

October 12, 2021

Peter Ramanauskas
U.S. EPA Region 5
77 West Jackson Blvd.
Chicago, Illinois 60604-3590

Dear Mr. Ramanauskas:

Re: RCRA Corrective Action Administrative Order on Consent (AOC)
Progress Report 81, April-September 2021
GM Casting Operations Bedford Facility, ID 006036099, Docket No. RCRA 05 2017 0011
Bedford, Indiana

This Progress Report is submitted by General Motors LLC (GM) in accordance with the GM Bedford Casting Operations (BCO) Facility Resource Conservation and Recovery Act (RCRA) Administrative Order on Consent (AOC – United States Environmental Protection Agency [U.S. EPA] Docket No. RCRA 05-2014-0011), executed on August 4, 2014. This report covers the period from April through September 2021 for the RCRA Corrective Action (CA) Project at the GM BCO – Bedford Facility (Facility) and select surrounding properties (Site), Bedford, Indiana.

The next RCRA progress report covering October 2021 through March 2022 will be submitted on or before April 15, 2022.

1. List of Completed Activities

The following activities took place, and the following documents were prepared and distributed during this quarter:

1. The Groundwater Treatment Plant (GWTP) collected and treated water from the Pilot Trench, Vault sumps, and wet wells during April through September 2021. An estimated 0.09 pounds of PCBs were removed during the reporting period through collection and treatment of the groundwater. A summary of the volumes and sample results used for this calculation is provided in Table 1. Operational and compliance samples were collected quarterly. Monthly discharge monitoring reports have been submitted to the State of Indiana in conformance with the National Pollutant Discharge Elimination System (NPDES) Permit Number IN0064424. A total of 13,838,712 gallons of treated groundwater were discharged during the reporting period.
2. Absorbent socks were removed and replaced from CH-5, MW-X209Y053, and CAMW-3 monthly from April through September 2021. Table 2 summarizes oil removal (based on disposal weights) from the AOI-8 area.
3. GM provided financial assurance documents for 2021, including the bond and cost estimate tables, to U.S. EPA on April 6, 2021.



GENERAL MOTORS

4. Response to U.S. EPA comments of the Cleanout Video summary memo was submitted to U.S. EPA on April 8, 2021.
5. Progress Report 80 covering the first quarter of 2021 was submitted to U.S. EPA on April, 12, 2021.
6. U.S. EPA provided acknowledgement of receipt of GM's financial demonstration submission (submitted Marcy 31, 2021) on April 13, 2021.
7. GM requested a 60-day extension for the submittal of the draft Final Corrective Measures Proposal (Final CMP) and the draft long-term Operations, Monitoring and Maintenance Plan (OMMP) on May 5, 2021.
8. U.S. EPA approved GM's request for a 60-day extension for the submittal of the draft Final CMP on May 5, 2021.
9. Memo providing the Clarifier Oil Assessment Work Plan was submitted to U.S. EPA on May 7, 2021.
10. Letter requesting reduction on Progress Report submittal frequency was submitted to U.S. EPA on May 10, 2021.
11. Dye Trace Update meeting was held by virtual conference on May 10, 2021.
12. Focused Corrective Measures Study for Final Alignment of Perimeter Groundwater Control System was submitted to U.S. EPA on May 11, 2021.
13. U.S. EPA approved the MGT Liner Installation memorandum on May 24, 2021.
14. Request from U.S. EPA to clarify system completion and operations dates for the Pilot Trench and Solar Sipper was sent on May 28, 2021.
15. Second Near Field dye injection occurred on June 3, 2021.
16. Responses to U.S. EPA comments on the Adaptive Management Approach for the CMP were submitted to U.S. EPA on June-10, 2021.
17. Responses to U.S. EPA request for Pilot Trench and Solar Sipper construction completion and operation dates were sent on June 19, 2021.
18. Annual Project Update Meeting (Part 1) was held by virtual conference on June 21, 2021.
19. U.S. EPA approved GM's request to reduce progress reporting on June 24, 2021.
20. U.S. EPA provided comments on the Clarifier Area Oil Assessment Work Plan on July 1, 2021.
21. TSCA Vault Annual Report Calendar Year 2020 was submitted to U.S. EPA on July 8, 2021.
22. U.S. EPA provided comments on the TSCA Vault Annual Report Calendar Year 2020 on July 15, 2021.
23. Corrective Measure Proposal was submitted to U.S. EPA on July 26, 2021.
24. Long-Term Operations, Maintenance and Monitoring Plan was submitted to U.S. EPA on July 26, 2021.
25. Report outlining the Sewer Line Repair Plan was submitted to U.S. EPA on August 9, 2021.
26. U.S. EPA provided comments on the Sewer Repair Plan on August 12, 2021.
27. Gravel access roads to the GWTP were repaired During the week of August 16, 2021.
28. Responses to U.S. EPA's comments on the Sewer Line Repair Work Plan were submitted to U.S. EPA on August 23, 2021. Additional comments were received from U.S. EPA on the same day, followed by responses to the additional comments.
29. Final Sewer Line Repair Plan was submitted to U.S. EPA on August 25, 2021.



G E N E R A L M O T O R S

30. U.S. EPA requested information on PCB treatment and removal volumes on September 7, 2021.
31. Memorandum summarizing the EI CA750 First Half 2021 sampling event was submitted to U.S. EPA on September 7, 2021.
32. Third Near Field dye injection occurred on September 8, 2021.
33. Summary of PCB mass removal from October 202-August 2021 was submitted to U.S. EPA on September 16, 2021.
34. Responses to U.S. EPA comments on the Completion of the Spring 018 Interim Measure was submitted on September 16, 2021.
35. Responses to U.S. EPA Comments on the Clarifier Area Oil Recovery Work Plan were submitted to U.S. EPA on September 17, 2021.
36. U.S. EPA provided approval the responses to comments on the Clarifier Area Work Plan on September 23, 2001
37. U.S. EPA approved the responses to comments on the Completion of the Spring 018 Interim Measure and agreed to conclude the Spring 018 Interim Measure on September 28, 2021.
38. Annual Project Update Meeting (Part 2) was held by virtual conference on September 28, 2021.
39. Final Clarifier Area Work Plan was submitted to U.S. EPA on September 30, 2021.

Although not included in the RCRA CA activities, GM continues to work with U.S. EPA and IDEM for the prescriptive removal of PBC-impacted soils at Parcels 400, 430 and 431. Soil removal activities were completed in September 2021. The following documents were prepared and distributed during this reporting period related this work.

1. Responses to comments on the Parcel 400 Completion of Construction Report was submitted to U.S. EPA on May 6, 2021.
2. U.S. EPA approved the revisions to the Parcel 400 Construction Completion Report on May 7, 2021.
3. IDEM provided verbal approval of the Parcel 400 Construction Certification Report on July 21, 2021.
4. Final Parcel 400 Construction Completion Report was submitted to U.S. EPA and IDEM on August 11, 2021.
5. Draft Parcels 430/431 Construction Completion Report was submitted to U.S. EPA and IDEM on August 11, 2021.

2. Summaries of Problems and Planned Resolutions

2.1 Solar Sipper

During a site visit on April 8, 2021, GHD determined the solar sipper did not have enough power to operate. The battery was not being fully charged by the solar panel. A new battery was ordered and the existing battery was put on a charger. The battery was charged and the solar sipper resumed operation on April 12, 2021. A spare battery was delivered to the site on May 13, 2021.

During routine maintenance conducted on June 30, 2021, GHD noted that while the solar sipper was operational, no product was being recovered when tested in manual mode. GHD removed



G E N E R A L M O T O R S

the pump from CH-2A and confirmed the absence of product using an oil-water level tape. GHD shut down the system so as not to generate non-product waste and allow the oil within the well to recover. During subsequent monthly site visits in July, August, and September, GHD manually operated the pump within CH-2A. Groundwater, but no product, was removed.

GM and GHD will continue to gauge oil recovery within CH-2 and evaluate continued operation of the solar sipper or modify the oil recovery method (e.g. manual removal by bailer or peristaltic pump, absorbent sock).

2.2 Wet Well 3 Overflow

On September 23, 2001, GM made a verbal overflow report to IDEM of groundwater from Wet Well 3 to saturated soil surrounding the wet well in accordance with NPDES Permit IN0064424. U.S. EPA was notified of the overflow event as well. A written report was submitted to IDEM on September 28, 2021. The overflow, which occurred on September 22, 2021 during a heavy rain event, did not result in a direct discharge to surface water, nor did the release exceed a Reportable Quantity in either state or federal reporting regulations. Based on investigation into the incident, GM estimates on upper range of the release of groundwater to the soil as approximately 4,200 gallons. GM is evaluating the cause of the overflow and wet well notification system performance and will be making system modification to address the notification functionality.

3. Projected Work for the Next Reporting Period

Work anticipated for the next reporting period includes:

1. Continue OMM for the GWTP
2. Continue GWTP discharge reporting under the NPDES permit
3. Collect monthly transducer data from the pilot trench monitoring location.
4. Continue dye tracing study as part of Pilot Trench Performance Monitoring Plan
5. Submit responses to U.S. EPA comments on the TSCA Vault Annual Report Calendar Year 2020
6. Finalize the Parcels 430/431 Construction Completion report
7. Implement the Clarifier NAPL Recovery Assessment plan
8. Implement the Sewer Line Repair Plan
9. Mow the East Plant Area cover system
10. Conduct the semi-annual cover system inspection
11. Test alternate pumps to extract groundwater from GUS cleanouts
12. Conduct the second half 2021 EI CA750 monitoring and the first quarter 2022 static water level gauging
13. Provide U.S. EPA and IDEM project updates via emails and/or telephone calls
14. Conduct third part of the 2021 Annual Project Meeting
15. Initiate the Far Field dye tracer study
16. Update the project web site platform
17. Launch an updated data management tool
18. Develop the Spring 018 Decommissioning Plan
19. Update the groundwater treatment plant operations monitoring and maintenance plan



GENERAL MOTORS

- 20. Update the site source control operations, monitoring and maintenance plan
- 21. Submit the updated cost estimate to support the 2022 Financial Assurance
- 22. Respond to U.S. EPA comments on the CMP and LTOMMP, once received

Please feel free to call me at 313-506-9465 if you have any questions concerning this information or otherwise regarding the Bedford GM LLC Project.

Sincerely,



Ed Peterson
Project Manager, Eco-Restorers
GM Sustainable Workplaces

Encl.

cc: Corey Peaslee; U.S. EPA
Chris Myer; IDEM
Ed Peterson; General Motors
Nathan Milliman; General Motors
John Maher; General Motors

Katie Kamm; GHD
Julie Luzwick; GHD
Bill Steinmann; GHD
Francis Ramacciotti; GHD



GENERAL MOTORS

Table 1

**GWTP PCB Mass Removal Estimate
GM Bedford BCO Facility
Bedford, Indiana**

	Groundwater Treatment Plant (GWTP) Treated Volume (gallon)	PCB Influent Concentration ^(1,3) (µg/L)	Mass PCB Treated ⁽²⁾ (pound)
January 2019	5,467,881	0.71	0.032
February 2019	5,393,116	ND	0.000
March 2019	4,916,870	0.92	0.038
April 2019	5,547,708	1.5	0.069
May 2019	3,670,000	1.3	0.040
June 2019	5,542,417	1.2	0.056
July 2019	1,743,512	1.6	0.023
August 2019	930,385	1.1	0.009
September 2019	753,569	1.6	0.010
October 2019	977,015	1.5	0.012
November 2019	2,104,042	2.2	0.039
December 2019	3,099,964	1.4	0.036
January 2020	4,690,161	0.68	0.027
February 2020	3,642,899	1.1	0.033
March 2020	4,853,095	0.96	0.039
April 2020	2,681,548	1.4	0.031
May 2020	3,767,813	1.2	0.038
June 2020	2,295,164	0.96	0.018
July 2020	1,465,351	1.6	0.020
August 2020	2,109,119	0.89	0.016
September 2020	822,061	1.5	0.010
October 2020	1,663,537	1.24	0.017
November 2020	2,798,824	1.1	0.026
December 2020	2,045,106	1.1	0.019
January 2021	3,375,573	1.3	0.037
February 2021	4,192,610	1.2	0.042
March 2021	4,665,579	0.96	0.037
April 2021	3,035,075	0.7	0.018
May 2021	2,937,213	0.7	0.017
June 2021	1,746,454	0.7	0.010
July 2021	3,136,451	0.8	0.021
August 2021	1,148,478	0.8	0.008
September 2021	1,835,041	0.8	0.012
Total Estimated Volume of Water Treated During Reporting Period(gallons)			13,838,712
Total Estimated Mass of PCB Treated During Reporting Period (pounds)			0.09
Total Estimated Mass of PCB Treated, Since January 2019 (pounds)			0.86

Notes:

- 1 PCB concentration based on an average of parent and duplicate sample, if duplicate sample was collected. Quarterly influent sampling began in February 2021. March 2021 PCB concentration is average of January and February 2021 data.
- 2 Mass removed =
$$\frac{\text{treated volume (gallons)} \times \text{PCB concentration} \left(\frac{\text{ug}}{\text{L}}\right) \times 3.7854}{453.59 \times 1,000,000}$$
- 3 Influent sampling reduced from to monthly to quarterly in April 2021.

Table 2

**AOI-8 Oil Removal
GM Bedford BCO Facility
Bedford, Indiana**

Date	Well	Oil Mass (lbs)	PCB Content (mass %)	PCB Mass (lbs) ¹
10/31/2018	CH-5	2.16	11%	0.24
11/5/2018	CH-5	2.28	11%	0.25
11/23/2018	CH-5	2.09	11%	0.23
12/4/2018	CH-5	2.81	11%	0.31
1/9/2019	CH-5	2.22	11%	0.24
1/23/2019	CH-5	2.16	11%	0.24
2/11/2019	CH-5	2.3	11%	0.25
2/26/2019	CH-5	2.33	11%	0.25
3/7/2019	CH-5	2.18	11%	0.24
3/18/2019	CH-5	2.29	11%	0.25
4/1/2019	CH-5	2.39	11%	0.26
7/15/2019	CH-5	2.85	11%	0.31
7/31/2019	CH-5	1.88	11%	0.21
8/22/2019	CH-5	1.1	11%	0.12
11/20/2019	CH-5	1.2	11%	0.13
12/17/2019	CH-5	2.5	11%	0.27
1/20/2020	CH-5	3	11%	0.33
2/13/2020	CH-5	2	11%	0.22
4/24/2020	CH-5	1.5	11%	0.16
7/16/2020	CH-5	1.25	11%	0.14
8/12/2020	CH-5	2.75	11%	0.30
9/24/2020	CH-5	2	11%	0.22
11/19/2020	CH-5	2	11%	0.22
12/21/2020	CH-5	3	11%	0.33
1/25/2021	CH-5	1.65	11%	0.18
2/24/2021	CH-5	2	11%	0.22
3/16/2021	CH-5	2	11%	0.22
4/20/2021	CH-5	2.48	11%	0.27
5/27/2021	CH-5	1.98	11%	0.22
6/21/2021	CH-5	1.98	11%	0.22
7/29/2021	CH-5	0.98	11%	0.11
8/26/2021	CH-5	0.48	11%	0.05
9/17/2021	CH-5	1.48	11%	0.16
Total PCB Removed from CH-5 (LNAPL) ³				7.34
3/25/2019	MW-X209Y053	24.21	40%	9.68
7/15/2019	MW-X209Y053	2.45	40%	0.98
7/31/2019	MW-X209Y053	1.98	40%	0.79
8/22/2019	MW-X209Y053	1.1	40%	0.44
1/20/2020	MW-X209Y053	2.1	40%	0.84
2/13/2020	MW-X209Y053	1	40%	0.40
4/24/2020	MW-X209Y053	1	40%	0.40
7/16/2020	MW-X209Y053	1.0	40%	0.40

Table 2

**AOI-8 Oil Removal
GM Bedford BCO Facility
Bedford, Indiana**

Date	Well	Oil Mass (lbs)	PCB Content (mass %)	PCB Mass (lbs) ¹
9/24/2020	MW-X209Y053	1.6	40%	0.62
11/19/2020	MW-X209Y053	1.0	40%	0.40
12/21/2020	MW-X209Y053	2.8	40%	1.10
1/25/2021	MW-X209Y053	0.8	40%	0.32
2/24/2021	MW-X209Y053	1.5	40%	0.60
3/16/2021	MW-X209Y053	1.0	40%	0.40
4/20/2021	MW-X209Y053	1.48	40%	0.59
5/27/2021	MW-X209Y053	1.23	40%	0.49
6/21/2021	MW-X209Y053	0.73	40%	0.29
7/29/2021	MW-X209Y053	1.48	40%	0.59
8/26/2021	MW-X209Y053	1.48	40%	0.59
9/17/2021	MW-X209Y053	0.5	40%	0.19
Total PCB Removed from MW-X209Y053 (DNAPL) ^{2,4}				20.13
3/28/2019	CH-2A (solar sipper)	74.05	58%	42.95
2/11/2021	CH-2A (solar sipper)	159.72	58%	92.64
Total PCB Removed from CH-2A (DNAPL) ^{2,5}				135.59
3/16/2021	CAMW-3	1	31%	0.31
4/20/2021	CAMW-3	2.0	31%	0.61
5/27/2021	CAMW-3	0.7	31%	0.23
6/21/2021	CAMW-3	1.5	31%	0.46
7/29/2021	CAMW-3	0.5	31%	0.15
8/26/2021	CAMW-3	0.18	31%	0.06
9/17/2021	CAMW-3	1.48	31%	0.46
Total PCB Removed from CAMW-3 (DNAPL) ^{6,7}				2.27

Notes:

¹ PCB weight based on average of analytical data

Location	Sample Date	PCB (mg/kg)	Average (mg/kg)
CH-5	9/19/2005	224,500	109,067
	8/16/2011	89,700	
	4/9/2014	13,000	
MW-X209Y053	9/19/2006	400,000	400,000
CH-2A	11/5/2008	380,000	580,000
	4/9/2014	780,000	
CAMW-2	11/21/2019	310,000	310,000

² PCB weight from solar sipper and the initial removal from MW-X209Y053 (3/25/2019) is based on an approximate gallons of oil removal. DNAPL density of 1.16 g/cc used when converting volume (gallons) to mass (pounds). Density value determined by laboratory analysis from the 4/19/2014 CH-2A sampling event.

Table 2

**AOI-8 Oil Removal
GM Bedford BCO Facility
Bedford, Indiana**

Date	Well	Oil Mass (lbs)	PCB Content (mass %)	PCB Mass (lbs) ¹
3	CH-5 Mass (lbs)=	<u><i>Sock net weight (lbs)x 109,067(mg/kg)</i></u> 1,000,000 (mg/kg)		
4	MW-X209Y053 Mass(lbs) =	<u><i>Sock net weight (lbs)x 400,000 (mg/kg)</i></u> 1,000,000 (mg/kg)		
	3/25/2019 mass removal calculated based on removal of 2.5 gallons of NAPL			
5	CH-2A Mass (lbs) =	<u><i>Liquid weight (lbs)x 580,000 (mg/kg)</i></u> 1,000,000 (mg/kg)		
6	CAMW-3 Mass (lbs)=	<u><i>Sock net weight (lbs)x 310,000(mg/kg)</i></u> 1,000,000 (mg/kg)		
7	PCB concentration at CAMW-2 used for removal calculations as no data is available for CAMW-3 and the two locations are in close proximity.			