

March 8, 2013  
File No.: 21.0056546.00



Glenn May, CPG  
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Re: Storm Sewer Sampling Report  
BCP Sites # C932138, C932139, C932140  
GM Components Holdings  
200 Upper Mountain Road  
Lockport, NY 14094

Dear Glenn:

On behalf of GM Components Holdings (GMCH), GZA GeoEnvironmental of New York (GZA) has prepared this report to provide an update on the storm sewer sampling activities completed to date at the GMCH Lockport facility located at 200 Upper Mountain Road, Lockport, New York (Site). The sampling was completed to assess if volatile organic compound (VOC) impacted groundwater may be infiltrating the storm sewer system at locations where the storm sewer piping is present at or below the groundwater table.

Storm water data provided for Outfalls D002 and D003 (see Figure 1) in the Brownfield Cleanup Program (BCP) Remedial Investigation Reports (RIR; Haley & Aldrich (H&A)/GZA, November 2011) for Buildings 7, 8 and 10 indicated that chlorinated VOCs are present in the storm water discharge from the GMCH Facility. The storm water data provided in the RIR was from high-flow conditions, meaning that storm water was being discharged through the outfalls to the swale present on-site. We note that under low-flow conditions, storm water is diverted to the Lockport POTW and does not discharge through the outfalls.

DRAFT Remedial Work Plans (RWPs; H&A/GZA, December 2011) submitted to the New York State Department of Environmental Conservation (NYSDEC) for BCP Sites Buildings 7, 8 and 10 proposed conducting an assessment of potential groundwater infiltration into the storm sewer system and to take corrective measures as necessary.

A Storm Sewer Sampling Work Plan (SSSWP) was developed to perform the storm sewer sampling proposed in the DRAFT RWPs. NYSDEC reviewed the SSSWP and provided comments in a letter dated August 2, 2012. A Revised SSSWP was prepared, submitted to NYSDEC for review and approved by NYSDEC in a letter dated August 23, 2012. NYSDEC, in a letter dated September 20, 2012, stated that a Decision Document related to the RWPs could not be issued at this time as it unknown if a remedy to address



groundwater infiltration will be necessary and any remedy would need to be included in the Decision Document.

This investigation of the storm sewer system was conducted to determine if chlorinated VOC-impacted groundwater present on-site is the source of the chlorinated VOCs identified in the storm sewer discharge and to identify potential location(s) of infiltration.

## **STORM SEWER SAMPLING ACTIVITIES**

The investigation involved water sample collection from select storm sewer structures (i.e., catch basins, manholes (MHs) or piping) where sampling specific structure(s) may provide information to assess potential infiltration locations and/or exclude portions of the storm sewer system as an area of concern. Figure 1 shows the storm sewer system layout at the GMCH Lockport facility.

Prior to the first sampling event in August 2012, Lockport had experienced a relatively dry summer. According to the website wunderground<sup>1</sup>, the weather station located at the Niagara Falls Airport in Niagara Falls, New York (KIAG) registered less than 3 inches of rain between June 21 (first day of summer) and August 30, 2012 (first day of sampling). According to the historic weather data from this weather station for this same date interval, the average rain fall for the past 10 years was about 7 inches.

Groundwater elevations were measured at select monitoring wells within the storm sewer sampling area after the first sampling event. The groundwater measurements are depicted as groundwater contours shown on Figure 2. A comparison was done of the groundwater contours and the elevations of the various storm sewer components. The storm sewer component elevations were determined from a drawing provided by GMCH or from measurements collected from select components in the field. These elevations are provided on Table 1. The portions of the storm sewer system highlighted in orange on Figure 3 represent portions of the system that are located at or below the groundwater elevation based on the comparison completed.

The storm sewer sampling discussed in this report occurred in three (3) events. A total of 26 different storm sewer structures were sampled as shown on Figure 3. The sampling events were not conducted after significant storm water runoff was generated or during snow melt. Water at Outfalls D002 and D003, at the time of the sampling events, was being diverted to the Lockport POTW under low-flow conditions.

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<sup>1</sup> Wunderground website for summary for weather from June 21, 2012 through September 12, 2012.  
[http://www.wunderground.com/history/airport/KIAG/2012/6/21/CustomHistory.html?dayend=31&monthend=8&yearend=2012&req\\_city=NA&req\\_state=NA&req\\_statename=NA](http://www.wunderground.com/history/airport/KIAG/2012/6/21/CustomHistory.html?dayend=31&monthend=8&yearend=2012&req_city=NA&req_state=NA&req_statename=NA)



The following is a summary of the three (3) sampling events.

- August 30 & 31, 2012: 15 locations; MH-1 through MH-6 and MH-8 through MH-15. MH-7 could not be opened and was not sampled. A tap water sample was also collected from inside Building 7A.
- October 5, 2012: 9 locations; MH-6 was resampled, MH-16 through MH-21, Outfall D002 and Outfall D003.
- January 4, 2013: 4 locations; MH-22 through MH-25.

The following scenarios were encountered during the sampling.

- No flow was observed entering into the structure; the water sample was collected from the standing water within the bottom of the structure.

MH-1, -3, -9, -17, and -18

- Flow was observed from one specific pipe entering into the structure; the water sample was collected from that pipe.

MH-2, -12, -20, Outfalls D002 and D003

- Flow was observed from multiple pipes entering into the structure; the water sample was collected from water accumulated with the bottom structure.

MH-4, -5, -13, -14, -15, -22, and -23

- MH could not be opened; the water sample was collected through opening in the cover from water within the bottom of the structure.

MH-6

- MH consisted of a pipe flowing through bottom; the water sample was collected from the flow through the structure.

MH-8, -10, -11, -16, -19, and -21

- Flow was observed from one specific pipe entering into the structure but the pipe inverts were below the water level within the structure; the water sample was collected from water accumulating within the structure.

MH-24 and -25



In addition to sample collection, observations of the structures sampled were made and recorded (e.g., sheen observed, organic vapor meter readings, flow within the structure, pipe orientation, etc.). These observations are documented on Table 1.

The storm water sampling was conducted by opening the selected structure and placing a pre-cleaned polyethylene dip cup into the structure to collect the sample for analysis. Samples were collected for VOCs via EPA Method 8260 Target Compound List (TCL) and Total Oil and Grease (O&G) via EPA Method 1664a.

Samples identified as Outfall D002 and D003 were collected from the discharge of the storm sewer pipes upstream of the actual outfall structure locations. These samples were collected while under low-flow conditions, meaning flow exiting the pipes upstream of the outfall structure was being diverted to the Lockport POTW and not discharging through the outfall.

Additionally, one water sample was collected from a bathroom sink faucet in Building 7A. The sample was analyzed for VOC via EPA Method 8260 TCL only. The purpose of this sample was to help determine if potable water makes up some or all of the flow present in the storm sewer system under dry weather or drought-like conditions. Untreated potable water is used in the fire suppression system throughout the facility. Leaks from the underground portions of the fire suppression system may be infiltrating into the storm sewer system.

## **SAMPLING RESULTS**

The detected compound concentrations from the VOC and oil and grease samples are summarized on Figure 4 and discussed in the analytical quality assessment and validation reports in Appendix A [Note: Table 3 in the analytical quality assessment and validation reports provides the analytical data in a tabular format]. The analytical results are discussed below.

## **COMPOUNDS OF CONCERN**

We note that compounds of concern (COCs), as identified in previous soil and groundwater investigations throughout the Site, are chlorinated solvent compounds, tetrachloroethene (PCE) and trichloroethene (TCE), and their associated breakdown products; cis-1,2-dichloroethene (cis-DCE), 1,1-dichloroethene (1,1-DCE), trans-1,2-dichloroethene (trans-DCE), and vinyl chloride (VC). The chlorinated solvents were used primarily in historical degreasing operations.

COCs were detected in 17 of the 26 storm sewer locations sampled as part of the storm sewer investigation. The analytical results are summarized on Figure 4. Figure 5 identifies the locations where COCs were detected in the storm sewer locations sampled.



The highest total COC concentrations, those greater than 500 ppb, were detected at four (4) sampling locations.

- MH-6 (581 ppb), MH-17 (1,689) and MH-21 (1,051) are associated with the storm sewer servicing Building 10 and the area between Buildings 7 and 10. Elevated concentrations of COCs have been detected in the monitoring well inside Building 10 (MW-10-1) and five (5) wells located between Building 7 and 10 (MW-7-A-6, MW-7-7 MW-7-8, MW-10-2 and MW-10-3). There is a potential that the elevated COCs detected at MH-6, MH-17 and MH-21 is due to groundwater infiltration and should be further evaluated. We note that there was no flow into MH-17 at the time of the sampling. The detections of the COCs in MH-17 may be due to impacted sediment in the bottom of the structure or infiltration into the manhole itself.
- MH-10 (1,033 ppb) is located along the main west-east orientated storm sewer line running through the GMCH facility located near the southeast corner of Building 8. Storm water from Building 10, northern portion of Building 7, southern portion of Building 8 and exterior storm water runoff from between the main buildings flow through MH-10.

COC concentrations at the other 13 sampling locations ranged from 4.2 ppb (MH-4) to 265 ppb (MH-16). These locations are primarily located east of Buildings 9 and 10. A few locations of note are as follows.

- COC concentrations detected at MH-4, MH-5, MH-14 (associated with Building 8 storm sewer system) have a similar COC concentration profile as the nearby monitoring wells associated with Building 8 (MH-4 vs MW-8-1, MH-5 vs MW-8-3, and MH-14 vs MW-8-4).
- COC concentrations detected in MH-1 (222 ppb), MH-2 (25 ppb) and MH-9 (6 ppb) (associated with Building 7) decrease from west to east, similar to groundwater COC concentrations from previous investigations. We note that there was no flow into MH-1 and MH-9 at the time of the sampling. The detections of the COCs may be due to impacted sediment in the bottom of the structure or infiltration into the manhole itself.
- COC concentrations increase along the main west-east orientated storm sewer line running through the GMCH facility from MH-19 (non-detect) to MH-8 (242 ppb) to MH-10 (1,034 ppb), but decreases at MH-13 (158 ppb) and Outfall D002 (257 ppb). This decrease may be attributed to dilution from other storm sewer lines from Building 6 and northern portion of Building 8.

No COCs were detected above method detection limits at nine (9) manhole locations (MH-3, -12, -15, -19, -20, -22, -23, -24, and -25).



## **OTHER VOCS DETECTED**

1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113) was used in a limited number of degreasers inside Building 8 for a short period of time (1986 to 1994). It was detected at five (5) sampling locations. These five (5) locations are either directly associated with the Building 8 storm sewer system (MH-5 and MH-14) or are downgradient receivers of Building 8 storm water (MH-10, MH-13, and Outfall D002).

Acetone was detected at low concentrations at two locations (MH-19 (3 ppb) and MH-23 (6.6 ppb) and it was the only compound detected above method detection limits at these locations. Acetone is not a concern, due to its low level detections, limited number of detections and its common appearance as a laboratory contaminant.

Tap Water Sample results indicated the presence of bromodichloromethane, bromoform, dibromochloromethane and chloroform. These four (4) compounds were detected in the sample collected from MH-12 and chloroform was detected in MH-1 and MH-16. This may indicate that tap water is infiltrating the storm sewer system (i.e., leaking fire suppression system or leaking water line).

## **OIL & GREASE**

**Oil & Grease** was detected at eight (8) sample locations (MH-1, -2, -3, -4, -6, -10, -11, and -16) with detected concentrations ranging from 2 ppb to 5.4 ppb at an average of 3 ppb. Three (3) of the locations are associated with the Building 7 storm sewer system (MH-1, MH-2, and MH-11). One (1) location (MH-4) is upgradient of Building 8 and downgradient of Building 9. Three (3) locations are associated with Building 10 (MH-3, MH-6 and MH-16). One (1) location is associated with the main west-east orientated storm sewer line running through the facility (MH-10).

## **Storm Sewer Video Review**

Although not part of the work plan, GMCH provided GZA with storm sewer videos for review. The videos were from storm sewer inspections completed between May 1994 and May 2002 by various contractors. Figure 5 identifies the approximate location of the storm sewer lines that were video inspected (shown in green). GZA reviewed the videos to assess the conditions of the storm sewers at the time of the video and if groundwater infiltration is potentially occurring. The quality of the videos reviewed varied. Review of the videos identified the following.

- Grout at pipe connections was in poor condition or missing.
- Pipe joint separation.
- Infiltration from pipe bedding from pipe lateral crossing storm sewer.
- Infiltration at section of missing pipe wall.
- Sediment or standing water within pipes.
- Infiltration into manhole from pipe bedding beneath pipe.
- Longitudinal cracks in pipes.



## CONCLUSIONS & RECOMMENDATIONS

Based on the storm sewer sampling results and the groundwater elevations in the vicinity of the structures sampled, groundwater infiltration is likely occurring at some locations. The areas of potential groundwater infiltration are shown on Figure 5. Existing storm sewer video review indicated infiltration is potentially occurring at pipe joints, missing pipe wall sections, or cracks in the pipes within the storm sewer system.

COCs were detected in some structures (MH-1, MH-9 and MH-17) where there was no flow at the time of the sampling and water was collected from the bottom of structures. These detections may be due to groundwater infiltration into the manhole structures. Alternatively, these detections may have resulted from the presence of COC-impacted sediments within some pipes and bottom of the structures from non-infiltration sources (i.e. COC releases to storm sewers which have impacted sediments present in low-lying or sump areas of the structures).

We recommend conducting additional investigations. These additional investigations will include:

- storm sewer sample collection during high-flow conditions; and
- detailed investigation of the storm sewer system associated with Building 10 and the area between Buildings 7 and 10.

### High-flow Sampling

The storm sewer sample collection during high-flow conditions will involve sampling select locations when storm water is being discharged to the on-site drainage swales (greater than 200 gallons per minute). We suggest sampling MH-1, -4, -5, -6, -8, -10, -11, -16, -17, -21, Outfall D002 discharge and Outfall D003 discharge during a high-flow condition, in addition to collecting groundwater depth measurements from select monitoring wells during the sampling. This sampling will assist in evaluating the cause of the COCs detected during storm water discharge events currently occurring at the GMCH facility.

### Storm Sewer System Associated with Building 10 and the Area Between Buildings 7 & 10

The storm sewer sampling results indicate that some of the highest COC concentrations were detected in the storm sewers associated with Building 10 and the area between Buildings 7 & 10 (e.g., MH-6, -17 and -21). These storm sewer pipes and structures, particularly the exterior pipes between Building 7 and 10 from MH-6 to MH-16 have not been camera surveyed. Also, MH-17 represents sampling locations where COCs were detected in a structure where no flow was occurring at the time of the sampling event.

The detailed investigation would involve storm sewer pipe and structure clean out, camera survey, storm water resampling, and evaluation of storm sewer repair methods based on the camera survey and resample findings (if necessary). Conducting the detailed



investigation in this portion of the GMCH facility would cause minimal disturbance to the facility, as this location is mainly exterior and there are no major manufacturing operations occurring within the area.

If you need additional information or would like to discuss the project, please contact Jim Hartnett (GM Project Manager) at (315) 463-2391 or Chris Boron (GZA Project Manager) at (716) 844-7046.

Respectfully,

GZA GeoEnvironmental of New York

A handwritten signature in blue ink that reads "Chris Boron".

Christopher Boron  
Senior Project Manager

A handwritten signature in blue ink that reads "Bart A. Klettke".

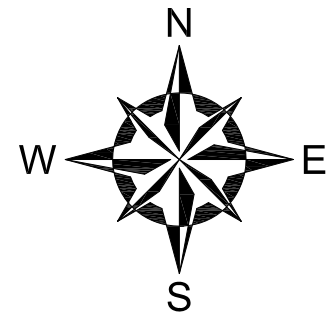
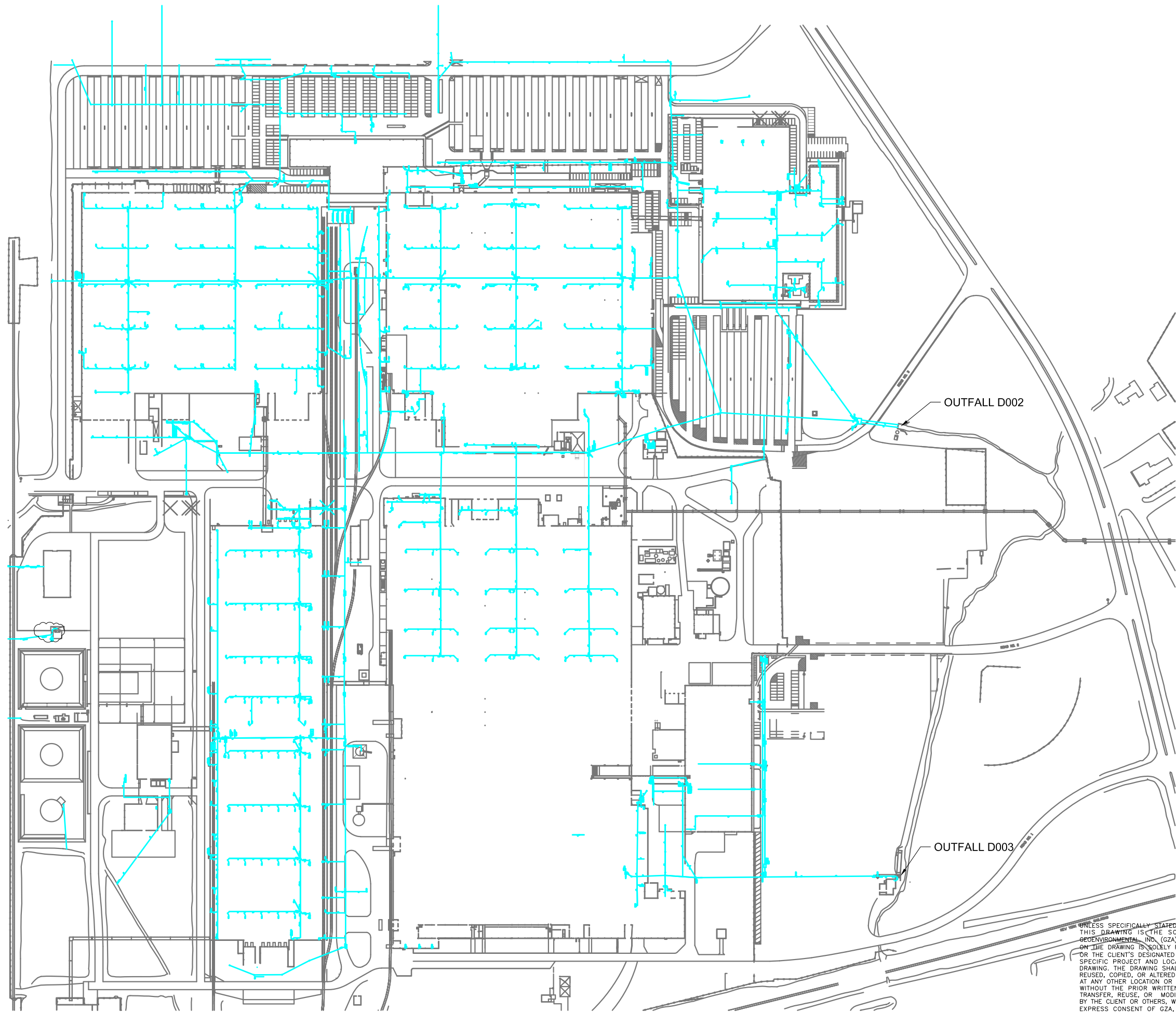
Bart A. Klettke, P. E.  
Associate Principal

- Attachments:
- Figure 1 – Site Plan
  - Figure 2 – Groundwater Contour Map
  - Figure 3 – Storm Sewer Sampling Locations & Sewer Locations At or Below Groundwater
  - Figure 4 – Storm Sewer Sampling Results
  - Figure 5 – Locations of Detected COCs & Storm Sewer Videos
  - Table 1 – Storm Sewer Sampling Summary
  - Appendix 1 - Analytical Quality Assessment and Validation Reports

- Cc:
- James Hartnett (GM, electronic copy)
  - Roy Knapp (GMCH, electronic copy)
  - Hillie LaDue (GMCH, electronic copy)
  - Denis Conley (Haley & Aldrich, electronic copy)



© 2013 - GZA GeoEnvironmental of N.Y. GZA-1\PROJECTS\66000\66546 GM Component LCO\Storm Sewer Investigation\Report Figures\Figure 1 Site Plan.dwg [Figure 1 Site Plan] March 04, 2013 - 1:08pm dandw.wlf



**LEGEND:**

——— LOCATION OF STORM SEWER

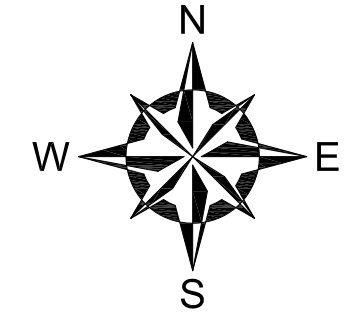
**NOTES:**

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.



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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>LOCKPORT FACILITY</b> 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK			
<b>SITE PLAN</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y.</b> <b>Engineers and Scientists</b> <small>535 WASHINGTON STREET 11th FLOOR            BUFFALO, NEW YORK 14203            (716) 885-2300</small>		PREPARED FOR: <b>GM COMPONENTS HOLDINGS, LLC</b>	
PROJ MGR: CZB DESIGNED BY: DATE: FEBRUARY 2013	REVIEWED BY: DRAWN BY: DEW PROJECT NO.: 21.0056546.00	CHECKED BY: SCALE: AS SHOWN REVISION NO.	<b>FIGURE</b>  <b>1</b>



**GENERAL  
GROUNDWATER  
FLOW DIRECTION**

**LEGEND:**

- MW-10**  
588.99' APPROXIMATE LOCATION AND DESIGNATION OF EXISTING MONITORING WELLS WITH CORRESPONDING GROUNDWATER ELEVATION FROM 9/12/2012
- STORM SEWER LOCATION
- 602 GROUNDWATER ELEVATION CONTOURS

**NOTES:**

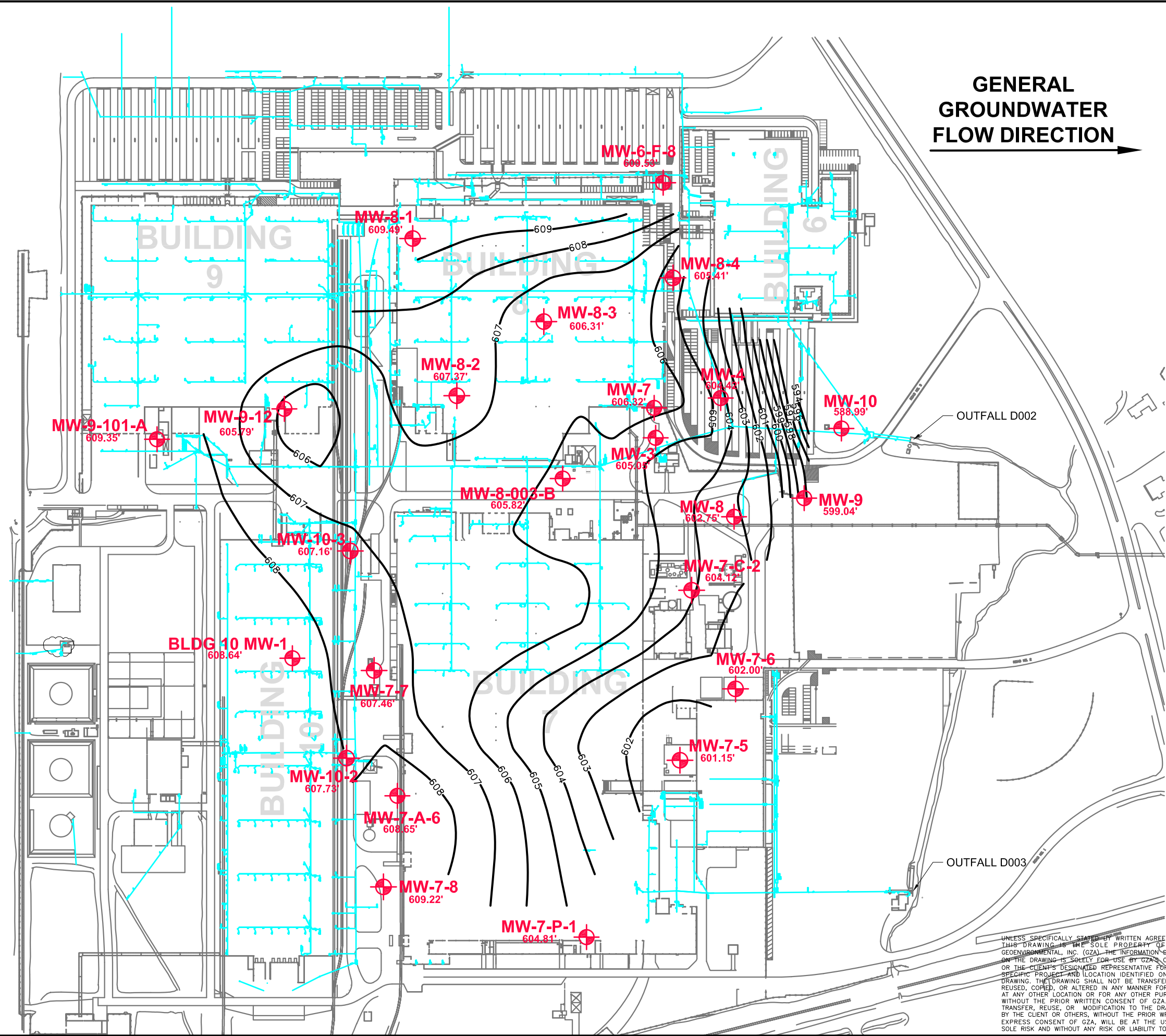
1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

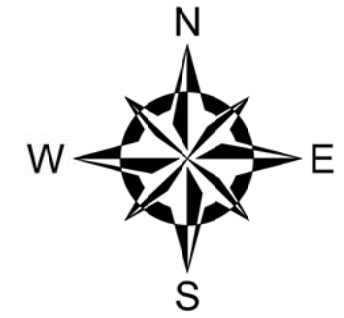


NO.	ISSUE/DESCRIPTION	BY	DATE
<b>LOCKPORT FACILITY</b> 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK			
<b>GROUNDWATER CONTOUR MAP</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y. Engineers and Scientists</b> 535 WASHINGTON STREET 11th FLOOR BUFFALO, NEW YORK 14203 (716) 685-2300		PREPARED FOR: <b>GM COMPONENTS HOLDINGS, LLC</b>	
PROJ MGR: CZB DESIGNED BY: DATE: FEBRUARY 2013	REVIEWED BY: DRAWN BY: DEW PROJECT NO.: 21.0056546.00	CHECKED BY: SCALE: AS SHOWN REVISION NO.:	FIGURE <b>2</b>




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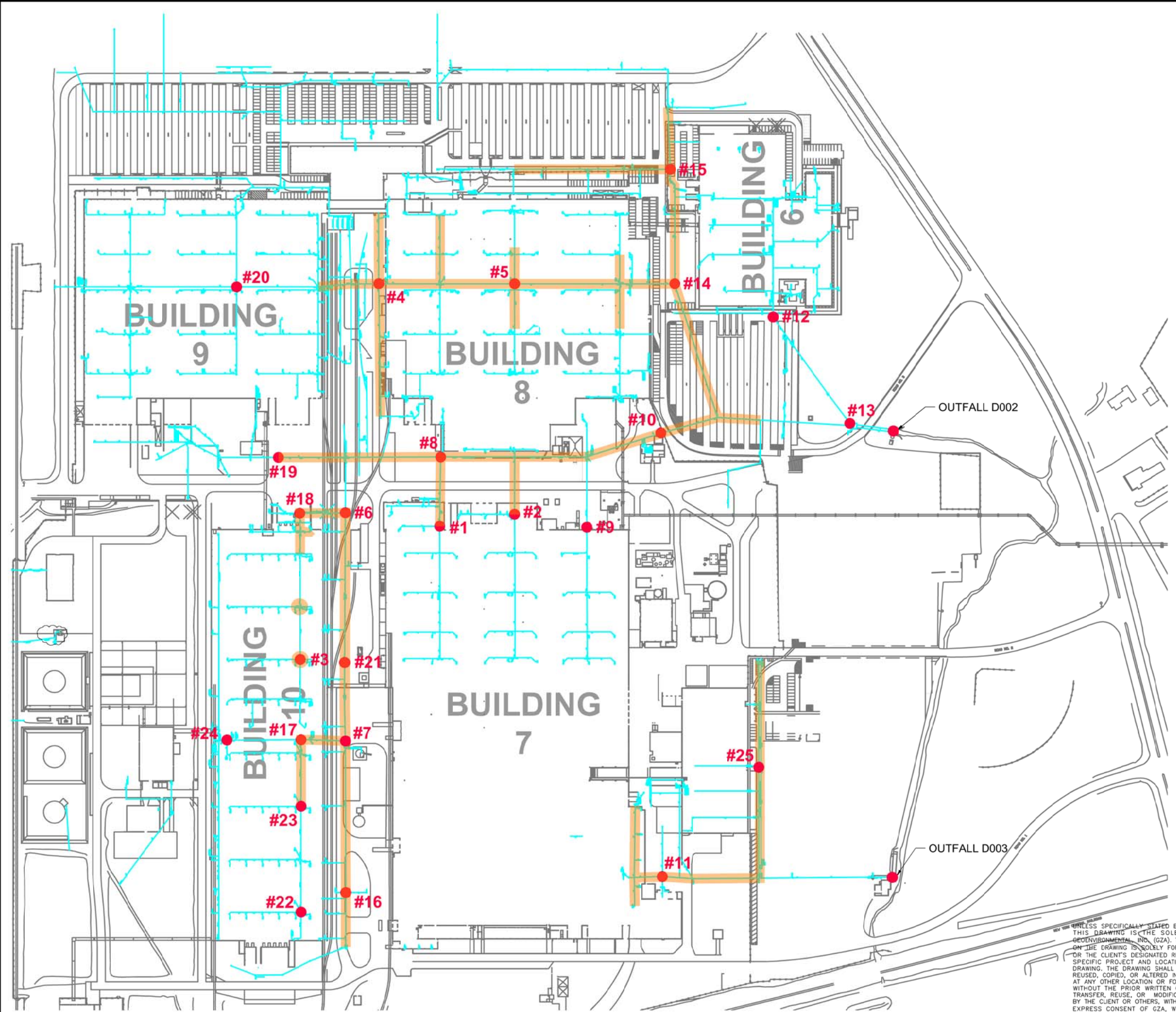


**LEGEND:**


-  APPROXIMATE LOCATION OF STORM SEWER AT OR BELOW GROUNDWATER
-  LOCATION OF STORM SEWER
-  #1 APPROXIMATE LOCATION AND DESIGNATION OF STORM SEWER SAMPLING POINT

**NOTES:**

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

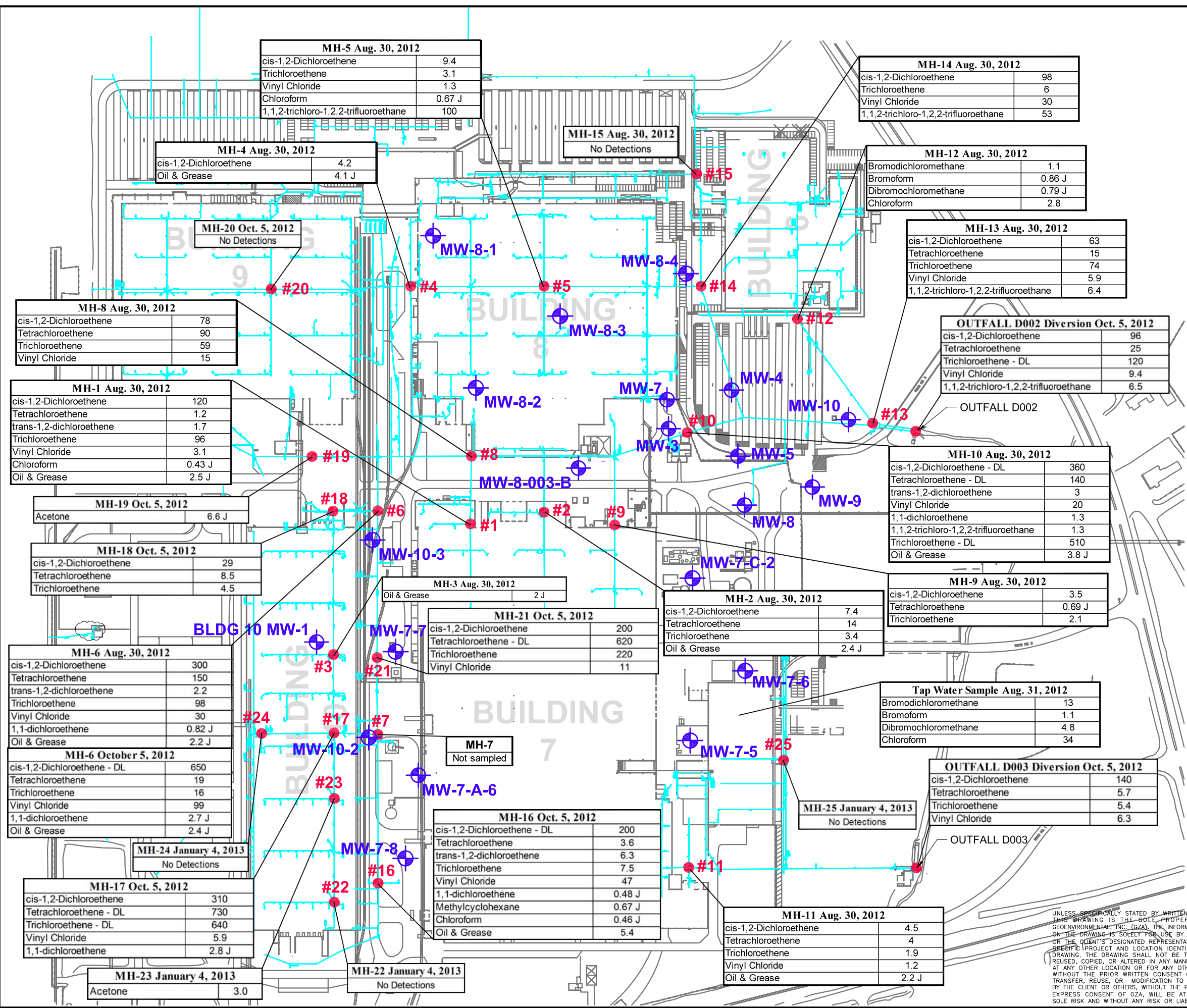
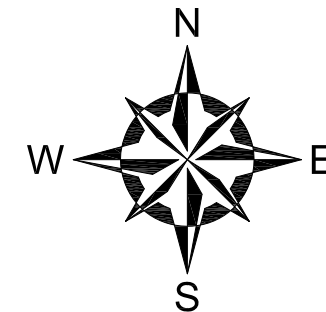


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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>LOCKPORT FACILITY</b> 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK			
<b>STORMWATER LOCATIONS AND STORM SEWERS AT OR BELOW GROUNDWATER</b>			
PREPARED BY:  <b>GZA GeoEnvironmental of N.Y. Engineers and Scientists</b> 535 WASHINGTON STREET 11th FLOOR BUFFALO, NEW YORK 14203 (716) 885-2300		PREPARED FOR: <b>GM COMPONENTS HOLDINGS, LLC</b>	
PROJ MGR: CZB DESIGNED BY: DATE: FEBRUARY 2013	REVIEWED BY: DRAWN BY: DEW PROJECT NO.: 21.0056546.00	CHECKED BY: SCALE: AS SHOWN REVISION NO.	FIGURE <b>3</b>

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© 2013 - GZA GeoEnvironmental of N.Y. GZA-T:\PROJECTS\565005\56546 GM Component LLC\Storm Sewer Investigation\Report\Figures\Figure 4 Storm Sewer Analytical Results March 04, 2013 - 1:10pm daniel.wulf



**LEGEND:**

- MW-10 APPROXIMATE LOCATION AND DESIGNATION OF EXISTING MONITORING WELLS
- #1 APPROXIMATE LOCATION AND DESIGNATION OF STORM SEWER SAMPLING POINTS
- APPROXIMATE LOCATION OF STORM SEWER
- J RESULT IS LESS THAN THE RL BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE
- DL INDICATES A DILUTION ANALYSIS OF THE SAMPLE

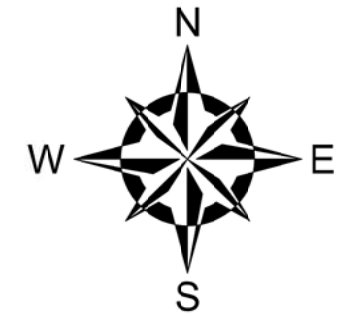
**NOTES:**

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.
3. ANALYTICAL RESULTS SHOWN ARE IN UNITS OF ug/L (PARTS PER BILLION).



NO.	ISSUE/DESCRIPTION	BY	DATE
<b>LOCKPORT FACILITY</b> 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK			
<b>STORM SEWER SAMPLING RESULTS PLAN</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y. Engineers and Scientists</b> 535 WASHINGTON STREET 11th FLOOR BUFFALO, NEW YORK 14203 (716) 865-2300		PREPARED FOR: <b>GM COMPONENTS HOLDINGS, LLC</b>	
PROJ MGR: CZB DESIGNED BY: DATE: FEBRUARY 2013	REVIEWED BY: DRAWN BY: DEW PROJECT NO. 21.0056546.00	CHECKED BY: SCALE: AS SHOWN REVISION NO.	FIGURE <b>4</b>

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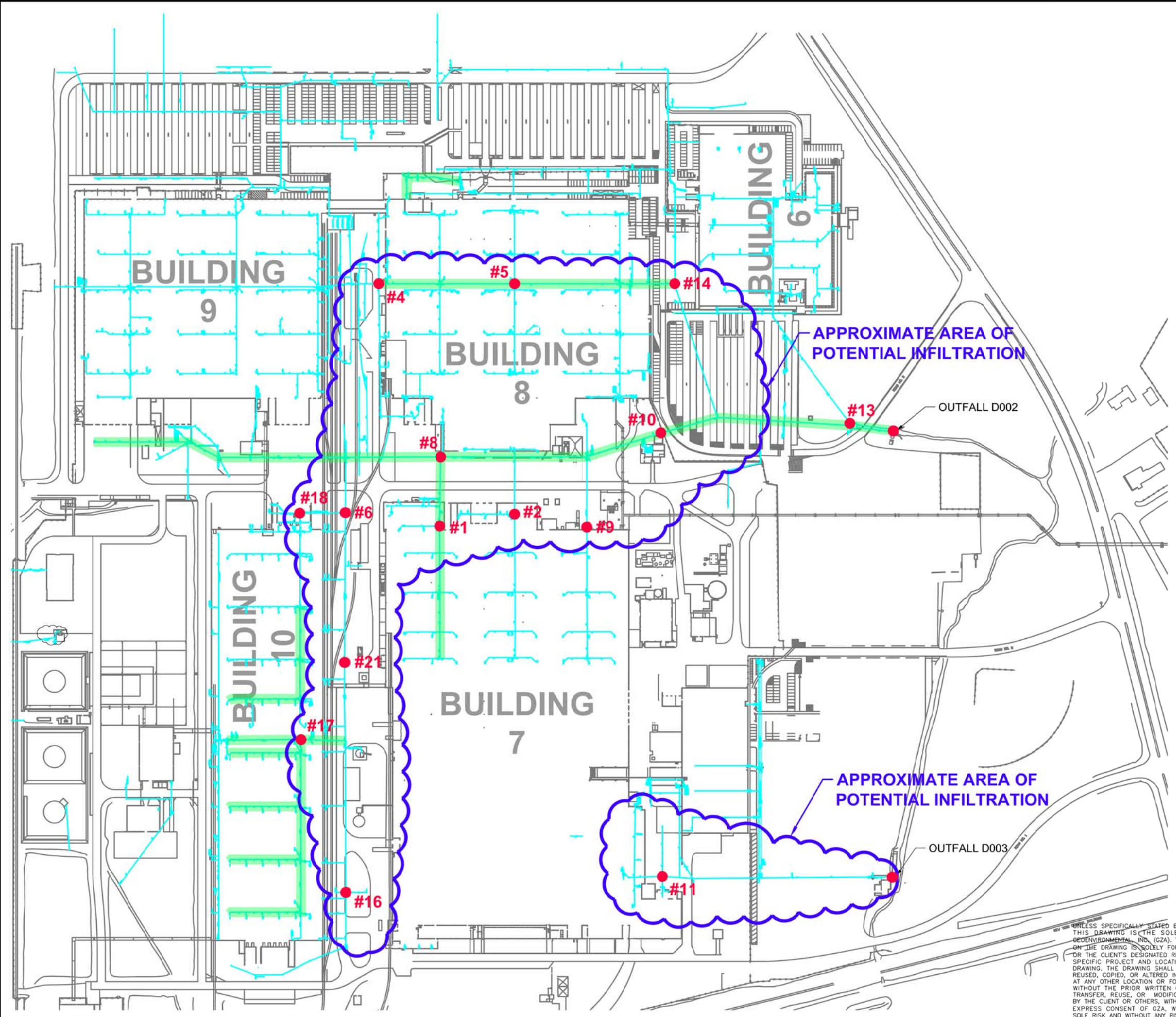


**LEGEND:**

- PORTION OF STORM SEWER WHERE STORM SEWER VIDEO WAS REVIEWED
- LOCATION OF STORM SEWER
- #1 APPROXIMATE LOCATION OF STORM SEWER SAMPLING POINT WITH COC DETECTION
- COC = COMPOUND OF CONCERN

**NOTES:**

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.



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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>LOCKPORT FACILITY</b> 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK			
<b>LOCATION OF DETECTED COCS AND STORM SEWER VIDEOS</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y. Engineers and Scientists</b> 535 WASHINGTON STREET 11th FLOOR BUFFALO, NEW YORK 14203 (716) 885-2300		PREPARED FOR: <b>GM COMPONENTS HOLDINGS, LLC</b>	
PROJ MGR: CZB DESIGNED BY: DATE: FEBRUARY 2013	REVIEWED BY: DRAWN BY: DEW PROJECT NO.: 21.0056546.00	CHECKED BY: SCALE: AS SHOWN REVISION NO.	FIGURE <b>5</b>

© 2013 - GZA GeoEnvironmental of N.Y. GZA-1\PROJECTS\06000\06046 GM Components LLC\Storm Sewer Investigation\Report Figures\Figure 5 Storm Sewer COCs and Videos.dwg [Figure 5 Storm Sewer COCs and Videos.dwg] March 04, 2013 - 11:09am dwg.dwg

**TABLE 1  
Storm Sewer Sampling Summary  
GMCH Lockport**

Location		Flow	COC Detections	Sheen	OVM Readings	MH Construction	MH Bottom Elevation	Depth to Water	# of Pipes	Pipe Location	Pipe Invert Elevation	Nearby GW Elevation Range	Nearby Well Info Used	Groundwater Elevation Relative to Bottom of Manhole & Pipe Inverts	Notes/Comments
MH-1	Interior Bldg 7 Col J63, NW corner	No	Yes	possible slight sheen	ND	Brick lined	606.96	NM	3			606.99 to 607.38	MW-7-7, MW-10-3, MW-8-2	At	Sample collected from water accumulated in bottom of MH. MH-1 compounds of concern (COCs) concentrations (222 ppb) are greater than total COCs detected at MW-10-3 (35 ppb), which is upgradient of MH-1 by approximately 300 feet; and are well below COC concentrations detected at MW-7-A-6 and MW-7-7. North pipe appears to be slip-lined.
								South		609.95	Above				
								West		609.96	Above				
								North		607.55	At				
MH-2	Interior Bldg 7 Col V65, North central	Slight flow from south pipe	Yes	No	0.2ppm above background (0.4 ppm)	Brick lined	606.96	609.96	3			605.73 to 607.38	MW-7-7, MW-10-3, MW-8-2, MW-8-003B	At	Sample collected from discharge from southern pipe into MH. MH-2 COC concentrations (25 ppb) are similar to those concentrations at MW-10-3 (35 ppb), which is upgradient of MH-2 by 550 feet, with similar compounds detected. MH-2 concentrations are well below concentrations detected at MW-7-A-6 and MW-7-7. PCE concentrations higher than those detected at MH-1, located west of MH-2 about 220 feet upgradient by way of groundwater flow direction.
								South		609.95	Above				
								West		607.46	At				
								North		607.45	At				
MH-3	Interior Bldg 10 Col WG43	No	No	No	ND	Brick lined	608.66	609.66	4			607.16 to 608.64	MW-10-1, MW-7-7, MW-10-3	At	Sample collected from water accumulated in bottom of MH. No COCs detected just oil & grease (2 ppm).
								South		611.35	Above				
								East		613.25	Above				
								West		611.35	Above				
								North		611.35	Above				
MH-4	Exterior between Bldgs 8 & 9	Yes, flow from north upper pipe, north lower pipe, south lower pipe and west pipe.	Yes	Yes	ND	Brick lined	605.4	605.8	6			605.79 to 609.49	MW-8-1, MW-8-2, MW-9-12	Below	Sample collected from bottom of MH. Cis-DCE was the only COC detected, similar to groundwater results from MW-8-1, which is about 175 feet to the northeast from MH-4 and slightly upgradient.
								North Lower		606.6	Below				
								North Upper		608.5	Below				
								South Lower		607.6	Below				
								South Upper		609.8	At				
								West		605.4	Below				
								East		605.4	Below				
MH-5	Interior of Bldg 8 Col V101 (Cold Storage)	Yes	Yes	No	ND	Brick lined	603.36	603.66	6			606.31 to 609.49	MW-8-1, MW-8-2, MW-8-3	Below	A water softener was discharging to the manhole via tubing through a perforation in the top of the MH cover. Sample was collected from the water accumulating in the bottom of the MH. 1,1,2-trichloro-1,2,2 trifluoroethane was detected at 100 ppb. Total COC concentrations at MH-5 are 14 ppb and the total COC concentration at MW-8-3 are 12 ppb, located about 100 feet to the southeast. No vinyl chloride detected in MW-8-3.
								West		604.46	Below				
								North		608.46	Below				
								South		606.46	Below				
								Upper East		611.66	Above				
								Middle East		608.86	Above				
								Lower East		604.06	Below				
MH-6	Exterior near NW corner of Bldg 10	No	Yes	No	ND	Brick lined	605.22	605.62	3			606.99 to 607.07	MW-7-7, MW-10-3	Below	MH cover (dome slotted steel) could not be removed. Sample was collected from water in bottom of the MH with a bailer. Total COC concentrations at MH-6 are 581 ppb and are greater than total COCs detected at MW-10-3 (35 ppb), which is located about 90 feet to the south. MH-6 concentrations are well below concentrations detected at MW-10-1 and MW-7-7, but similar to MW-7-8 concentrations (417 ppb), which is in the vicinity of the upgradient piping associated with MH-6.
								South		605.8	Below				
								West		605.88	Below				
								North		605.77	Below				
MH-7	Exterior between Bldg 7 & 10	Flow from south and west pipes in MH	NS	No	ND	Brick lined	5 feet bgs	4.9 feet bgs	3			No elevation data so GW assumed to be 2.3 to 3.9 feet bgs in vicinity of MH-7 based on MW-7-A-6, MW-7-8 and MW-10-2 GW measurements.	MW-10-2, MW-7-8, MW-7-A-6	Below	No sample collected, could not open or access MH. Observations and measurements made through MH cover.
								South		5 feet bgs	Below				
								West		5 ft bgs	Below				
								North		4.4.7 ft bgs	Below				

**TABLE 1  
Storm Sewer Sampling Summary  
GMCH Lockport**

Location		Flow	COC Detections	Sheen	OVM Readings	MH Construction	MH Bottom Elevation	Depth to Water	# of Pipes	Pipe Location	Pipe Invert Elevation	Nearby GW Elevation Range	Nearby Well Info Used	Pipe Relative to GW elevation and Bottom of Manhole	Notes/Comments
MH-8	Exterior near SE corner of Bldg 8	Flow from west to east through MH	Yes	No	ND	Brick lined	604.53	605.43	3			605.73 to 607.38	MW-8-2, MW-8-003B	Below	Sample collected from water flowing through MH. Total COC concentrations (242 ppb) are similar to MH-1 (222 ppb) which discharges to MH-8 from Bldg 7. Total COC concentrations in MW-8-2 (approximately 210 feet north) is 10,604 ppb of which 10,000 ppb is the cis-DCE concentration. Pipe appears to be slip lined.
								West		605.13	Below				
								South		605.13	Below				
								East		605.13	Below				
MH-9	Exterior near NE corner of Bldg 7	No	Yes	No	0.3 ppm above background (0 ppm)	Brick lined	607.94	608.84	2			602.11 to 605.73	MW-8-003B MW-8	Above	Sample collected from water accumulated in bottom of MH. Total COC concentrations decrease compared to MH-1 and MH-2 (also associated with Bldg 7), which are upgradient by way of groundwater flow direction. Total COC concentration at MH-9 (6 ppb) is below the total COCs detected at nearby wells MW-8-003-B (2,900 ppb) and MW-7-C-2 (392 ppb).
								South		609.95	Above				
								North		608.6	Above				
MH-10	Exterior near NE corner of Cooling Tower east of Bldg 8	Flow from west to east through MH	Yes	Yes	ND	Brick lined	595.19	595.2	3			605.05 to 606.32	MW-3S, MW-7	Below	Sample collected from water flowing through MH. 1,1,2-trichloro-1,2,2trifluoroethane was detected at 1.3 ppb. Total COC concentration is 1,034 ppb, which is below the total COC concentrations at nearby wells MW-8-003-B (2,900 ppb) and MW-7 (773,000 ppb). Solid ~1 ft diameter steel pipe through MH.
								West		595.19	Below				
								East		595.19	Below				
								North/South		597.49	Below				
MH-11	Exterior near SE corner of Bldg 7	Very low flow	Yes	Slight sheen	ND	Concrete lined	10.3 ft bgs	10.3 ft bgs	4			No elevation data so GW assumed to be 7 to 10 feet bgs in vicinity of MH-11 based on MW-7-P-1 and MW-7-5 GW measurements.	MW-7-P-1, MW-7-5	Below	Sample collected from bottom of MH. Not able to fill 1L amber due to very low flow. MH-11 Total COC concentrations (12 ppb) are a similar order of magnitude as the total COC concentration detected at MW-7-P-1 which was 19 ppb (vinyl chloride only, 2012 data) and 41 ppb (multiple COCs, 2011data). MW-7-P-1 is approximately 300 feet upgradient of MH-11.
								North		5.7 ft bgs	Above				
								Southeast		4.5 ft bgs	Above				
								East		10.3 ft bgs	Below				
								West		10.3 ft bgs	Below				
MH-12	Exterior, south side of Bldg 6	Flow from north pipe	No	No	ND	Brick lined	5.6 ft bgs	4.6 ft bgs	2			No elevation data so GW assumed to be 6 to 12 feet bgs in vicinity of MH-12 based on MW-4 and MW-10 GW measurements.	MW-4, MW-10	Above	Sample collected from flow from north pipe. No COCs detected outside Delphi Bldg 6.
								North		4.7 ft bgs	Above				
								Southeast		4.7 ft bgs	Above				
MH-13	Exterior near MW-10 and Road 3	Yes	Yes	Yes	ND	Concrete lined	9.0 feet bgs	8.3 feet bgs	4			No elevation data so GW assumed to be 12 feet bgs in vicinity of MH-12 based on MW-10 GW measurements.	MW-10	Above	Sample collected from water accumulated in bottom of MH. 1,1,2-trichloro-1,2,2trifluoroethane was detected at 6.4 ppb. Total COC concentration at MH-13 are 158 ppb, which is below total COC concentration detected at MW-10 (562 ppb), which is 70 feet upgradient of MH-13. MH-13 is part of a much larger structure than shown on sewer drawings previously provided and also receives storm water from the line coming east from MH-10.
								Northwest		7 ft bgs	Above				
								East North		9 ft bgs	Above				
								East South		9 ft bgs	Above				
								West		NM	Above				
MH-14	Exterior, near SW corner of Bldg 6	Yes	Yes	Yes	ND	Brick lined	11.5 ft bgs	10.6 ft bgs	3			No elevation data so GW assumed to be 8 feet bgs in vicinity of MH-14 based on MW-8-4 GW measurements.	MW-8-4	Below	Sample collected from water accumulated in bottom of MH. 1,1,2-trichloro-1,2,2trifluoroethane was detected at 53 ppb. This is the fourth detection of this compound and all four appear to be associated with lines under and around Bldg 8. Total COCs at MH-14 are 134 ppb and the total COC concentrations at MW-8-4, located approximately 50 feet to the northeast, are 88 ppb. The individual compounds detected at both MH-14 and MW-8-4 are the same, with similar concentration ratios detected.
								North		10.9	Below				
								West		10.5	Below				
								Southeast		10.7	Below				
MH-15	Exterior, near NW corner of Bldg 6, near former USTs	Yes	No	Yes	ND	Concrete lined	606	606.4	3			609.53	MW-6-F-8	Below	Sample collected from water accumulated in bottom of MH. No detections.
								North		606.37	Below				
								South		606.32	Below				
								West		607.32	Below				

**TABLE 1  
Storm Sewer Sampling Summary  
GMCH Lockport**

Location	Flow	COC Detections	Sheen	OVM Readings	MH Construction	MH Bottom Elevation	Depth to Water	# of Pipes	Pipe Location	Pipe Invert Elevation	Nearby GW Elevation Range	Nearby Well Info Used	Pipe Relative to GW elevation and Bottom of Manhole	Notes/Comments
						NM	NM						Below	
MH-16	Exterior between Bldgs 7 & 10 near SE corner of Building 10	Yes, slight flow from south to north	Yes	No	ND	Brick lined	NM	NM	4		609.22	MW-7-8	Below	MH could not be opened. Sample was collected with bailer through top of grate. Total COC at MH-16 is 258 ppb and the total COC concentrations at MW-7-8, located approximately 120 feet to the northeast, is 417 ppb. Cis-DCE was the main COC detected at both MH-16 and MW-7-8, with similar concentrations detected.
													Below	
													Below	
													unknown	
MH-17	Interior east central portion of Bldg 10	No	Yes	No	ND	Concrete lined	605.66	607.47	4		607.73	MW-10-2	Below	Sample collected from water accumulated in bottom of MH. Total COC concentration at MH-17 is 1,689 ppb, which is below total COC concentration detected at MW-10-2 (3,326 ppb), located 100 feet east and downgradient of MH-17.
													Above	
													Above	
													Above	
MH-18	Located in the northern loading dock of Bldg 10	No	Yes	No	ND	Brick lined	5.71	5.58	3		607.16	MW-10-3	Below	Sample collected from water accumulated in bottom of MH. Total COC concentration at MH-18 is 42 ppb which is slightly above the total COC concentration detected at MW-10-3 (35 ppb), located 150 feet southeast and downgradient of MH-18. The same 3 COCs TCE, PCE and cis-DCE were detected at both locations.
													Below	
													Below	
													Above	
MH-19	Exterior location between Bldgs 9 & 10 along main storm sewer line running west to east through Site	Yes, slight flow west to east	No	No	ND	Concrete lined	4.13	3.73	2		607.16	MW-10-3	Below	Sample collected from slight flow from west to east. No VOCs detected.
													Below	
													Below	
MH-20	Interior central portion of Bldg 9	Yes, slight flow from west to east	No	No	ND	Brick lined	607.24	608.03	4		~609	MW-9-101A and MW-8-1	Below	Sample collected from slight flow from west to east. Acetone was the only VOC detected.
													At	
													At	
													At	
MH-21	Exterior between Bldgs 7 & 10, near MW-7-7	Yes, slight flow from south to north	Yes	No	ND	Brick lined	NM	NM	2		607.46	MW-7-7	Below	Bottom of MH consisted of the pipes entering and exiting the structure. Bottom of MH and water level were the same. Total COC concentration at MH-21 is 1,051 ppb which is 3 orders of magnitude lower than the total COC concentration detected at MW-7-7 (129,000 ppb), which is 60 feet east and downgradient of MH-21.
													Below	
													Below	
MH-22	Interior of Bldg 10 near Col WG5	Yes, slight flow from South, SE and West and flowing to the north	No	No	ND	Brick lined	608.82	610.87	5		Approximately 609	Contour Map Estimation	Below	Sample collected from water accumulated in bottom of MH. VOCs and O&G results were non-detect.
													Above	
													Above	
													Above	
													Above	
MH-23	Interior of Bldg 10 near Col WG21	Yes, flow from south and slight flow from west and exit to the north	No	No	ND	Brick lined	607.51	608.58	5		Approximately 609	Coutour Map Estimation	Below	Sample collected from water accumulated in bottom of MH. COCs and O&G results were non-detect. Acetone was detected at 3 ppb.
													Above	
													Above	
													Above	
													Above	
													Above	
MH-24	Interior of Bldg 10 near Col WV31	Yes, slight flow in to MH from south to east	No	No	ND	Brick lined	609.7	611.99	3		Approximately 610	Contour Map Estimation	Below	Sample collected from water accumulated in bottom of MH. VOCs and O&G results were non-detect.
													Above	
													Above	
													Above	
MH-25	Exterior, South of Bldg 7A	Yes, slight flow from west to south	No	No	ND	Brick lined	6.9	6.21	3		~600	Contour Map Estimation	Below	Sample collected from water accumulated in bottom of MH. VOCs and O&G results were non-detect.
													Below	
													Below	
													At	

■ GZA interpolated elevation or depth based on field measurements.  
 bgs = below ground surface.  
 ND = non detect  
 NM = not measured





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## MEMORANDUM

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TO: Denis Conley REF. NO.: 058507-256013

FROM: Kathleen Willy/adh/54 *Yw* DATE: September 24, 2012

C.C.: Claire Mondello, Chris Boron E-Mail and Hard Copy If Requested

RE: Data Quality Assessment and Verification  
Storm Sewer Investigation  
General Motors Corporation  
Lockport, New York  
August 2012

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The following details a quality assessment and validation of the analytical data resulting from the August 2012 collection of 15 samples from the General Motors Site in Lockport, New York. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at TestAmerica Laboratories, Inc. (TestAmerica) in Amherst, New York in accordance with the methodologies presented in Table 2. Table 3 presents the validated analytical data.

The quality control criteria used to assess the data were established by the methods. Application of quality assurance criteria was consistent with the following guidance documents:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," EPA-540/R-99/008, October 1999
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA-540/R-94/013, February 1994

These guidelines are collectively referred to as "NFGs" in this Memorandum.

The final sample results and supporting quality assurance/quality control (QA/QC) results were reported by the laboratory in a reduced deliverable format.

Data assessment was based on information obtained from blank data, surrogate recoveries, blank and matrix spike recoveries, and final data sheets.

### Sample Quantitation

The laboratory reported detected concentrations of volatile organic compounds (VOCs) and oil and grease below the laboratory's practical quantitation limit (PQL) but above the laboratory's method detection limit

(MDL). The laboratory flagged these sample concentrations with a "J." These concentrations should be considered as estimated (J) values unless qualified otherwise in this memorandum.

#### Sample Preservation and Holding Times

Sample holding time periods and preservation requirements are summarized in the analytical methods. All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly received and stored after collection.

#### Method Blank Samples

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

The method blank samples were reported to be free from detectable levels of target analytes with the exception of a low level detection of bromomethane. All associated sample results were non-detect and no qualification of the data was necessary.

#### Surrogate Compounds - Organic Analyses

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples indicating acceptable laboratory performance.

#### Matrix Spike/Matrix Spike Duplicate Analyses

To assess the long-term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory.

MS/MSD analyses were analyzed at the proper frequency, and all recoveries were within laboratory specified control limits indicating good analytical accuracy and precision.

#### Laboratory Control Sample (LCS)

The LCS analysis serves as a monitor of the overall performance in all steps of the sample analysis and is analyzed with each sample batch. The LCS percent recoveries were evaluated against method and laboratory established control limits.

The LCS percent recoveries were all within the laboratory control limits indicating acceptable analytical accuracy.

Field QA/QC

Site-specific field QA/QC was not collected for this sampling event.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used without qualification.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY  
 STORM SEWER INVESTIGATION  
 GENERAL MOTORS CORPORATION  
 LOCKPORT, NEW YORK  
 AUGUST 2012

<i>Sample ID</i>	<i>Location ID</i>	<i>Collection Date (mm/dd/yy)</i>	<i>Collection Time (hr:min)</i>	<i>Analysis/Parameters</i>		<i>Comments</i>
				<i>TCL VOCs</i>	<i>Oil and Grease</i>	
MH-1-083012-0910	MH-1	8/30/2012	9:10	X	X	
MH-12-083012-1550	MH-12	8/30/2012	15:50	X	X	
MH-13-083012-1620	MH-13	8/30/2012	16:20	X	X	
MH-14-083012-1650	MH-14	8/30/2012	16:50	X	X	
MH-15-083012-1720	MH-15	8/30/2012	17:20	X	X	
MH-2-083012-1015	MH-2	8/30/2012	10:15	X	X	
MH-3-083012-1050	MH-3	8/30/2012	10:50	X	X	
MH-4-083012-1210	MH-4	8/30/2012	13:10	X	X	
MH-5-083012-1250	MH-5	8/30/2012	13:50	X	X	
MH-8-083012-1400	MH-8	8/30/2012	14:00	X	X	
MH-9-083012-1422	MH-9	8/30/2012	14:22	X	X	
MH-10-083012-1445	MH-10	8/30/2012	14:45	X	X	
MH-11-083012-1515	MH-11	8/30/2012	15:15	X	X	
TAP7A-083112-1345	Bathroom Tap 7A	8/31/2012	13:45	X		
MH-6-083112-1400	MH-6	8/31/2012	14:00	X	X	

## Notes:

TCL Target Compound List.

VOCs Volatile Organic Compounds.

TABLE 2

**SAMPLE HOLDING TIME CRITERIA AND ANALYTICAL METHODS SUMMARY**  
**STORM SEWER INVESTIGATION**  
**GENERAL MOTORS CORPORATION**  
**LOCKPORT, NEW YORK**  
**AUGUST 2012**

<i>Parameter</i>	<i>Analytical Method</i>
Volatile Organic Compounds	SW 846 8260 <sup>(1)</sup>
Oil and Grease	1664A <sup>(2)</sup>

## Notes:

- <sup>1</sup> Referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Third Edition, 1986, with subsequent revisions.
- <sup>2</sup> EPA-821-98-002

TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>	<i>Bathroom Tap 7A</i>	<i>MH-1</i>	<i>MH-2</i>	<i>MH-3</i>	<i>MH-4</i>
<i>Sample ID:</i>	TAP7A-083112-1345	MH-1-083012-0910	MH-2-083012-1015	MH-3-083012-1050	MH-4-083012-1210
<i>Sample Date:</i>	8/31/2012	8/30/2012	8/30/2012	8/30/2012	8/30/2012
<i>Parameters</i>	<i>Units</i>				
<i>Volatile Organic Compounds</i>					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	13	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.1	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	34	0.43 J	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	120	7.4	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	4.8	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>	<i>Bathroom Tap 7A</i>		<i>MH-1</i>	<i>MH-2</i>	<i>MH-3</i>	<i>MH-4</i>
<i>Sample ID:</i>	<i>TAP7A-083112-1345</i>		<i>MH-1-083012-0910</i>	<i>MH-2-083012-1015</i>	<i>MH-3-083012-1050</i>	<i>MH-4-083012-1210</i>
<i>Sample Date:</i>	<i>8/31/2012</i>		<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds - Continued</i>						
Methyl acetate	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.2	14	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.7	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	96	3.4	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	3.1	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
<i>General Chemistry</i>						
Oil and grease	mg/L	-	2.5 J	2.4 J	2.0 J	4.1 J

## Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

- - Not analyzed.

TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>	<i>MH-5</i>	<i>MH-6</i>	<i>MH-8</i>	<i>MH-9</i>	<i>MH-10</i>
<i>Sample ID:</i>	<i>MH-5-083012-1250</i>	<i>MH-6-083112-1400</i>	<i>MH-8-083012-1400</i>	<i>MH-9-083012-1422</i>	<i>MH-10-083012-1445</i>
<i>Sample Date:</i>	<i>8/30/2012</i>	<i>8/31/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>
<i>Parameters</i>	<i>Units</i>				
<i>Volatile Organic Compounds</i>					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	0.82 J	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	0.67 J	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	9.4	300	78	3.5
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U



TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>		<i>MH-5</i>	<i>MH-6</i>	<i>MH-8</i>	<i>MH-9</i>	<i>MH-10</i>
<i>Sample ID:</i>		<i>MH-5-083012-1250</i>	<i>MH-6-083112-1400</i>	<i>MH-8-083012-1400</i>	<i>MH-9-083012-1422</i>	<i>MH-10-083012-1445</i>
<i>Sample Date:</i>		<i>8/30/2012</i>	<i>8/31/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds - Continued</i>						
Methyl acetate	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	150	90	0.69 J	140
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	2.2	1.0 U	1.0 U	3.0
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	3.1	98	59	2.1	510
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	100	1.0 U	1.0 U	1.0 U	1.3
Vinyl chloride	µg/L	1.3	30	15	1.0 U	20
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
<i>General Chemistry</i>						
Oil and grease	mg/L	5.6 U	2.2 J	4.9 U	5.3 U	3.8 J

## Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

- - Not analyzed.

TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>		<i>MH-11</i>	<i>MH-12</i>	<i>MH-13</i>	<i>MH-14</i>	<i>MH-15</i>
<i>Sample ID:</i>		<i>MH-11-083012-1515</i>	<i>MH-12-083012-1550</i>	<i>MH-13-083012-1620</i>	<i>MH-14-083012-1650</i>	<i>MH-15-083012-1720</i>
<i>Sample Date:</i>		<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds</i>						
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.1	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	0.86 J	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	2.8	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	4.5	1.0 U	63	98	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	0.79 J	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
AUGUST 2012

<i>Sample Location:</i>		<i>MH-11</i>	<i>MH-12</i>	<i>MH-13</i>	<i>MH-14</i>	<i>MH-15</i>
<i>Sample ID:</i>		<i>MH-11-083012-1515</i>	<i>MH-12-083012-1550</i>	<i>MH-13-083012-1620</i>	<i>MH-14-083012-1650</i>	<i>MH-15-083012-1720</i>
<i>Sample Date:</i>		<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>	<i>8/30/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds - Continued</i>						
Methyl acetate	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	4.0	1.0 U	15	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.9	1.0 U	74	6.0	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	1.0 U	1.0 U	6.4	53	1.0 U
Vinyl chloride	µg/L	1.2	1.0 U	5.9	30	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
<i>General Chemistry</i>						
Oil and grease	mg/L	2.2 J	5.0 U	5.3 U	5.0 U	4.9 U

## Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

- - Not analyzed.



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## MEMORANDUM

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TO: Denis Conley REF. NO.: 58507-256014

FROM: Kathleen Willy/bjw/55 *W* DATE: October 29, 2012

CC: Claire Mondello, Chris Boron E-Mail and Hard Copy If Requested

RE: Data Quality Assessment and Verification  
Storm Sewer Investigation  
General Motors Corporation  
Lockport, New York  
October 2012

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### INTRODUCTION

The following details a quality assessment and validation of the analytical data resulting from the October 2012 collection of nine (9) samples and one (1) trip blank from the General Motors Site in Lockport, New York. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at TestAmerica Laboratories, Inc. (TestAmerica) in Amherst, New York in accordance with the methodologies presented in Table 2. Table 3 presents the validated analytical data.

The quality control criteria used to assess the data were established by the methods. Application of quality assurance criteria was consistent with following guidance documents:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999;
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", EPA-540/R-94/013, February 1994.

These guidelines are collectively referred to as "NFGs" in this Memorandum.

The final sample results and supporting quality assurance/quality control (QA/QC) results were reported by the laboratory in a reduced deliverable format.

Data assessment was based on information obtained from blank data, surrogate recoveries, blank and matrix spike recoveries, and final data sheets.

### SAMPLE QUANTITATION

The laboratory reported detected concentrations of volatile organic compounds (VOC) and oil and grease below the laboratory's practical quantitation limit (PQL) but above the laboratory's method detection limit (MDL). The laboratory flagged these sample concentrations with a "J". These concentrations should be considered as estimated (J) values unless qualified otherwise in this memorandum

### SAMPLE PRESERVATION AND HOLDING TIMES

Sample holding time periods and preservation requirements are summarized in the analytical methods. All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly received and stored after collection.

### METHOD BLANK SAMPLES

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

Method blanks were analyzed at the recommended frequency, and the results were non-detect for all analytes of interest.

### SURROGATE COMPOUNDS - ORGANIC ANALYSES

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples indicating acceptable laboratory performance.

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory.

MS/MSD analyses were analyzed at the proper frequency and all recoveries were within laboratory specified control limits indicating good analytical accuracy and precision.

LABORATORY CONTROL SAMPLE (LCS) ANALYSES

The LCS analysis serves as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The LCS percent recoveries were evaluated against method and laboratory established control limits.

The LCS percent recoveries were all within the laboratory control limits indicating acceptable analytical accuracy.

FIELD QUALITY ASSURANCE/QUALITY CONTROL*Trip Blanks*

Trip blanks are transported, stored, and analyzed with the investigative samples to identify potential cross-contamination of VOCs.

Trip blanks were collected and analyzed at the proper frequency and all results were non-detect for the compounds of interest.

OVERALL ASSESSMENT

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used without qualification.

TABLE 1

**SAMPLE COLLECTION AND ANALYSIS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012**

<i>Sample ID</i>	<i>Location ID</i>	<i>Collection</i>		<u><i>Analysis/Parameters</i></u>	
		<i>Date (mm/dd/yy)</i>	<i>Time (hr:min)</i>	<i>TCL VOCs</i>	<i>Oil and Grease</i>
MH-16-100512-1000	MH-16	10/05/12	10:00	X	X
MH-17-100512-1030	MH-17	10/05/12	10:30	X	X
MH-18-100512-1100	MH-18	10/05/12	11:00	X	X
MH-19-100512-1130	MH-19	10/05/12	11:30	X	X
MH-20-100512-1230	MH-20	10/05/12	12:30	X	X
MH-21-100512-1330	MH-21	10/05/12	13:30	X	X
MH-6-100512-1300	MH-6	10/05/12	13:00	X	X
OUTFALL002-100512-1400		10/05/12	14:00	X	X
OUTFALL003-100512-1430		10/05/12	14:30	X	X
TRIP BLANK	-	10/05/12	-	X	

Notes:

VOCs      Volatile Organic Compounds

TABLE 2

SUMMARY OF ANALYTICAL METHODS  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012

<i>Parameter</i>	<i>Analytical Method</i>
VOCs	SW 846 8260 <sup>(1)</sup>
Oil and Grease	1664A <sup>(2)</sup>

## Notes:

<sup>1</sup> Referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions.

<sup>2</sup> EPA-821-98-002

VOCs Volatile Organic Compounds.



TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012**

	<i>Sample Location:</i>	<i>MH-6</i>	<i>MH-16</i>	<i>MH-17</i>	<i>MH-18</i>	<i>MH-19</i>
	<i>Sample ID:</i>	<i>MH-6-100512-1300</i>	<i>MH-16-100512-1000</i>	<i>MH-17-100512-1030</i>	<i>MH-18-100512-1100</i>	<i>MH-19-100512-1130</i>
	<i>Sample Date:</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds</i>						
1,1,1-Trichloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	2.7 J	0.48 J	2.8 J	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	50 U	10 U	50 U	10 U	10 U
2-Hexanone	µg/L	25 U	5.0 U	25 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	25 U	5.0 U	25 U	5.0 U	5.0 U
Acetone	µg/L	50 U	10 U	50 U	10 U	6.6 J
Benzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Bromoform	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U

TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012**

	<i>Sample Location:</i>	<i>MH-6</i>	<i>MH-16</i>	<i>MH-17</i>	<i>MH-18</i>	<i>MH-19</i>
	<i>Sample ID:</i>	<i>MH-6-100512-1300</i>	<i>MH-16-100512-1000</i>	<i>MH-17-100512-1030</i>	<i>MH-18-100512-1100</i>	<i>MH-19-100512-1130</i>
	<i>Sample Date:</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>
<i>Parameters</i>	<i>Units</i>					
<i>Volatile Organic Compounds (Cont'd.)</i>						
Chloroethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	5.0 U	0.46 J	5.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	650	200	310	29	1.0 U
cis-1,3-Dichloropropene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Methyl cyclohexane	µg/L	5.0 U	0.67 J	5.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Styrene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	19	3.6	730	8.5	1.0 U
Toluene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	6.3	5.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	16	7.5	640	4.5	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	99	47	5.9	1.0 U	1.0 U
Xylenes (total)	µg/L	10 U	2.0 U	10 U	2.0 U	2.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY  
 STORM SEWER INVESTIGATION  
 GENERAL MOTORS CORPORATION  
 LOCKPORT, NEW YORK  
 OCTOBER 2012

	<i>Sample Location:</i>	MH-6	MH-16	MH-17	MH-18	MH-19
	<i>Sample ID:</i>	MH-6-100512-1300	MH-16-100512-1000	MH-17-100512-1030	MH-18-100512-1100	MH-19-100512-1130
	<i>Sample Date:</i>	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012
<i>Parameters</i>	<i>Units</i>					
<i>General Chemistry</i>						
Oil and grease	mg/L	2.4 J	5.4	5.0 U	5.0 U	5.0 U

TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012**

	<i>Sample Location:</i>	<i>MH-20</i>	<i>MH-21</i>	<i>Outfall 002</i>	<i>Outfall 003</i>
	<i>Sample ID:</i>	<i>MH-20-100512-1230</i>	<i>MH-21-100512-1330</i>	<i>OUTFALL002-100512-1400</i>	<i>OUTFALL003-100512-1430</i>
	<i>Sample Date:</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>
<i>Parameters</i>	<i>Units</i>				
<i>Volatile Organic Compounds</i>					
1,1,1-Trichloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,1-Dichloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,1-Dichloroethene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2-Dichloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,2-Dichloropropane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	50 U	10 U	20 U
2-Hexanone	µg/L	5.0 U	25 U	5.0 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	25 U	5.0 U	10 U
Acetone	µg/L	10 U	50 U	10 U	20 U
Benzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Bromodichloromethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Bromoform	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Carbon disulfide	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Carbon tetrachloride	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Chlorobenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U

TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
OCTOBER 2012**

	<i>Sample Location:</i>	<i>MH-20</i>	<i>MH-21</i>	<i>Outfall 002</i>	<i>Outfall 003</i>
	<i>Sample ID:</i>	<i>MH-20-100512-1230</i>	<i>MH-21-100512-1330</i>	<i>OUTFALL002-100512-1400</i>	<i>OUTFALL003-100512-1430</i>
	<i>Sample Date:</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>
<i>Parameters</i>	<i>Units</i>				
<i>Volatile Organic Compounds (Cont'd.)</i>					
Chloroethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	200	96	140
cis-1,3-Dichloropropene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Cyclohexane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Dibromochloromethane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Ethylbenzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Isopropyl benzene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Methyl acetate	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Methyl cyclohexane	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Methylene chloride	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Styrene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Tetrachloroethene	µg/L	1.0 U	620	25	5.7
Toluene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Trichloroethene	µg/L	1.0 U	220	120	5.4
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	5.0 U	1.0 U	2.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	1.0 U	5.0 U	6.5	2.0 U
Vinyl chloride	µg/L	1.0 U	11	9.4	6.3
Xylenes (total)	µg/L	2.0 U	10 U	2.0 U	4.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY  
 STORM SEWER INVESTIGATION  
 GENERAL MOTORS CORPORATION  
 LOCKPORT, NEW YORK  
 OCTOBER 2012

<i>Sample Location:</i>	<i>MH-20</i>	<i>MH-21</i>	<i>Outfall 002</i>	<i>Outfall 003</i>
<i>Sample ID:</i>	<i>MH-20-100512-1230</i>	<i>MH-21-100512-1330</i>	<i>OUTFALL002-100512-1400</i>	<i>OUTFALL003-100512-1430</i>
<i>Sample Date:</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>	<i>10/5/2012</i>

*Parameters*

*Units*

*General Chemistry*

Oil and grease	mg/L	5.0 U	5.0 U	5.0 U	5.0 U
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Notes:

J - Estimated concentration.

U - Not present at or above the associated value.



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## MEMORANDUM

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TO: Denis Conley REF. NO.: 58507-256014

FROM: Kathleen Willy/eew/61 *KW* DATE: January 23, 2013

CC: Claire Mondello, Chris Boron E-Mail and Hard Copy If Requested

RE: Data Quality Assessment and Verification  
Storm Sewer Investigation  
General Motors Corporation  
Lockport, New York  
January 2013

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### INTRODUCTION

The following details a quality assessment and validation of the analytical data resulting from the January 2013 collection of four (4) samples from the General Motors Site in Lockport, New York. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at TestAmerica Laboratories, Inc. (TestAmerica) in Amherst, New York in accordance with the methodologies presented in Table 2. Table 3 presents the validated analytical data.

The quality control criteria used to assess the data were established by the methods. Application of quality assurance criteria was consistent with following guidance documents:

- (i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999
- (ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", EPA-540/R-94/013, February 1994.

These guidelines are collectively referred to as "NFGs" in this Memorandum.

The final sample results and supporting QA/QC results were reported by the laboratory in a reduced deliverable format.

Data assessment was based on information obtained from blank data, surrogate recoveries, blank and matrix spike recoveries, and final data sheets.

### SAMPLE QUANTITATION

The laboratory reported detected concentrations of volatile organic compounds (VOC) and oil and grease below the laboratory's practical quantitation limit (PQL) but above the laboratory's method detection limit (MDL). The laboratory flagged these sample concentrations with a "J". These concentrations should be considered as estimated (J) values unless qualified otherwise in this memorandum

### SAMPLE PRESERVATION AND HOLDING TIMES

Sample holding time periods and preservation requirements are summarized in the analytical methods. All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly received and stored after collection.

### METHOD BLANK SAMPLES

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

Method blanks were analyzed at the recommended frequency, and the results were non-detect for all analytes of interest.

### SURROGATE COMPOUNDS - ORGANIC ANALYSES

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples indicating acceptable laboratory performance.

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory.

Site specific MS/MSD analyses were not performed.



LABORATORY CONTROL SAMPLE (LCS) ANALYSES

The LCS analysis serves as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The LCS percent recoveries were evaluated against method and laboratory established control limits.

The LCS percent recoveries were all within the laboratory control limits indicating acceptable analytical accuracy.

FIELD QUALITY ASSURANCE/QUALITY CONTROL

Field QC was not collected for this sampling event.

OVERALL ASSESSMENT

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used without qualification.

**TABLE 1**  
**SAMPLE COLLECTION AND ANALYSIS SUMMARY**  
**STORM SEWER INVESTIGATION**  
**GENERAL MOTORS CORPORATION**  
**LOCKPORT, NEW YORK**  
**JANUARY 2013**

<i>Sample ID</i>	<i>Location ID</i>	<i>Collection Date (mm/dd/yy)</i>	<i>Collection Time (hr:min)</i>	<i><u>Analysis/Parameters</u></i>		<i>Comments</i>
				<i>TCL VOCs</i>	<i>Oil and Grease</i>	
MH-24-010413-1110	MH-24	01/04/13	11:10	X	X	
MH-23-010413-1130	MH-23	01/04/13	11:30	X	X	
MH-22-010413-1145	MH-22	01/04/13	11:45	X	X	
MH-25-010413-1220	MH-25	01/04/13	12:20	X	X	

Notes:

VOCs Volatile Organic Compounds

**TABLE 2**

**SUMMARY OF ANALYTICAL METHODS**  
**STORM SEWER INVESTIGATION**  
**GENERAL MOTORS CORPORATION**  
**LOCKPORT, NEW YORK**  
**JANUARY 2013**

<i>Parameter</i>	<i>Analytical Method</i>
VOCs	SW 846 8260 <sup>(1)</sup>
Oil and Grease	1664A <sup>(2)</sup>

## Notes:

- <sup>1</sup> Referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions.
- <sup>2</sup> EPA-821-98-002  
VOCs Volatile Organic Compounds.

TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
JANUARY 2013**

<i>Sample Location:</i>	<i>MH-22</i>	<i>MH-23</i>	<i>MH-24</i>	<i>MH-25</i>	
<i>Sample ID:</i>	<i>MH-22-010413-1145</i>	<i>MH-23-010413-1130</i>	<i>MH-24-010413-1110</i>	<i>MH-25-010413-1220</i>	
<i>Sample Date:</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	
<i>Parameters:</i>	<i>Units</i>				
<i>Volatile Organic Compounds</i>					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10 U	3.0 J	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

TABLE 3

**ANALYTICAL RESULTS SUMMARY  
STORM SEWER INVESTIGATION  
GENERAL MOTORS CORPORATION  
LOCKPORT, NEW YORK  
JANUARY 2013**

<i>Sample Location:</i>	<i>MH-22</i>	<i>MH-23</i>	<i>MH-24</i>	<i>MH-25</i>	
<i>Sample ID:</i>	<i>MH-22-010413-1145</i>	<i>MH-23-010413-1130</i>	<i>MH-24-010413-1110</i>	<i>MH-25-010413-1220</i>	
<i>Sample Date:</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	<i>1/4/2013</i>	
<i>Parameters:</i>	<i>Units</i>				
<i>Volatile Organic Compounds (continued)</i>					
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (Freon 113)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
<i>General Chemistry</i>					
Oil and grease	mg/L	5.0 U	5.0 U	5.0 U	5.0 U

## Notes:

J - Estimated concentration.

U - Not present at or above the associated value.