15	

**Table 1 Review of Historical Planned Maintenance Activities, continued**

Emission Unit	Maintenance Activity	Quantity Conducted	Follow-up Action & Date	
EU-6ML-EF-04	Preventative	43	1. Repair isolation boot – 2 orders, 10/30/2012 2. Rebuild housing and bottom – 3 orders, 11/19/2012 3. Change belts, 11/26/2012 4. Gauge belts and sheaves for wear, 1/9/2013 5. Sandblast rotor, 4/29/2013 6. Balance motor following sandblasting, 4/29/2013	
	Corrective	9		
EU-6ML-GV-02	Preventative	41		1. Replace platform grating, 4/2/2012 2. Recirculation pump (furnace), 9/18/2012 3. Move control panel, 1/24/2013 4. Replace pressure switches on natural gas for high/low fire – 2 orders, 12/9/2012 5. Recirculating cooling pump blower filter changed, 9/27/2013
	Corrective	6		

Notes 1. Predictive maintenance includes thermal scan and vibration analysis.  
 2. Preventative Maintenance Activity descriptions are summarized in Table 1A.

**Table 1A Description of Preventive Maintenance Activities**

Mechanical	Electrical	Cleaning
Check ductwork, scrubbing section, drains, bearings, etc. Or if appropriate drop out activity, valves, chutes etc., containers, bags.	Interlock checks, Check fans, belts, sheaves, bag pulse units, etc.	Clean fan housing, ductwork, and scrubbing sections, cartridge change outs, hopper and area cleaning.

The review of corrective actions, which were completed in response to findings made during predictive and preventative maintenance activities, did not identify any potential impacts on the compliance evaluation of PM and VOC emission rates on the various Mold Line 6 operations.

Second, in an effort to identify a root cause of the variation from allowable emission rates, GM SMCO has conducted a review of current process and abatement system operations as presented in Table 3 (Compliance Plan and Schedule of Expected Completion Dates) of the GM Letter dated January 27, 2014. The review identified no major impacts on the compliance evaluation of PM and VOC emission rates on the various Mold Line 6 operations. The review is summarized below.

**Table 2 Review of Process and Abatement System Operations**

Emission Unit	Date	Description of Activity
EU-6ML-DC-67	12-16-13	Pressure drop reading of the magnahelic noted above and outside of required operating range. The collector was on during cleaning and maintenance activities and the casting process was not in operation, the device was replaced. No abnormal emissions / opacity was noted. Upon replacement reading at 5.1 inches of water, within range specified in the Malfunction Abatement Plan.
	12-17-13	Inspected nozzles for debris – good, no debris, differential pressure 5.1 inches of water, water flow at 96 gallons per minute.
	12-19-13	Inspected interior while collector was down, all drains open, mist collectors free of debris, nozzles clean.
	12-19-13	Inspected castline looking for areas of recent cleaning, checked dampers, dropout/cleanout boxes for debris or blockage, no anomalies found.
	12-19-13	Canvased operators, skilled trades and supervisors as to any work conducted on the castline or the equipment serviced by EU-6ML-DC-67. No major work or malfunctions on abatement equipment, several castline shaker flights were routinely replaced, however no anomalies.
	12-20-13	Investigated any process related quality corrective actions that may have modified the sand, resin, or process parameters that could impact emissions. No process changes to any parameters.
	1-3-14	Researched maintenance records for preventative, predictive and corrective actions that pertain to the unit.
	2-3-14	Contacted an Engineering firm to investigate the feasibility of replacing EU-6ML-DC-67 with an existing wet collector that is adjacent to the system.

**Table 2 Review of Process and Abatement System Operations, Continued**

Emission Unit	Date	Description of Activity
EU-6ML-EF-04	12-19-13	Investigated all pickup points to exhaust fan. Two areas noted as potential minor impact to air emissions, both at the overpour station. First item, housekeeping of sand on the deck above leading to sand/clay falling into exhaust. Second item, ventilation too close to sand mold.
	1-3-14	Contacted castline maintenance to repair leaks on sand/clay system.
	1-3-14	Contacted castline team to clean sand/clay on the deck above the overpour station.
	1-3-14	Contacted an Engineering firm to work on overpour station to modify the ventilation by raising the pickup point for the exhaust so that it does not have any opportunity to contact the sand mold surface.
	1-3-14	Researched maintenance records for preventative, predictive and corrective actions that pertain to the unit.
	1-10-14	Verified that deck above overpour had been cleaned, minor leaks present, major leaks have been addressed. Contacted maintenance on repairs on the small leaks, contacted castline team to set up a housekeeping schedule for this area.
EU-6ML-GV-02	1-3-14	Researched maintenance records for preventative, predictive and corrective actions that pertain to the unit.

Third, based upon the historical planned maintenance activities and the review of process and abatement system operations, GM SMCO provides the following schedule of compliance to evaluate potential abatement system and permit modification requirements, necessary to correct and prevent any potential reoccurrence.

**Table 3 Compliance Plan and Upcoming Schedule of Expected Completion Dates**

Process Description	Rule / MI-ROP-B1991-2009a Permit Condition	Proposed Action	Schedule
EU-6ML-DC-67 #6ML Aluminum degate (Cells #1-#5, Unit #9 scalping screen in basement), controlled by wet collector	(R336.1331) 1.1 lbs PM10/hr  0.01 lbs PM10/1000 lbs exhaust gas on a dry gas basis	1. System performance testing of particulate matter on EU-6ML-DC-67 at three (3) varying water flow rates by a contracted Stack Testing consultant.	1. 4/30/2014
		2. Contract an engineering firm to investigate and report on the feasibility of replacing EU-6ML-DC-67 with a currently idle, adjacent wet collection system. Analysis includes but is not limited to evaluating the structural integrity of the idled system, identifying modifications, maintenance activities and updates required meet required emission rates.	2. 5/16/2014
		3. Develop and submit permit modification request based upon evaluation of system performance testing and contracted feasibility analysis of system replacement.	3. 5/16/2014
		4. Implement System, Operational, Abatement and / or Permit Modifications as Required.	4. Upon receipt of permit.
		5. Submit Test Protocol, 30 day notification & MDEQ AQD Approval, as deemed necessary.	5. Based upon implementation of elected operational, abatement and / or permit modifications, as required.
		6. Conduct Compliance Testing, as deemed applicable.	6. After 30 day notification & MDEQ Approval of Test Protocol.
		7. Submit Complete Test Report, as deemed applicable.	7. Within 60 days of test completion.

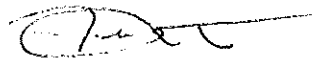
Table 3 Compliance Plan and Upcoming Schedule of Expected Completion Dates, continued

Process Description	Rule / MI-ROP-B1991-2009a Permit Condition	Proposed Action	Schedule
EU-6ML-EF-04 #6ML mold conveyor (Basement cooling conveyor, 1 <sup>st</sup> floor conveyor)	(R336.1331) 11.3 lbs PM10/hr	<ol style="list-style-type: none"> <li>1. Develop and submit permit modification request</li> <li>2. Implement System, Operational, Abatement and / or Permit Modifications as Required.</li> <li>3. Submit Test Protocol, 30 day notification &amp; MDEQ AQD Approval, as deemed applicable.</li> <li>4. Conduct Compliance Testing, as deemed applicable.</li> <li>5. Submit Complete Test Report, as deemed applicable.</li> </ol>	<ol style="list-style-type: none"> <li>1. 5/16/2014</li> <li>2. Upon receipt of permit.</li> <li>3. Based upon implementation of elected operational, abatement and / or permit modifications, as required.</li> <li>4. After 30 day notification &amp; MDEQ Approval of Test Protocol.</li> <li>5. Within 60 days of test completion.</li> </ol>
EU-6ML-GV-02 Aluminum Reverberatory Furnace #2 (East)	<u>Flux</u> (R336.1331) 15.1 lbs PM10/hr  0.04 lbs PM10/1000 lbs exhaust gas on a dry gas basis  (336.1201 & 1205(3)) 0.23 lbs VOC/hr  <u>Dross</u> (336.1201 & 1205(3)) 0.23 lbs VOC/hr	<ol style="list-style-type: none"> <li>1. Develop and submit permit modification request</li> <li>2. Implement System, Operational, Abatement and / or Permit Modifications as Required.</li> <li>3. Submit Test Protocol, 30 day notification &amp; MDEQ AQD Approval, as deemed applicable.</li> <li>4. Conduct Compliance Testing, as deemed applicable.</li> <li>5. Submit Complete Test Report, as deemed applicable.</li> </ol>	<ol style="list-style-type: none"> <li>1. 5/16/2014</li> <li>2. Upon receipt of permit.</li> <li>3. Based upon implementation of elected operational, abatement and / or permit modifications, as required.</li> <li>4. After 30 day notification &amp; MDEQ Approval of Test Protocol.</li> <li>5. Within 60 days of test completion.</li> </ol>

GM SMCO believes that carrying out the steps identified above will address and prevent the potential reoccurrence of the variation from allowable PM10 and VOC emission rates associated with EU-6ML-DC-67, EU-6ML-EF-04 and EU-6ML-GV-02 under MI-ROP-B1991-2009a.

GM looks forward to our continued work with the Agency to resolve this matter. Please contact Renee Mietz, at (989) 757-1566, or by e-mail at renee.mietz@gm.com if you have questions about this information.

Sincerely  
 On Behalf of General Motors,



John Lancaster  
Plant Manager  
GM Saginaw Metal Casting Operations

cc: C. Hare, District Supervisor MDEQ AQD, Saginaw Bay District Office  
K. Wilson, GM GECS Environmental Group Manager MI Region I  
R. Mietz, GM GECS SMCO Environmental Engineer  
J. Tegen, GM GECS FES Facility Air Compliance & Permit



MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT  
AIR QUALITY DIVISION

**RENEWABLE OPERATING PERMIT  
REPORT CERTIFICATION**

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Natural Resources and Environment, Air Quality Division upon request.

Source Name General Motors - Saginaw Metal Casting Operations County Saginaw

Source Address 1629 N. Washington City Saginaw

AQD Source ID (SRN) B1991 ROP No. MI-ROP-B1991-2009a ROP Section No. 1&2

Please check the appropriate box(es):

**Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From \_\_\_\_\_ To \_\_\_\_\_

1. During the entire reporting period, this source was in compliance with ALL terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, EXCEPT for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

**Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From \_\_\_\_\_ To \_\_\_\_\_

1. During the entire reporting period, ALL monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, EXCEPT for the deviations identified on the enclosed deviation report(s).

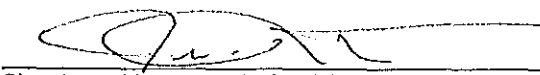
**Other Report Certification**

Reporting period (provide inclusive dates): From 3-14-14 To 3-14-14

Additional monitoring reports or other applicable documents required by the ROP are attached as described:  
Additional Evaluation of Potential Abatement System and Permit Modifications

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

<u>John Lancaster</u>	<u>Plant Manager</u>	<u>989-757-1432</u>
Name of Responsible Official (print or type)	Title	Phone Number
		<u>3/14/14</u>
Signature of Responsible Official		Date

