



**CONESTOGA-ROVERS  
& ASSOCIATES**

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August 27, 2010

Mr. Nate Nemani  
Project Manager  
U.S. EPA, Region 5  
Waste, Pesticide and Toxins Division  
77 West Jackson Boulevard DW-8J  
Chicago, Illinois  
U.S.A. 60604-3590

Dear Mr. Nemani:

Re: 2009 CA 750 Environmental Indicator Annual Monitoring Results  
MLC  
Nodular Facility - Saginaw, Michigan

As part of a 363 sale under Chapter 11 of the United States bankruptcy code, a new company (General Motors Company) was formed by selling a substantial portion of General Motors Corporation assets to the General Motors Company (now changed in name to General Motors, LLC or GM LLC) on July 10, 2009. A portion of the Saginaw Metal Casting Operations (SMCO) Facility is being transferred to General Motors, LLC as part of that sale and a portion is being retained by the old General Motors Corporation, newly named Motors Liquidation Company or MLC. This letter summarizes the EI monitoring activities related to the Nodular Facility that is owned and operated by MLC.

The annual MLC Environmental Indicators (EI) monitoring was completed during the week of November 30, 2009.

The 2009 EI monitoring program was revised in accordance with the General Motors Corporation letter to U.S. EPA dated June 3, 2009; these changes included the following:

- Removal of analysis for Total Chromium since Hexavalent Chromium was also being monitored and Total Chromium does not have a GSI criteria
- Removal of analysis for Vanadium at most locations

Revisions to the 2009 EI monitoring program also included the analysis of Cyanide (amenable) at monitoring wells MW-04765, MW-04257, MW-04051, MW-04757, MW-04250R, and MW-03945 as well as Cyanide (total) per U.S. EPA's and Michigan Department of Natural Resources – Environment 's (MDNRE) request.



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Figure 1 presents databoxes for all MLC EI locations showing all data up to and including the 2009 EI results. As indicated on Figure 1:

- All analysis for Total and Amenable Cyanide were rejected
- Ammonia was reported above the lowest applicable screening criterion (the GSI criterion of 2,120  $\mu\text{g/L}$ ) in five monitoring wells ranging in concentration from 2,140  $\mu\text{g/L}$  to 8,660  $\mu\text{g/L}$ .
- Mercury was reported above the lowest applicable screening criterion (the GSI criterion of 0.0013  $\mu\text{g/L}$ ) at MW-04250R at an estimated concentration of 0.0027  $\mu\text{g/L}$ . Please note that the two other samples analyzed for mercury reported rejected values.
- pH was reported above the acceptable range (6.5 to 8.5) at MW-04250R at 10.67 and below the acceptable range at MW-04051 at 6.05.

The GSI criterion for Mercury (0.0013  $\mu\text{g/L}$ ) is based on the Great Lakes Water Quality Initiative wildlife value which was derived using conservative food web models to protect wildlife that might eat fish and drink water from potentially affected surface water bodies. However, benthic invertebrates are the aquatic organisms that would experience the greatest exposure at the GSI. As stated by EPA in their 2008 ECO Update, "Because the AWQC [Ambient Water Quality Criteria] are considered protective of benthic organisms, they are suitable for evaluating transition zone organisms (EPA 2008, ECO Update Groundwater Forum Issue Paper, EPA-540-R-06-072). Comparing the groundwater concentrations to the chronic AWQC for Mercury, 0.77  $\mu\text{g/L}$ , shows that the estimated concentration detected in monitoring well MW-04250R (0.0027  $\mu\text{g/L}$ ) is well below the criterion. Furthermore, the range of Mercury concentrations reported to be toxic to invertebrates in chronic exposures is 1.3 to 12  $\mu\text{g/L}$  (Canadian Council of Ministers of the Environment 2003, Canadian water quality guidelines for the protection of aquatic life: Inorganic Mercury and Methylmercury), which is well above the detected concentrations at SMCO. Therefore, adverse effects to benthic organisms exposed at the GSI concentration in the Saginaw River would not be expected. In addition, a considerable portion of the Mercury detected in the EI monitoring wells may merely represent background conditions. According to data collected by the National Atmospheric Deposition Program (<http://nadp.sws.uiuc.edu/mdn/>), background concentrations of Mercury in precipitation from Michigan and the surrounding states ranged from 0.008 to 0.01  $\mu\text{g/L}$  in 2008. Mercury will continue to be monitored. The chemist will work with the lab to monitor the sample data as they are processed and explore procedures to prevent interferences (rejected data).

Total and Amenable Cyanide will continue to be monitored. The chemist will work with the lab to monitor the sample data as they are processed and explore procedures to prevent interferences (rejected data).



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Low pH has not been identified as a Site issue, therefore, the low pH found in MW-04051, is not expected to be attributable to the Site.

In summary, the results of the 2009 EI monitoring results are consistent or lower than the data evaluated in the RCRA CA725 & CA750 Environmental Indicators Supporting Documentation dated September 17, 2003, therefore, the EIs continue to be satisfied.

Based on the results of the annual EI monitoring conducted in 2009, MLC is proposing to modify the EI monitoring program for 2010. Table 1 presents the EI monitoring program and proposed modifications for the 2010 EI sampling event for your review. As indicated on Table 1, MLC is proposing that the following parameters be removed from the 2010 EI monitoring program since the most recent four consecutive rounds reported concentrations below the screening criteria:

- Vanadium from all EI monitoring wells
- Hexavalent Chromium at MW-04864

Should you have any questions, please do not hesitate to call.

Yours truly,

Conestoga-Rovers & Associates

Michael R. Tomka

MT/ev/58502-1

Encl.

cc: Doug Wagner, MLC



MW-04755	1/29/2004	1/21/2005	10/8/2005	9/12/2007	11/12/2008	12/3/2009
Metals	-	-	-	-	-	-
Chromium	-	5.0 U	-	4.3 J	5 U/2.1 J	-
Chromium VI (hexavalent)	-	-	-	50 U	R/R	9 J
Vanadium	-	10.0 U	-	5.5 J	10 U/6.1 J	10.0 U
Wet	-	-	-	-	-	-
Ammonia	-	9000	-	1150	9450/9030	8650
Cyanide (amenable)	-	-	-	-	-	R
Cyanide (total)	-	-	-	3 J	4 J/10	R
pH	7.11	7.02	6.73	7.44	7.02/6.61 J/6.90 J	7.34

MW-04854	11/16/1998	7/18/2000	1/9/2003	1/29/2004	1/20/2005	10/7/2005	8/31/2006	9/12/2007	11/12/2008	12/2/2009
Metals	-	-	-	-	-	-	-	-	-	-
Chromium	15 J	25.9	-	-	11.1	-	20.2	22.2 J/437 J	8.8 J	-
Chromium VI (hexavalent)	-	10 U	-	-	-	-	50 UJ	50 U/50 U	R	50 U
Vanadium	24 J	35	-	-	5.3 J	-	10 U	3.1 J/7.1 J	10 U	-
Wet	-	-	-	-	-	-	-	-	-	-
Ammonia	-	-	6500	-	2950	-	4100	4050/4480	2370	2140
pH	10.2	11.17	11.08/11.08	10.15	8.25	8.78	7.78	7.93/8.37	7.81/7.50 J	7.17

MW-04257	1/29/2004	1/24/2005	9/12/2007	11/12/2008	12/3/2009
Metals	-	-	-	-	-
Chromium	-	5.0 U	150	116 J	-
Chromium VI (hexavalent)	-	-	50 U	R	5 J
Vanadium	-	10.0 U	10 U	10 U	10.0 U
Wet	-	-	-	-	-
Ammonia	-	990	-	1170	1070
Cyanide (amenable)	-	-	-	-	R
Cyanide (total)	-	-	10 U	10 U	R
pH	6.90	6.79	7.27	7.13 J/7.15	6.54

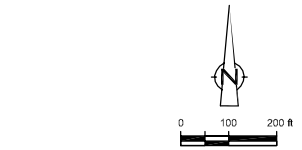
MW-04051	1/29/2004	1/21/2005	10/8/2005	9/14/2007	11/5/2008	12/3/2009
Metals	-	-	-	-	-	-
Chromium	-	5.0 U	-	5 U	5 U	-
Chromium VI (hexavalent)	-	-	-	50 UJ	50 UJ	8 J
Mercury	-	-	-	0.0007 J	0.001 U	R
Vanadium	-	10.0 U	-	10 U	10 U	10.0 U
Wet	-	-	-	-	-	-
Ammonia	-	3450	-	-	6330	6170
Cyanide (amenable)	-	-	-	-	-	R
Cyanide (total)	-	-	-	4 J	10 U	R
pH	7.48	6.53	6.69	7.30	6.76/6.98 J	6.05

MW-03945	1/29/2004	1/21/2005	10/8/2005	9/14/2007	11/5/2008	12/3/2009
Metals	-	-	-	-	-	-
Chromium	-	5.0 U/5.0 U	-	5 U	5 U	-
Chromium VI (hexavalent)	-	-	-	50 UJ	50 UJ	8 J/8 J
Mercury	-	-	-	0.0008 J	0.001 U	R/R
Vanadium	-	10.0 U/10.0 U	-	10 U	10 U	10.0 U/10.0 U
Wet	-	-	-	-	-	-
Ammonia	-	7700/7700	-	-	8850	7650/8040
Cyanide (amenable)	-	-	-	-	-	R/R
Cyanide (total)	-	-	-	6 J	2 J	R/R
pH	7.31	6.32	6.57	7.22	6.69/6.87 J	6.69

MW-04250	12/4/1998	7/18/2000
Metals	-	-
Chromium	189/173	28
Chromium VI (hexavalent)	-	10 U
Mercury	0.21/0.2 U	-
Vanadium	89/84	33
Wet	-	-
Cyanide (total)	10 U/10 U	7

MW-04250R	9/28/2005	10/7/2005	8/31/2006	9/13/2007	11/5/2008	12/17/2008	12/3/2009
Metals	-	-	-	-	-	-	-
Chromium	5.5	-	2.2 J/2.2 J	5 U	5 U/5 U	-	-
Chromium VI (hexavalent)	-	-	20 J/20 J	50 U	50 U/50 UJ	-	50 UJ
Mercury	-	-	0.0041/0.0043	0.0052	0.0047/0.0042	-	0.0027 J
Vanadium	13.7	-	6.8 J/6.1 J	10 U	10 U/10 U	-	10.0 U
Wet	-	-	-	-	-	-	-
Ammonia	-	-	-	-	-	4080	4330
Cyanide (amenable)	-	-	-	-	-	-	R
Cyanide (total)	-	-	30 J/140 J	10 U	10 U/10 U	-	R
pH	-	10.48	11.16/11.12	10.90	10.76 J/10.85 J	10.98	10.67

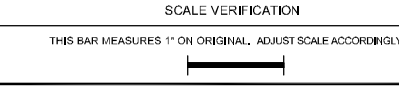
MW-04757	11/16/1998	7/18/2000	1/5/2003	1/25/2005	8/31/2006	9/12/2007	11/12/2008	12/2/2009
Metals	-	-	-	-	-	-	-	-
Chromium	126 J	97.1	-	5.0 U	5 U	5 U	11.5 J	-
Chromium VI (hexavalent)	-	10 U	-	50 UJ	50 U	50 U	R	50 U
Vanadium	54 J	36.3	-	10.0 U	10 U	10 U	10 U	-
Wet	-	-	-	-	-	-	-	-
Ammonia	-	-	700	-	-	-	170	178
Cyanide (amenable)	-	-	-	-	-	-	-	10 U
Cyanide (total)	10 U	7	-	-	8 J	10 U	10	10 U



LEGEND	
A--	INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER
MW-04755	INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER
*	UNABLE TO LOCATE
SAMPLE LOCATION	
SAMPLE DATE	
MW-04755	1/21/2005
Metals	-
Chromium Total	5.0 U
Chromium VI (hexavalent)	4.3 J
Vanadium	10.0 U
Wet	-
Ammonia	9000
Cyanide (total)	11.50
pH	7.44
PARAMETER	
	EXCEEDS CRITERIA

MICHIGAN PART 201 CRITERIA		
Fraction	Parameter	Lowest Criteria (ug/L or SU for pH)
METAL	Chromium (total)	100 A
METAL	Chromium VI	11 D
METAL	Mercury	0.0013 D
METAL	Vanadium	12 D
WET	Ammonia	2120 D
WET	Cyanide (total)	3.2 D
WET	Cyanide (amenable)	3.2 D
WET	pH	6.5 - 8.5 A
Chromium (total) and Chromium VI (hexavalent) Criteria		
A: Industrial Commercial III and IV Drinking Water Criteria		
B: Groundwater Contact Criteria		
C: Industrial Commercial III and IV Groundwater Volatile Organic Criteria		
D: GSI Criteria		

- NOTES:
- NOTE THAT THE UNIONIZED FRACTION OF AMMONIA IS A FUNCTION OF THE WATER BODY CLASSIFICATION (WARM WATER OR COLD WATER), PH AND TEMPERATURE OF THE RECEIVING WATER AND IS ESTIMATED AS A PERCENT OF THE TOTAL AMMONIA. THE SAGINAW RIVER HAS BEEN CLASSIFIED AS WARM WATER. THE GENERIC GSI CRITERION (CHROMIUM) FOR UNIONIZED AMMONIA IS 35 ug/L FOR WARM WATER SURFACE WATER (SEE FOOTNOTE CC OF THE PART 201 CLEANUP CRITERIA PART 215 REBASED SCREENING LEVELS AND OPERATIONAL MONITORING NO. 1 DATED DECEMBER 18, 2004). THE GENERIC ACUTE TOXICITY CRITERION FOR UNIONIZED AMMONIA IS 420 ug/L (PROVIDED TO CRA BY MDEQ ON MARCH 2, 2007 REGARDING A NEARBY FACILITY).
  - BASED ON DATA AVAILABLE FOR THE SAGINAW RIVER FROM USGS, THE AVERAGE (1967-2000) TEMPERATURE AND PH FOR THE SAGINAW RIVER DURING THE FALL MONTHS (SEPTEMBER) ARE 12.3 DEGREES CELSIUS AND 8.5 L UNITS, RESPECTIVELY. (SOURCE: USGS SOURCE: HTTP://WWW.WATERSDATA.USGS.GOV/WWW/NOVA). THEREFORE, FOR A PH OF 8 AND A TEMPERATURE OF 12.3 DEGREES CELSIUS, APPROXIMATELY 2.5 PERCENT OF THE TOTAL AMMONIA WILL BE PRESENT IN THE UNIONIZED FORM RESULTING IN A TOTAL AMMONIA GENERIC GSI CRITERION (CHROMIUM) OF 2.125 ug/L (8.95 ug/L X 0.25).
  - BEFORE, FOR A PH OF 8 AND A TEMPERATURE OF 12.3 DEGREES CELSIUS, APPROXIMATELY 2.5 PERCENT OF THE TOTAL AMMONIA WILL BE PRESENT IN THE UNIONIZED FORM OR A MAXIMUM OF 212.5 ug/L (8.95 ug/L X 0.25) FOR THE NOVEMBER 2009 EVENT.
  - NOTE THAT THE GSI CRITERIA DEVELOPED FOR TOTAL CHROMIUM WAS DEVELOPED FROM THE FINAL CHROMIUM VALUE CALCULATION FOR TRIVALENT CHROMIUM AS SPECIFIED IN THE MDEQ GUIDANCE. TOTAL CHROMIUM RESULTS WERE COMPARED TO TRIVALENT CHROMIUM CRITERIA SINCE EXTENSIVE SITE DATA SUPPORTS THAT THE MAJORITY OF THE TOTAL CHROMIUM IS TRIVALENT CHROMIUM. HEXAVALENT CHROMIUM IS STILL SAMPLED AT NUMEROUS LOCATIONS AND IS COMPARED TO HEXAVALENT CHROMIUM CRITERIA.



# MLC NODULAR FACILITY

## SAGINAW, MICHIGAN

### SUMMARY OF EI LOCATIONS AND RESULTS (1998 - 2009)

Source Reference:			
Project Manager:	Reviewed By:	Date:	
M.T.	I.R.	AUGUST 2010	
Scale:	Project N°:	Report N°:	Drawing N°:
1"=400'	58502-T09	NEMA001	figure 1

**TABLE 1**  
**EI MONITORING PROGRAM AND PROPOSED MODIFICATIONS**  
**NODULAR FACILITY, SAGINAW, MICHIGAN**

<i>IU</i>	<i>Location</i>	<i>Parameter</i>	<i>Monitoring Purpose</i>	<i>Propose to Eliminate from EI Monitoring</i>	<i>Comments</i>
G	MW-04250/MW-04250R	chromium, hexavalent	GSI	No	
G	MW-04250/MW-04250R	cyanide (total and amenable)	GSI	No	
G	MW-04250/MW-04250R	mercury	GSI	No	
G	MW-04250/MW-04250R	vanadium	GSI	Yes	Vanadium did not exceed criteria for four consecutive rounds, therefore vanadium will be removed from future EI monitoring.
G	MW-04250/MW-04250R	pH	GSI	No	
G	MW-04250/MW-04250R	ammonia	GSI	No	
G	MW-04757	chromium, hexavalent	GSI	No	
G	MW-04757	cyanide (total and amenable)	GSI	No	
G	MW-04757	ammonia	GSI	No	
G	MW-04864	chromium, hexavalent	GSI	Yes	Hexavalent chromium did not exceed criteria for four consecutive rounds, therefore hexavalent chromium will be removed from future EI monitoring.
G	MW-04864	pH	GSI	No	
G	MW-04864	ammonia	GSI	No	
Wells added in 2007 per EPA's email request dated August 8, 2007.					
G	MW-03945	chromium, hexavalent	GSI	No	
G	MW-03945	cyanide (total and amenable)	GSI	No	
G	MW-03945	mercury	GSI	No	
G	MW-03945	vanadium	GSI	Yes	Vanadium did not exceed criteria for four consecutive rounds, therefore vanadium will be removed from future EI monitoring.
G	MW-03945	pH	GSI	No	
G	MW-03945	ammonia	GSI	No	
G	MW-04051	chromium, hexavalent	GSI	No	
G	MW-04051	cyanide (total and amenable)	GSI	No	
G	MW-04051	mercury	GSI	No	
G	MW-04051	vanadium	GSI	Yes	Vanadium did not exceed criteria for four consecutive rounds, therefore vanadium will be removed from future EI monitoring.
G	MW-04051	pH	GSI	No	
G	MW-04051	ammonia	GSI	No	
G	MW-04257	chromium, hexavalent	GSI	No	
G	MW-04257	cyanide (total and amenable)	GSI	No	
G	MW-04257	vanadium	GSI	Yes	Vanadium did not exceed criteria for four consecutive rounds, therefore vanadium will be removed from future EI monitoring.
G	MW-04257	pH	GSI	No	
G	MW-04257	ammonia	GSI	No	
G	MW-04765	chromium, hexavalent	GSI	No	
G	MW-04765	cyanide (total and amenable)	GSI	No	
G	MW-04765	vanadium	GSI	Yes	Vanadium did not exceed criteria for four consecutive rounds, therefore vanadium will be removed from future EI monitoring.
G	MW-04765	pH	GSI	No	
G	MW-04765	ammonia	GSI	No	

Notes:

- Table updated to remove select parameters based on 4 consecutive rounds below criteria.
- Wells evaluated using most recent groundwater data compared to appropriate EI criteria.
- Since 2005 all samples for metals analyses have been collected using low flow sampling techniques and were unfiltered.
- GSI = Selected to monitor stability based on exceedances of groundwater surface water interface criteria in most recent samples.
- NA - Not applicable.