Glenn Springs Holdings, Inc.
A subsidiary of Occidental Petroleum

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October 31, 2022

Reference No. 11225008

Mr. Benjamin J. McPherson
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: Quarterly Progress Report – Third Quarter 2022
Occidental Chemical Corporation, Buffalo Avenue Plant
NY Permit Number 9-2911-00112/00167
Module II – Corrective Action Requirements

In accordance with Module II of the Niagara Plant's Resource Conservation and Recovery Act (RCRA)/Part 373 Permit, the following is the quarterly data report for the period of July 1, 2022 to September 30, 2022. Table 1 is a summary of the monitoring tasks by quarter that are performed each year along with completion dates where applicable. Table 2 presents a summary of maintenance activities performed during the quarter.

Bedrock Groundwater

The groundwater system was operational 87.8 percent of the time this quarter. The treatment system downtime was due to various alarms (fuel pressure, low scrubber flow, and burner temp), pH calibration, leak detections at BEW705B and BEW705D, rainy conditions, and scrubber valve replacement. Downtime for greater than 72 hours consecutively and/or greater than 120 hours in a month occurred in July and September. NYSDEC was notified on July 8 and September 20, 2022.

Downtime for all extraction system wells (or most wells at once) occurred due to some of the issues associated with the treatment system. Downtime for greater than 72 hours consecutively and/or greater than 120 hours in a month occurred in July associated with the BEW700B. NYSDEC was notified on July 6, 2022.

Performance monitoring data for the bedrock groundwater system are presented as follows:

Hydraulic Monitoring Locations .....Figure 1
Chemical Monitoring Locations .....Figure 2
Recovery Volumes by Zone.....Tables 3, 4, and 5
Average Monthly Flow Rate Summary .....Table 6
Groundwater Elevations .....Table 7
Groundwater Contours (regional containment) by Zone .....Figures 3, 4, and 5

An analytical data summary and validation for the bedrock chemical monitoring program is presented in Attachment A.

Overburden Groundwater

The Flow Zone 1 remedial system was operational 88.8 percent of the time for WW1 and 88.8 percent of the time for WW2 this quarter. The Flow Zone 3 remedial system (WWB of the Energy Boulevard Drain Tile System) was operational 88.8 percent of the time this quarter. Downtime occurred due to some of the issues associated with the treatment system. Downtime for greater than 72 hours consecutively and/or greater than 120 hours in a month occurred in July and September. NYSDEC was notified on July 8 and September 20, 2022.

Occidental Chemical Corporation (OxyChem) voluntarily operates two additional overburden groundwater collection systems at the Plant. These systems include the abandoned Outfall 005 and adjacent abandoned sanitary sewer in the F- and K-Areas of the Plant (MH159L) and the abandoned D-Area sanitary sewer (MH301).

Performance monitoring data for the overburden groundwater system are presented as follows:

An analytical data summary and validation for the overburden chemical monitoring program is presented in Attachment A.

Non-aqueous Phase Liquid (NAPL) Monitoring

In accordance with the letter to the NYSDEC dated February 26, 2009, OxyChem incorporated quarterly NAPL monitoring and collection from six bedrock monitoring wells installed and monitored under the S-Area Remedial Requisite Technology Program into the Niagara Plant Corrective Action Program. Three other wells were added in accordance with the recommendations of the 2009 Annual Performance Evaluation. An additional well was added during the first quarter of 2012 in accordance with the recommendations of the 2011 Annual Performance Evaluation. These bedrock monitoring wells, designated OW229, OW243, OW618, OW619, OW620, OW621, OW634, OW635, OW638, and OW643, are located within, or immediately adjacent to, the N-Area of the Niagara Plant and contain N-Area NAPL. Quarterly NAPL checks and recovery have continued in 2022.

NAPL monitoring and collection data are presented as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions on the above, please do not hesitate to contact Joseph Branch at 231-670-6809 or email at joseph_branch@oxy.com or Tim Bathory at 716-278-7679 or email at timothy_bathory@oxy.com.

Very truly yours,

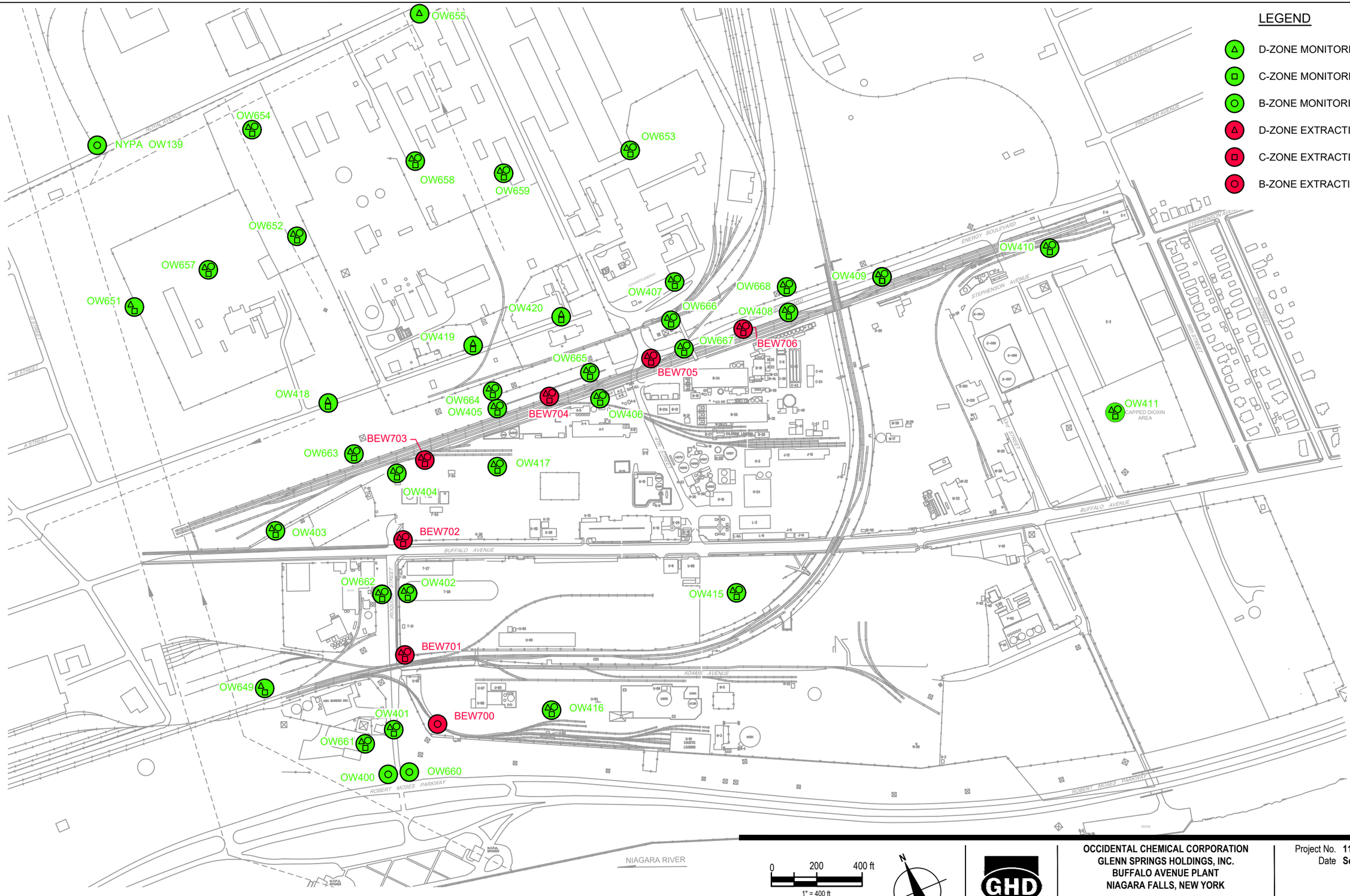
JBranch

Joseph Branch
Project Manager
Glenn Springs Holdings, Inc.

JP/kf/5/11225008

Encl.

cc: A. Caprio, NYSDEC
L. Winterberger, NYSDEC
D. Evans, NYSDEC
A. Everett, USEPA
T. Bathory, GSH
N. Ackerman, OCC
J. Pentilchuk, GHD



OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

BEDROCK GROUNDWATER HYDRAULIC MONITORING LOCATIONS

Project No. **11225008**
Date **September 2022**

FIGURE 1

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D101_WB-005.dwg
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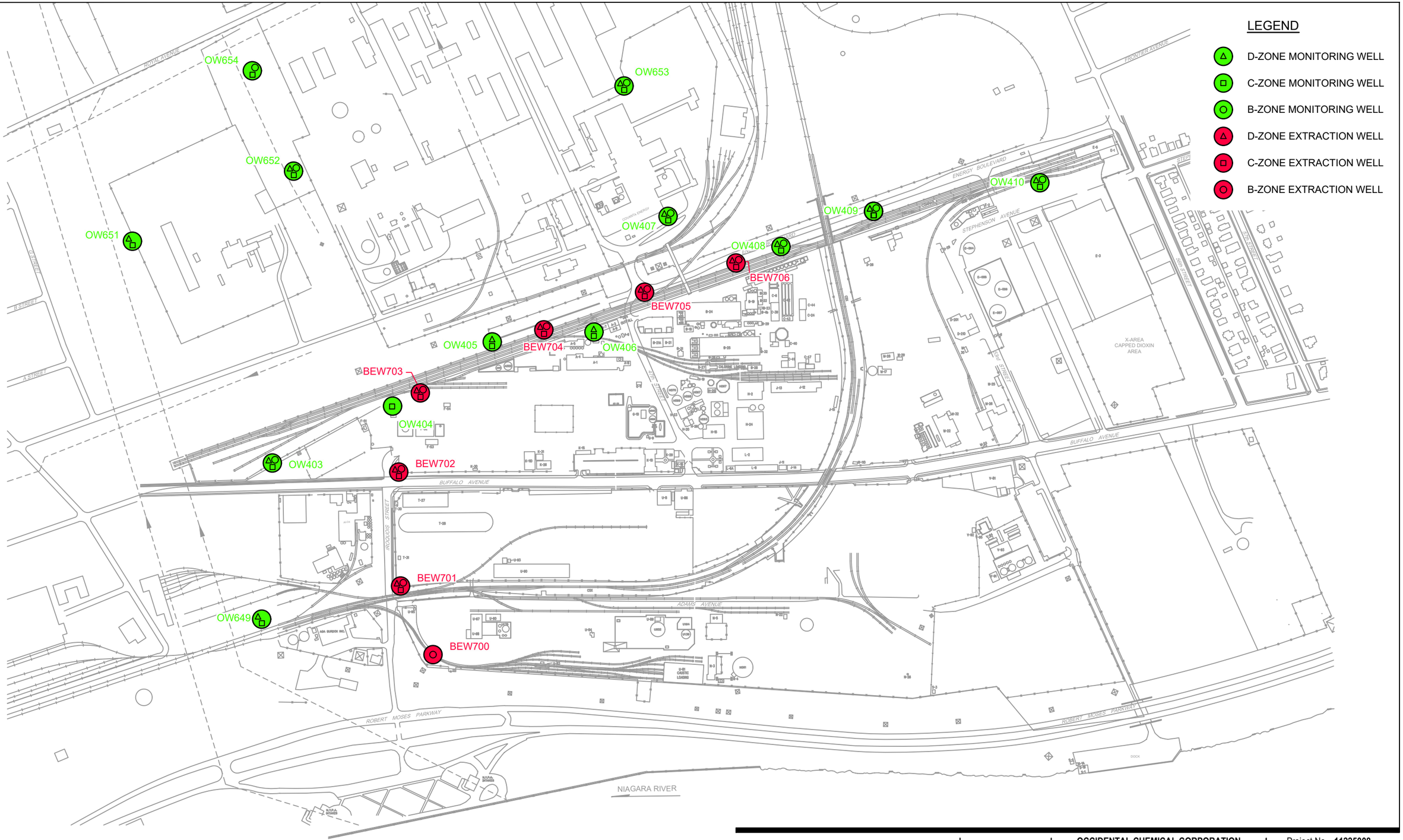

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

BEDROCK GROUNDWATER CHEMICAL MONITORING LOCATIONS

Project No. **11225008**
Date **September 2022**

FIGURE 2

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\66\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D102_WB-005.dwg
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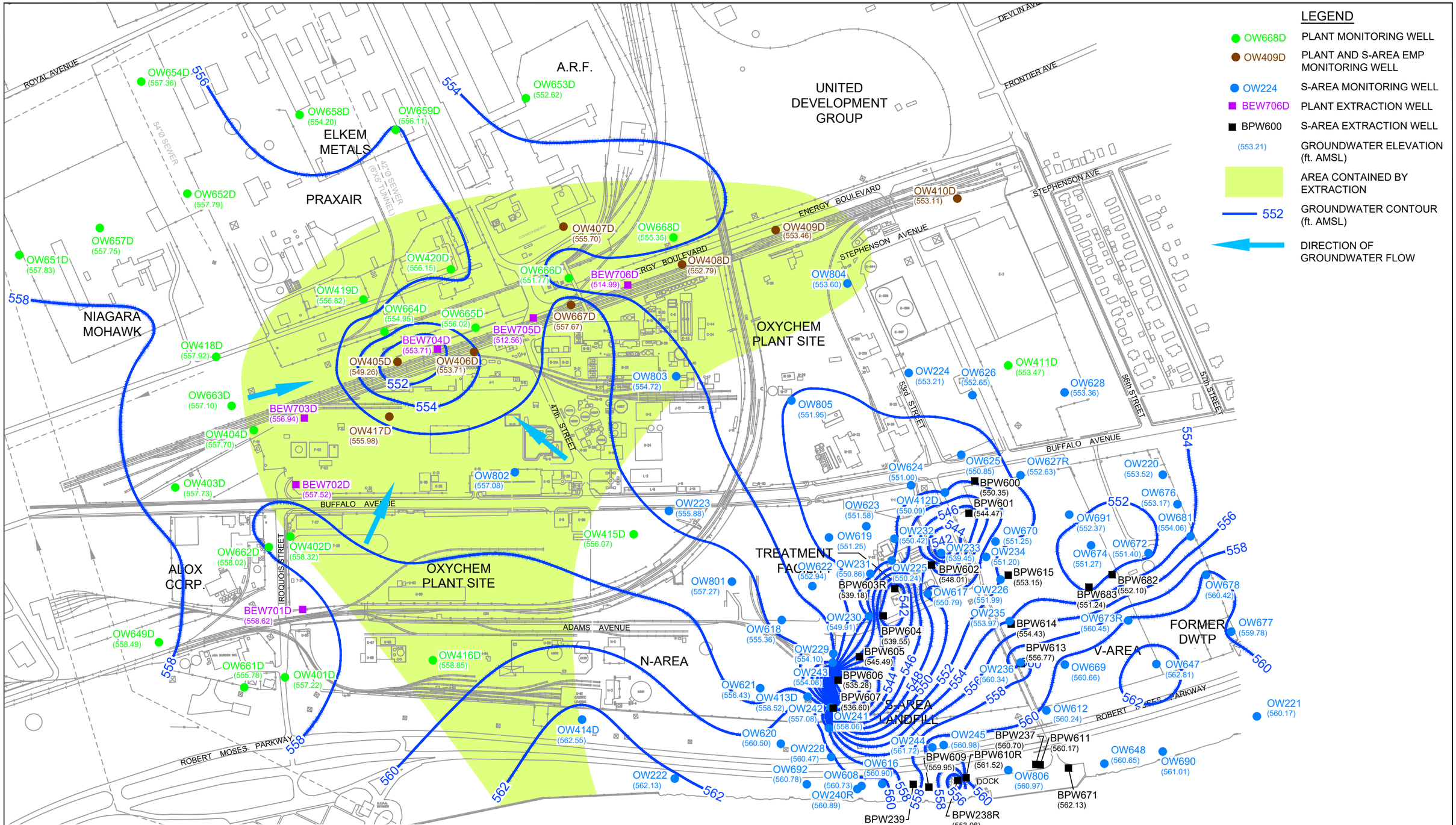

NOTES:

- CONTOURS REFLECT AN AVERAGE CONDITION OVER THE DATA COLLECTION PERIOD, APPROXIMATELY 4 HOURS. UNLESS OTHERWISE NOTED, CONTOURS RESPECT ALL WATER LEVEL MEASUREMENTS TO THE LEVEL OF UNCERTAINTY ASSOCIATED WITH COLLECTING LEVELS OVER A PERIOD OF SEVERAL HOURS. THAT UNCERTAINTY IS APPROXIMATELY +/-0.5 FEET FOR NYPA WINTER OPERATING CONDITIONS.
- MEASURED ELEVATIONS FOR PLANT EXTRACTION WELLS BEW701D-BEW706D WERE NOT USED FOR CONTOURING.

GHD

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

D-ZONE BEDROCK GROUNDWATER CONTOURS - SEPTEMBER 8, 2022

Project No. **11225008**
Date **October 2022**

FIGURE 3

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D103_WB-005.dwg
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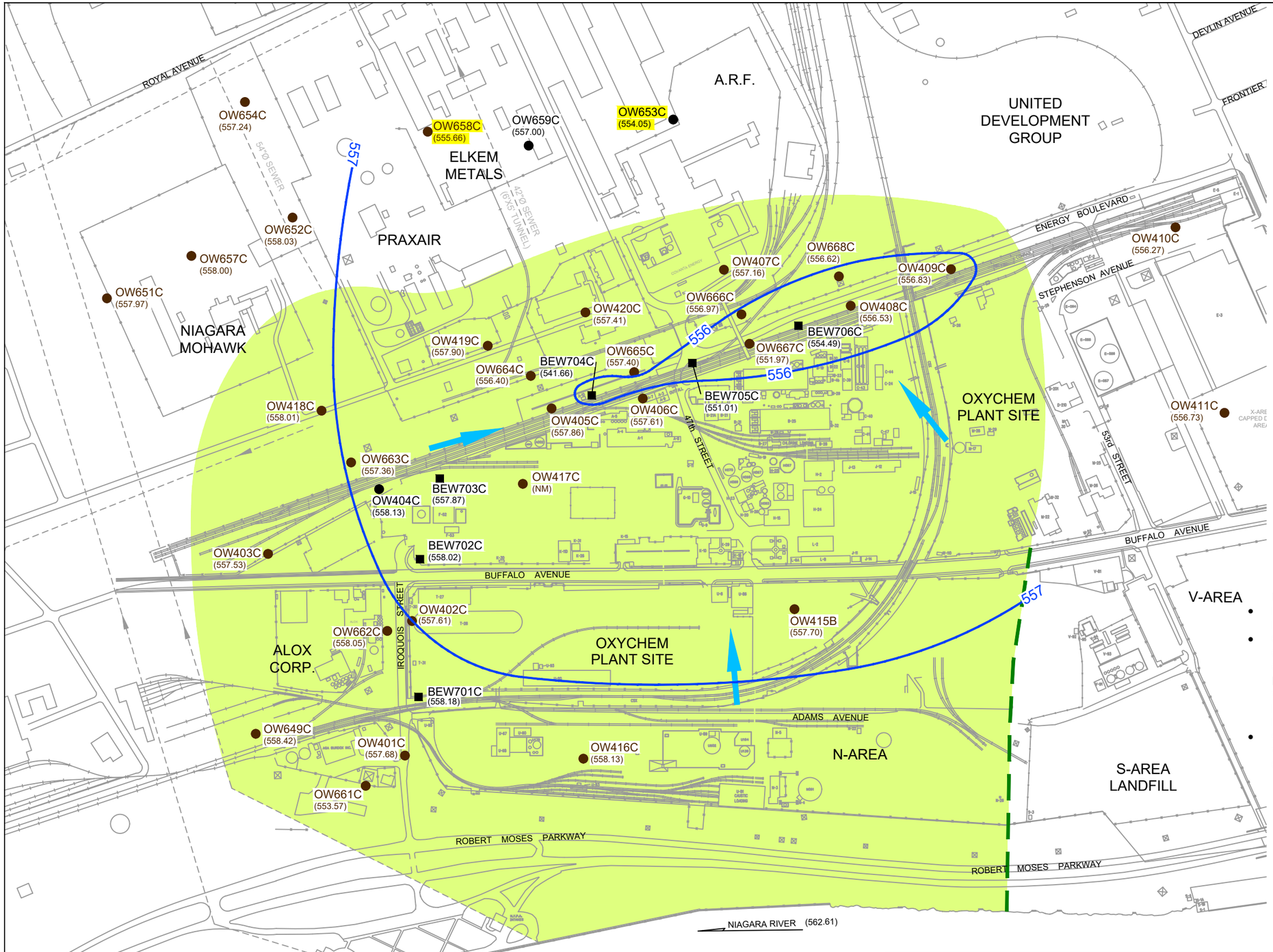

LEGEND

●OW410C	MONITORING WELL
■BEW706C	EXTRACTION WELL
●OW658C (555.66)	SUSPECT WATER LEVEL NOT USED FOR CONTOURING
(556.27)	GROUNDWATER ELEVATION (ft AMSL)
(NM)	NOT MEASURED
	AREA CONTAINED BY EXTRACTION
	ESTIMATED BOUNDARY DUE TO S-AREA REMEDIAL PROGRAM
556	GROUNDWATER CONTOUR (ft AMSL)
	DIRECTION OF GROUNDWATER FLOW

NOTES

- EXTRACTION WELLS BEW701C TO BEW706C ARE NOT USED FOR CONTOURING.
- CONTOURS REFLECT AN AVERAGE CONDITION OVER THE DATA COLLECTION PERIOD, APPROXIMATELY 4 HOURS. UNLESS OTHERWISE NOTED, CONTOURS RESPECT ALL WATER LEVEL MEASUREMENTS TO THE LEVEL OF UNCERTAINTY ASSOCIATED WITH COLLECTING LEVELS OVER A PERIOD OF SEVERAL HOURS. THAT UNCERTAINTY IS APPROXIMATELY +/-0.5 FEET FOR NYPA WINTER OPERATING CONDITIONS.
- OW415C IS NOT REPRESENTATIVE OF C-ZONE CONDITIONS; WHEREAS OW415B IS REPRESENTATIVE OF C-ZONE CONDITIONS AND IS THEREFORE USED FOR CONTOURING.

0 200 400 ft
1" = 400 ft

N

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GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

C-ZONE BEDROCK GROUNDWATER CONTOURS - SEPTEMBER 8, 2022

Project No. **11225008**
Date **October 2022**

FIGURE 4

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NOTES:

- EXTRACTION WELL MEASURED ELEVATIONS WERE NOT USED FOR CONTOURING. THE LOWEST ELEVATION IN THE ADJACENT MONITORING WELLS LESS ONE FOOT WAS USED AS THE EXTRACTION WELL ELEVATION AT EACH EXTRACTION WELL FOR CONTOURING.

0 200 400 ft

1" = 400 ft

GHD

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

B-ZONE BEDROCK GROUNDWATER CONTOURS - SEPTEMBER 8, 2022

Project No. **11225008**
Date **October 2022**

FIGURE 5

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D105_WB-005.dwg
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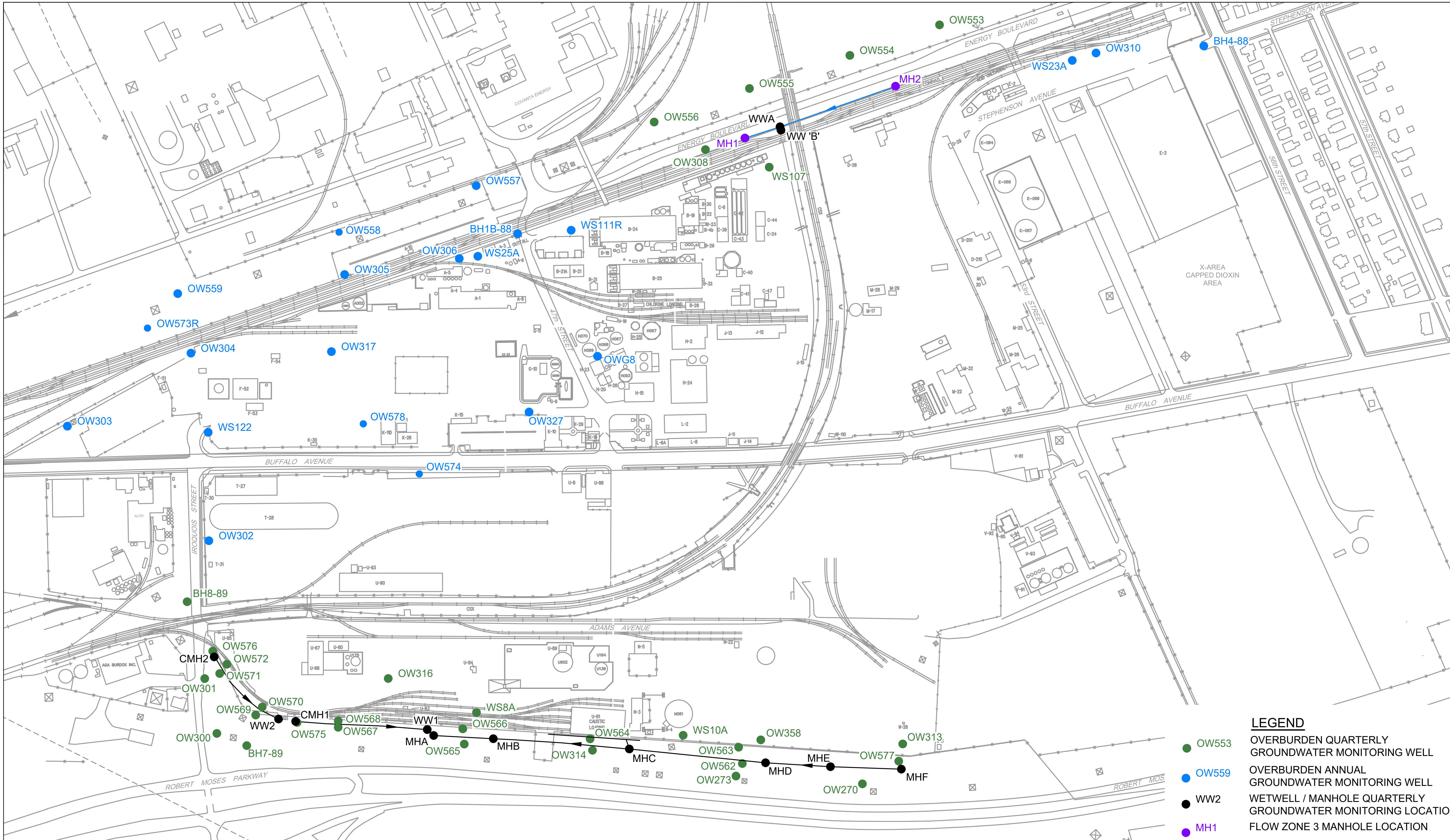
LEGEND
OW553 OVERBURDEN QUARTERLY GROUNDWATER MONITORING WELL
OW559 OVERBURDEN ANNUAL GROUNDWATER MONITORING WELL
WW2 WETWELL / MANHOLE QUARTERLY GROUNDWATER MONITORING LOCATION
MH1 FLOW ZONE 3 MANHOLE LOCATION
ENERGY BOULEVARD
STEPHENSON AVENUE
BUFFALO AVENUE
ADAMS AVENUE
ROBERT MOSES PARKWAY
IROQUOIS STREET
47th STREET
53rd STREET
56th STREET
57th STREET
NIAGARA RIVER
X-AREA CAPPED DIOXIN AREA
OW553
OW554
OW555
OW556
OW557
OW558
OW559
OW573R
OW304
OW303
OW305
OW306
OW310
OW317
OW578
OW327
OW574
OW302
OW308
WS107
WS111R
WS25A
WS23A
WS122
BH1B-88
BH4-88
BH8-89
OWG8
MH1
MH2
WWA
WW 'B'
CMH2
CMH1
WW1
WW2
MHA
MHB
MHC
MHD
MHE
MHF
OW576
OW572
OW571
OW301
OW570
OW569
OW300
BH7-89
OW575
OW568
OW567
OW316
WS8A
OW566
OW565
OW564
OW314
WS10A
OW358
OW563
OW562
OW273
OW313
OW577
OW270

0 150 300 ft

1" = 300 ft

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

OVERBURDEN GROUNDWATER HYDRAULIC MONITORING LOCATIONS

Project No. 11225008
Date September 2022

FIGURE 6

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D106_WB-005.dwg
Plot Date: 28 September 2022 10:17 AM

LEGEND

- OW553 — OVERBURDEN GROUNDWATER MONITORING WELL
- WW1 — WET WELL
- MH159L — MANHOLE

OW553 OW554 OW555 OW556 OW557 OW558 OW559 OW573R OW305 OW306 OW304 OW303 MH159L OW574 WWB (EBDTS) MH301 OW310 OW560 WW2 WW1 OW300 OW567 OW565 OW314 OW273 OW270 OW537

ENERGY BOULEVARD
STEPHENSON AVENUE
BUFFALO AVENUE
ADAMS AVENUE
ROBERT MOSES PARKWAY
IROQUOIS STREET
56th STREET
53rd STREET
57th STREET
CSX
CONRAIL
NIAGARA RIVER
COVANTA ENERGY
AGA BURDOX INC.
CHLORINE LOADING
U-81 CAUSTIC LOADING
X-AREA CAPPED DIOXIN AREA
DOCK
N.Y.P.A. INTAKES

0 150 300 ft
1" = 300 ft

GHD

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

OVERBURDEN GROUNDWATER CHEMICAL MONITORING LOCATIONS

Project No. **11225008**
Date **September 2022**

FIGURE 7

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Plot Date: 28 September 2022 10:17 AM

BUFFALO AVENUE

IROQUOIS STREET

ALOX CORP.

OXYCHEM PLANT SITE

TREATMENT FACILITY

ADAMS AVENUE

CSX

N-AREA

S-AREA LANDFILL

ROBERT MOSES PARKWAY

PLANT BARRIER WALL

NIAGARA RIVER (562.60)

AGA BURDOX INC.

N.Y.P.A. INTAKES

BH8-89 (563.47)

CMH2 (563.42)

OW576 (566.34)

OW572 (566.42)

OW570 (564.26)

OW301 (565.42)

OW571 (565.25)

CMH1 (568.55)

OW316 (568.73)

OW569 (563.54)

OW568 (567.44)

WW1 (564.73)

OW566 (567.47)

WS8A (568.10)

OW575 (566.80)

OW567 (567.29)

MH-A (564.71)

OW564 (565.05)

MH-C (564.75)

WS10A (565.82)

OW563 (565.32)

OW358 (565.47)

OW577 (564.83)

OW313 (564.83)

MH-F (565.01)

OW565 (563.41)

MH-B (564.78)

OW314 (564.66)

OW273 (562.91)

OW562 (563.14)

MH-D (564.75)

MH-E (564.81)

OW270 (563.57)

OW300 (562.53)

BH7-89 (558.33)

WW2 (558.98)

565

567

563

559

561

LEGEND

- FLOW ZONE 1 COLLECTION SYSTEM
- OW316 — EXISTING OVERBURDEN MONITORING WELLS
- (568.73) — GROUNDWATER ELEVATION
- CMH1 (568.55) — SUSPECT WATER LEVEL NOT USED FOR CONTOURING
- 566 — OVERBURDEN GROUNDWATER CONTOUR (ft AMSL) DASHED WHERE INFERRED

0 100 200 ft

1" = 200 ft

OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

FLOW ZONE 1 OVERBURDEN GROUNDWATER CONTOURS - SEPTEMBER 9, 2022

Project No. **11225008**
Date **October 2022**

FIGURE 8

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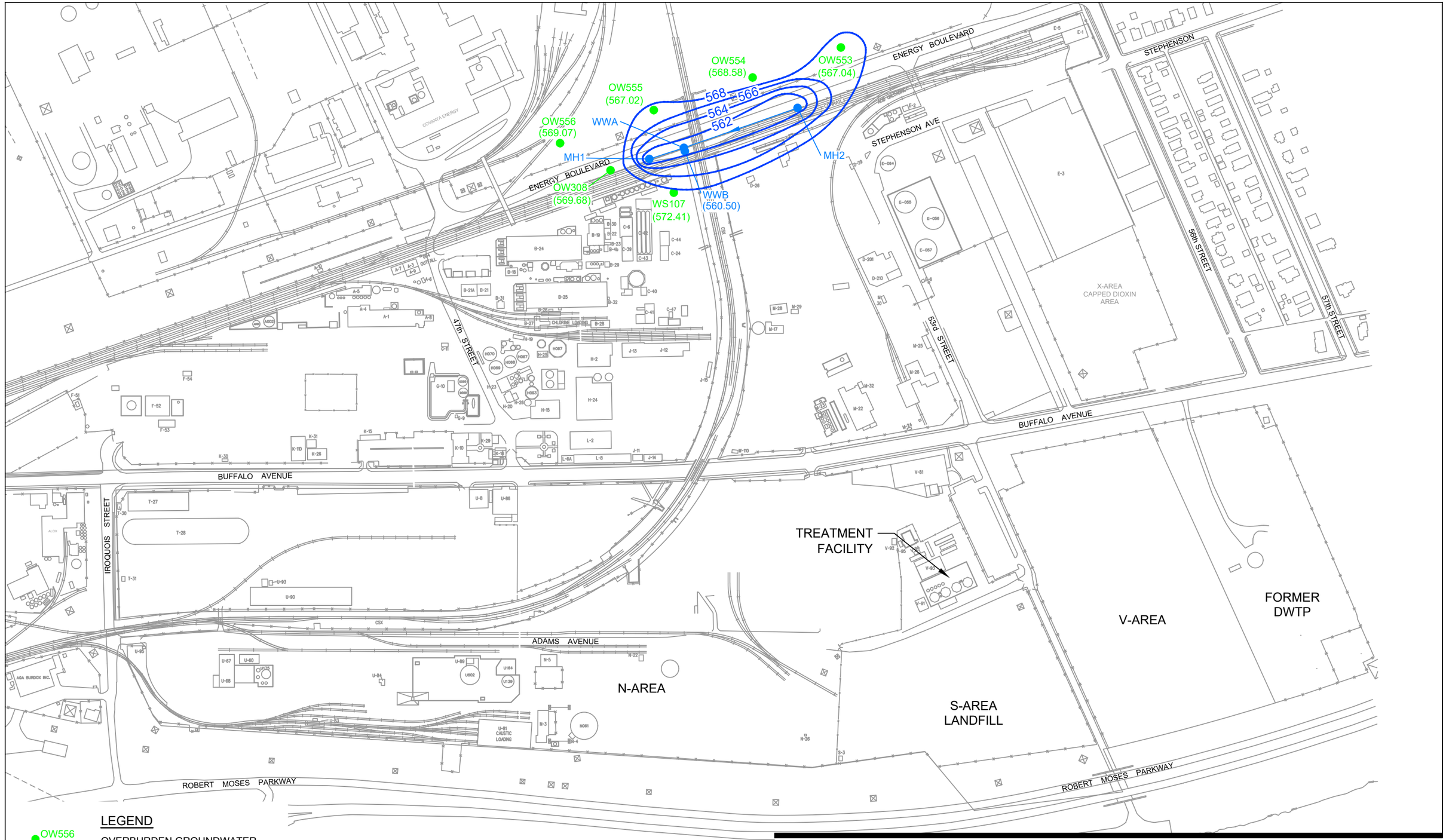

LEGEND

- OW556 — OVERBURDEN GROUNDWATER MONITORING WELL
- (569.07) — GROUNDWATER ELEVATION (ft AMSL)
- 568 — GROUNDWATER CONTOUR (ft AMSL)

0 150 300 ft

1" = 300 ft

N

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OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

FLOW ZONE 3 OVERBURDEN GROUNDWATER CONTOURS - SEPTEMBER 9, 2022

Project No. **11225008**
Date **October 2022**

FIGURE 9

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LEGEND

- D-ZONE MONITORING WELL CHECKED ANNUALLY
- C-ZONE MONITORING WELL CHECKED ANNUALLY
- B-ZONE MONITORING WELL CHECKED ANNUALLY
- A-ZONE MONITORING WELL CHECKED ANNUALLY
- OW417A — NAPL COLLECTION WELL PUMPED ANNUALLY
- OW229 — S-AREA NAPL COLLECTION WELL PUMPED QUARTERLY (MINIMUM)

NYPA OW139
OW654
OW653
OW658
OW659
OW652
OW657
OW651
OW407
OW668
OW666
OW408
OW409
OW410
OW420
OW419
OW667
OW665
OW418
OW664
OW405
OW406
OW411
OW663
OW417
OW417A
OW404
OW403
OW412
OW662
OW402
OW402A
OW415
OW619
OW618
OW649
OW229
OW243
OW401
OW416
OW643
OW638
OW621
OW635
OW634
OW661
OW401B
OW413
OW414
OW413A
OW400
OW660
OW620

ROYAL AVENUE
ENERGY BOULEVARD
STEPHENSON AVENUE
BUFFALO AVENUE
ADAMS AVENUE
ROBERT MOSES PARKWAY
NIAGARA RIVER
X-AREA CAPPED DIOXIN AREA

0 200 400 ft
1" = 400 ft

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OCCIDENTAL CHEMICAL CORPORATION
GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

BEDROCK NAPL MONITORING AND COLLECTION LOCATIONS

Project No. **11225008**
Date **September 2022**

FIGURE 10

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D110_WB-005.dwg
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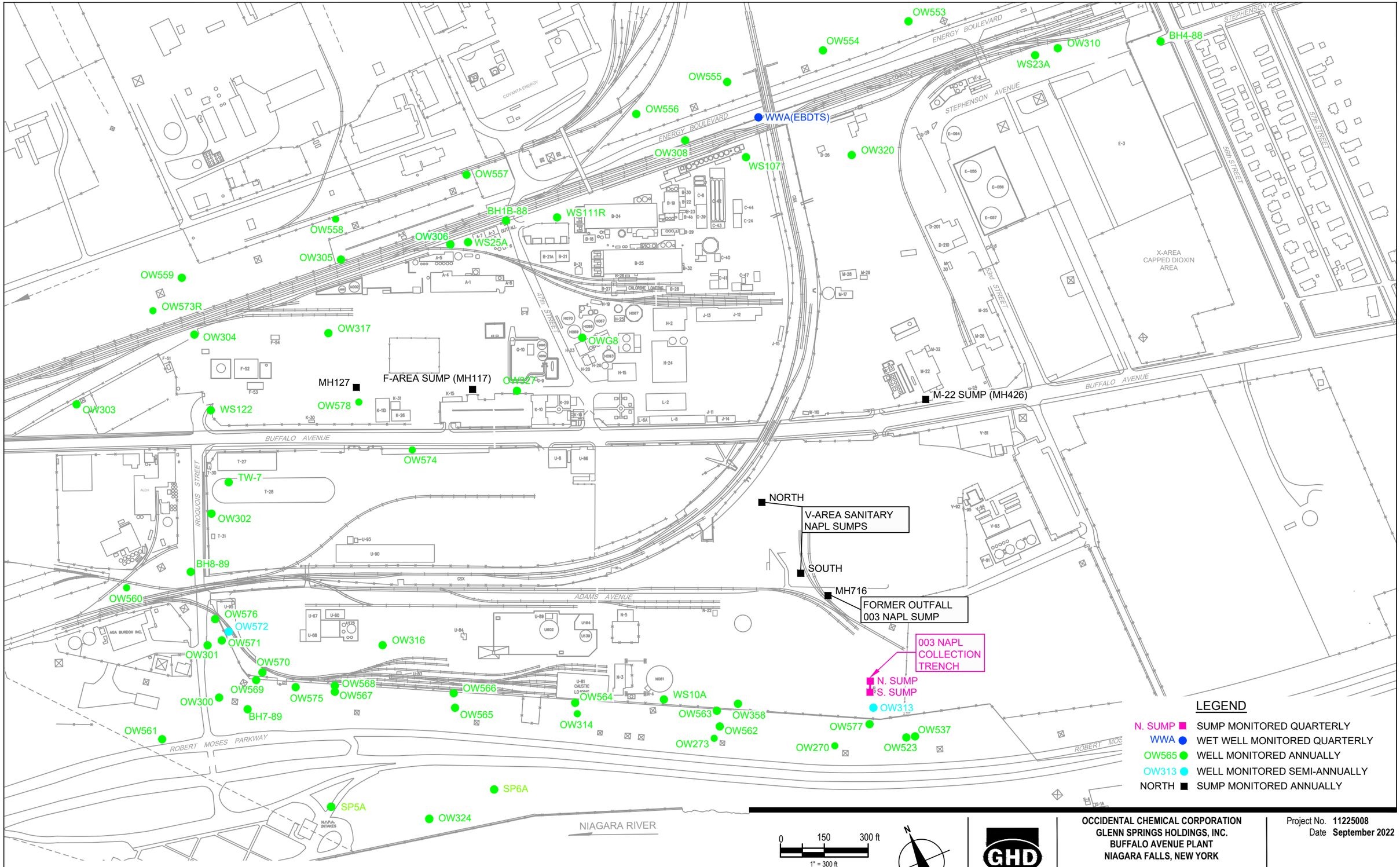

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GLENN SPRINGS HOLDINGS, INC.
BUFFALO AVENUE PLANT
NIAGARA FALLS, NEW YORK

OVERBURDEN NAPL MONITORING AND COLLECTION LOCATIONS

Project No. **11225008**
Date **September 2022**

FIGURE 11

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11225008\Digital_Design\ACAD\Figures\LTR005\11225008-GHD-00-00-LTR-EN-D111_WB-005.dwg
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Table 1

Summary of Monitoring Tasks and Associated Completion Dates
Third Quarter 2022
Buffalo Avenue Plant

Quarter	Program	Task	Date(s) Task was Completed (2022)
First	**Bedrock Groundwater**	Weekly Flow Measurements	1/3, 1/10, 1/17, 1/24, 1/31, 2/7, 2/14, 2/21, 2/28, 3/7, 3/14, 3/21, 3/28
		Quarterly Hydraulic Monitoring	3/10
		Annual Chemical Monitoring	5/8
	Overburden Groundwater	Weekly Flow Measurements	1/3, 1/10, 1/17, 1/24, 1/31, 2/7, 2/14, 2/21, 2/28, 3/7, 3/14, 3/21, 3/28
		Quarterly Hydraulic Monitoring - Flow Zones 1 and 3	3/7
	NAPL Monitoring	Quarterly NAPL Monitoring/Collection in 003 Collection Trench	3/7
		Quarterly NAPL Monitoring/Collection - N-Area Bedrock Wells	3/11
		Quarterly NAPL Monitoring/Collection of EBDTS	1/24
		Annual NAPL Monitoring/Collection of Overburden Monitoring Wells	3/7
Second	**Bedrock Groundwater**	Weekly Flow Measurements	4/4, 4/11, 4/18, 4/25, 5/2, 5/9, 5/16, 5/23, 5/30, 6/6, 6/13, 6/20, 6/27
		Quarterly Hydraulic Monitoring	6/2
	Overburden Groundwater	Weekly Flow Measurements	4/4, 4/11, 4/18, 4/25, 5/2, 5/9, 5/16, 5/23, 5/30, 6/6, 6/13, 6/20, 6/27
		Quarterly Hydraulic Monitoring - Flow Zones 1 and 3	6/3
		Annual Chemical Monitoring - Mercury Cell Area (OW304, OW305, OW306, and OW574)	5/6
		Annual Chemical Monitoring - Plant Wells	7/18 - 7/19
	NAPL Monitoring	Quarterly NAPL Monitoring/Collection in 003 Collection Trench	5/12
		Quarterly NAPL Monitoring/Collection - N-Area Bedrock Wells	6/9
		Quarterly NAPL Monitoring/Collection of EBDTS	6/3
Third	**Bedrock Groundwater**	Weekly Flow Measurements	7/4, 7/11, 7/18, 7/25, 8/1, 8/8, 8/15, 8/22, 8/29, 9/5, 9/12, 9/19
		Quarterly Hydraulic Monitoring	9/8
	Overburden Groundwater	Weekly Flow Measurements	7/4, 7/11, 7/18, 7/25, 8/1, 8/8, 8/15, 8/22, 8/29, 9/5, 9/12, 9/19
		Quarterly Hydraulic Monitoring - Flow Zones 1 and 3	9/9
		Annual Hydraulic Monitoring - Other Areas	9/9
	NAPL Monitoring	Quarterly NAPL Monitoring/Collection in 003 Collection Trench	7/15
		Quarterly NAPL Monitoring/Collection of EBDTS	9/9
		Quarterly NAPL Monitoring/Collection - N-Area Bedrock Wells	8/5
		Semiannual NAPL Monitoring/Collection of Overburden Monitoring Wells	9/9
		Annual NAPL Check - OW401B, OW402A, OW413A, and OW417A	8/15
		Annual Sump/Manhole NAPL Checks	(1)
Fourth	**Bedrock Groundwater**	Weekly Flow Measurements	
		Quarterly Hydraulic Monitoring	
		Annual Well Inspections	
	Overburden Groundwater	Weekly Flow Measurements	
		Quarterly Hydraulic Monitoring - Flow Zones 1 and 3	
		Semiannual Chemical Monitoring - Mercury Cell Area (OW574)	
		Annual Well Inspections	
	NAPL Monitoring	Quarterly NAPL Monitoring/Collection in 003 Collection Trench	
		Quarterly NAPL Monitoring/Collection of EBDTS	
		Quarterly NAPL Monitoring/Collection - N-Area Bedrock Wells	

Notes:

(1) - To be completed in the next quarter

Table 2

Summary of Maintenance Activities
Third Quarter 2022
Buffalo Avenue Plant

Date	Location	Maintenance Activity
7/5	F-Area	Troubleshoot BEW-700B
7/6	F-Area	Process shutdown due to pH calibrations. Restart process.
7/6	F-Area	Process shutdown due to low scrubber flow.
7/7	F-Area	Process shutdown due to low scrubber flow.Restart process.
7/8	F-Area	Process shutdown due to low scrubber flow. Clean the y-strainer. Troubleshoot the problem.
7/11	F-Area	Pull BEW-700B.
7/11	F-Area	Repair piping to the scrubber. Allow glue to cure. Restart process.
7/13	F-Area	Process shutdown due to low scrubber flow.
7/14	F-Area	Cleared debris from the pump impeller. Restart process.
7/18	F-Area	Clean out BEW-700B.
7/19	F-Area	Installed new motor, pump and wires in BEW-700B. Well not pumping. Low power alarm.
7/20	F-Area	Troubleshoot low power alarm on BEW-700B.
7/21	F-Area	Found bad overload heaters on BEW-700B motor starter. Replaced with spares. BEW-700B is pumping.
7/31	F-Area	Replaced cracked tubing on the sand filter unit.
8/2	F-Area	System shutdown. Leak detection at BEW-705B. Pump out chamber. Restart system.
8/15	F-Area	Clean out the connector pipe from MH-A to WW-1.
8/24	F-Area	System shutdown due to heavy rain that overwhelmed to oxidizer sump pump.
9/8	F-Area	Process shutdown due to pH calibrations. Restart process.
9/8	F-Area	Process shutdown dues to high effluent pH. Troubleshoot. Replace pH probe. Restart process.
9/10	F-Area	System shutdown due to low scrubber flow. Restart system.
9/12	F-Area	System shutdown due the low scrubber flow. Restart system.
9/14	F-Area	System down due to low scrubber flow. Restart system.
9/16	F-Area	Process down due to low scrubber flow. Restart system.
9/17	F-Area	System down due to low scrubber flow. Restart system.

Table 2

Summary of Maintenance Activities
Third Quarter 2022
Buffalo Avenue Plant

Date	Location	Maintenance Activity
9/19	F-Area	Construct a shroud to go over the level probe and grounding rod. Restart system.
9/19	F-Area	System shutdown due to heavy rainfall. Oxidizer sump at high level.
9/28	F-Area	Process shutdown due to leak detection at BEW-703D. Pump out BEW-703D chamber. Restart the system.

Table 3

D-Zone Extraction Well Flow Rates
Third Quarter 2022
Buffalo Avenue Plant

Date	BEW701D		BEW702D		BEW703D		BEW704D		BEW705D		BEW706D	
	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)
7/4/2022							390000	42.21	230000	24.89	289000	31.28
7/11/2022							197000	42.64	119000	25.76	147000	31.82
7/18/2022							363000	42.91	217000	25.65	273000	32.27
7/25/2022							422000	41.87	257000	25.50	320000	31.75
8/1/2022							418000	41.47	253000	25.10	316000	31.35
8/8/2022							410000	40.88	252000	25.37	313000	31.47
8/15/2022							411000	40.69	256000	25.33	315000	31.51
8/22/2022							410000	40.67	257000	25.50	319000	31.65
8/29/2022							408000	40.72	252000	25.15	315000	31.44
9/5/2022							409000	40.58	253000	25.10	312000	30.95
9/12/2022							323000	40.17	203000	25.25	254000	31.59
9/19/2022							218000	40.37	140000	25.93	171000	32.02
9/26/2022							353000	35.02	227000	22.52	273000	27.08

Notes:

GPM - gallons per minute
BEW701D, 702D, and 703D were shut down on October 9, 2008 following NYSDEC approval.
Target rates for BEW704D, 705D, and 706D are 40 GPM each.

Table 4

C-Zone Extraction Well Flow Rates
Third Quarter 2022
Buffalo Avenue Plant

Date	BEW701C		BEW702C		BEW703C		BEW704C		BEW705C		BEW706C	
	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)
7/4/2022							970000	106.36	967000	106.03	637000	69.39
7/11/2022							463000	105.71	463000	105.71	294000	67.12
7/18/2022							916000	108.27	906000	107.09	510000	60.71
7/25/2022							1089000	108.04	1080000	107.14	572000	56.75
8/1/2022							1082000	107.34	1074000	106.55	556000	55.16
8/8/2022							1064000	106.89	1059000	106.82	471000	45.37
8/15/2022							1078000	106.89	1076000	107.07	454000	44.68
8/22/2022							1077000	106.85	1079000	107.68	460000	45.63
8/29/2022							1065000	106.93	1066000	106.39	436000	43.78
9/5/2022							1078000	106.94	1080000	107.14	451000	44.74
9/12/2022							857000	106.59	858000	106.72	349000	43.09
9/19/2022							574000	106.30	570000	105.56	246000	46.07
9/26/2022							924000	91.67	915000	90.77	362000	35.91

Notes:

GPM - gallons per minute.
BEW701C, 702C, and 703C were shut down on May 22, 2007 following NYSDEC approval.
Target rates for BEW704C, 705C, and 706C are 100 GPM each.

Table 5

B-Zone Extraction Well Flow Rates
Third Quarter 2022
Buffalo Avenue Plant

	BEW700B		BEW701B		BEW702B		BEW703B		BEW704B		BEW705B		BEW706B	
Date	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)
7/4/2022	29000	3.48	29000	3.16	18	0.002	26	0.003	78000	8.50	31000	3.35	42000	4.55
7/11/2022	0	0.00	15000	3.21	20	0.002	26	0.003	40000	8.55	16000	3.46	8000	1.78
7/18/2022	0	0.00	27000	3.19	19	0.002	27	0.003	78000	9.22	30000	3.55	3000	0.36
7/25/2022	19000	3.37	33000	3.27	19	0.002	30	0.003	92000	9.13	34000	3.37	4000	0.40
8/1/2022	35000	3.47	32000	3.17	19	0.002	28	0.003	92000	9.13	34000	3.37	0	0.00
8/8/2022	36000	3.46	32000	3.34	19	0.002	29	0.003	89000	9.03	34000	3.42	9000	0.22
8/15/2022	35000	3.40	33000	3.45	19	0.002	37	0.004	92000	9.01	35000	3.39	1000	0.35
8/22/2022	35000	3.47	37000	3.67	25	0.002	40	0.004	91000	9.03	34000	3.37	1000	0.10
8/29/2022	34000	3.41	33000	3.31	18	0.002	30	0.003	90000	8.98	34000	3.39	6000	0.60
9/5/2022	32000	3.17	32000	3.17	20	0.002	30	0.003	92000	9.13	35000	3.47	7000	0.69
9/12/2022	25000	3.11	25000	3.11	18	0.002	31	0.003	73000	9.08	27000	3.36	5000	0.62
9/19/2022	18000	3.33	17000	3.15	20	0.002	30	0.003	50000	9.36	20000	3.70	0	0.00
9/26/2022	29000	2.88	28000	2.78	21	0.002	32	0.003	81000	8.04	32000	3.17	2000	0.20

Notes:

GPM - gallons per minute.

Table 6

Bedrock Extraction System Monthly Flow Rate Summary
Third Quarter 2022
Buffalo Avenue Plant

	Target Flow Rates (gpm)	Month			Quarterly Average (gpm)
		Jul-22 (gpm)	Aug-22 (gpm)	Sep-22 (gpm)	
System Component					
B-Zone	40	19	20	17	18
C-Zone	300	275	259	248	261
D-Zone	120	100	98	94	
Operational Average	460	394	376	359	376
Treatment Plant					
Operational Average		394	376	359	376
Operating Time		84.9%	99.6%	79.0%	87.8%

Quarterly Average Operating Time = 87.8%
Total Volume Treated in Quarter = 47,723,040 **gallons**

Notes:

GPM - gallons per minute.
Flow rates shown are the average flow rate while the pump/treatment system is operational.

Table 7

Bedrock Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Monitored Interval				Well Bottom		Water Level Data	
					Top (AMSL)	Bottom (AMSL)	Top (BGS)	Bottom (BGS)	Elev. of (AMSL)	Depth to (BGS)	9/8/2022 (ft BTOC)	(ft AMSL)
BEW700B	565.59	568.69	12/2/1994	8	457.1 -	414.0	111.6 -	154.7	414.0	154.7	>60	<505.59
BEW701B	566.18	569.15	12/9/1994	8	458.8 -	413.8	110.4 -	155.4	413.8	155.4	>60	<506.18
BEW701C	566.33	569.60	11/17/1994	8	498.4 -	460.9	71.2 -	108.7	460.9	108.7	8.15	558.18
BEW701D	565.86	569.03	12/7/1994	8	545.9 -	500.9	23.1 -	68.1	500.9	68.1	7.24	558.62
BEW702B	568.83	572.24	8/15/1994	8	452.9 -	415.9	119.3 -	156.3	415.9	156.3	>60	<508.83
BEW702C	568.86	571.95	8/8/1994	8	496.4 -	455.9	75.6 -	116.1	455.9	116.1	10.84	558.02
BEW702D	569.20	572.17	7/6/1994	8	548.6 -	499.4	23.6 -	72.8	499.4	72.8	11.68	557.52
BEW703B	569.48	572.57	9/8/1994	8	450.8 -	410.8	121.8 -	161.8	410.8	161.8	>60	>509.48
BEW703C	569.00	572.10	9/15/1994	8	501.8 -	453.7	70.3 -	118.4	453.7	118.4	11.13	557.87
BEW703D	569.87	572.77	9/16/1994	8	550.0 -	504.2	22.8 -	68.6	504.2	68.6	12.93	556.94
BEW704B	569.37	573.41	10/14/1994	8	452.3 -	417.3	121.1 -	156.1	417.3	156.1	>60	<509.37
BEW704C	569.24	573.31	10/14/1994	8	498.3 -	454.3	75.0 -	119.0	454.3	119.0	27.58	541.66
BEW704D	570.24	573.10	9/30/1994	8	546.3 -	501.3	26.8 -	71.8	501.3	71.8	16.53	553.71
BEW705B	570.24	573.26	10/11/1994	8	453.7 -	416.0	119.6 -	157.3	416.0	157.3	>60	<510.24
BEW705C	570.06	573.15	9/30/1994	8	502.0 -	456.5	71.2 -	116.7	456.5	116.7	19.05	551.01
BEW705D	570.66	573.65	10/10/1994	8	550.2 -	505.2	23.4 -	68.4	505.2	68.4	58.10	512.56
BEW706B	569.58	572.69	9/19/1994	8	452.9 -	416.4	119.8 -	156.3	416.4	156.3	23.89	545.69
BEW706C	568.97	571.9	10/11/1994	8	504.1 -	455.6	67.8 -	116.3	455.6	116.3	14.48	554.49
BEW706D	569.46	572.49	9/26/1994	8	550.7 -	504.2	21.8 -	68.3	504.2	68.3	54.47	514.99
OW139	570.63	569.08	1958	12	559.2	435.2	9.9 -	133.9	435.2	133.9	10.93	559.70
OW400B	579.25	579.61	5/10/1989	4	454.6 -	424.5	125.0 -	155.1	424.5	155.1	21.10	558.15
OW401B	568.54	568.95	5/24/1989	4	462.9 -	413.9	106.1 -	155.1	413.9	155.1	22.21	546.33
OW401C	568.55	568.94	5/25/1989	4	492.3 -	462.8	76.6 -	106.1	462.8	106.1	10.87	557.68
OW401D	568.42	568.87	5/26/1989	6.25	545.9 -	507.9	23.0 -	61.0	507.9	61.0	11.20	557.22
OW402B	569.46	570.33	6/28/1989	4	473.8 -	409.9	96.5 -	160.4	409.9	160.4	11.31	558.15
OW402C	569.48	570.3	6/26/1989	4	488.5 -	473.8	81.8 -	96.5	473.8	96.5	11.87	557.61
OW402D	569.22	570.01	6/29/1989	6.25	544.7 -	518.8	25.3 -	51.2	518.8	51.2	10.90	558.32
OW403B	570.04	570.48	5/16/1989	4	457.8 -	427.8	112.7 -	142.7	427.8	142.7	12.51	557.53
OW403C	570.02	570.26	5/22/1989	4	487.3 -	457.7	83.0 -	112.6	457.7	112.6	12.49	557.53
OW403D	570.08	570.31	5/23/1989	6.25	546.8 -	502.8	23.5 -	67.5	502.8	67.5	12.35	557.73
OW404B	571.03	571.53	6/9/1989	4	438.3 -	404.8	133.2 -	166.7	404.8	166.7	14.01	557.02
OW404C	570.82	571.38	6/7/1989	4	498.5 -	468.2	72.9 -	103.2	468.2	103.2	12.69	558.13

Table 7

Bedrock Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Monitored Interval				Well Bottom		Water Level Data	
					Top (AMSL)	Bottom (AMSL)	Top (BGS)	Bottom (BGS)	Elev. of (AMSL)	Depth to (BGS)	9/8/2022 (ft BTOC)	(ft AMSL)
OW404D	570.45	571.85	6/23/1989	6.25	549.3	498.0	22.6	73.9	498.0	73.9	12.75	557.70
OW405B	572.78	573.14	3/27/1989	4	453.3	408.3	119.8	164.8	408.3	164.8	16.46	556.32
OW405C	572.7	573.07	5/31/1989	4	501.2	453.2	71.9	119.9	453.2	119.9	14.84	557.86
OW405D	572.6	573.11	6/9/1989	6.25	545.6	501.2	27.5	71.9	501.2	71.9	23.34	549.26
OW406B	571.52	571.77	6/8/1989	4	467.9	404.4	103.9	167.4	404.4	167.4	15.51	556.01
OW406C	571.44	571.73	6/14/1989	4	497.6	467.8	74.1	103.9	467.8	103.9	13.83	557.61
OW406D	571.81	572.1	6/16/1989	6.25	548.6	497.2	23.5	74.9	497.2	74.9	18.10	553.71
OW407B	572.05	572.46	5/2/1989	4	465.4	450.4	107.1	122.1	450.4	122.1	15.78	556.27
OW407C	571.27	572.12	5/1/1989	4	479.8	465.2	92.3	106.9	465.2	106.9	14.11	557.16
OW407D	571.32	571.72	5/4/1989	6.25	552.9	510.4	18.8	61.3	510.4	61.3	15.62	555.70
OW408B	575.04	571.98	7/20/1989	4	445.2	403.6	126.8	168.4	403.6	168.4	20.03	555.01
OW408C	575.68	572.71	7/11/1989	4	494.5	445.9	78.2	126.8	445.9	126.8	19.15	556.53
OW408D	576.2	573.12	7/6/1989	6.25	552.1	525.0	21.0	48.1	525.0	48.1	23.41	552.79
OW409B	575.7	572.79	6/20/1989	3	461.8	415.9	111.0	156.9	415.9	156.9	20.75	554.95
OW409C	575.57	572.95	6/26/1989	4	510.1	462.0	62.9	111.0	462.0	111.0	18.74	556.83
OW409D	575.46	575.76	6/28/1989	6.25	552.0	509.8	23.8	66.0	509.8	66.0	22.00	553.46
OW410B	572.32	572.62	6/26/1989	4	441.4	407.7	131.2	164.9	407.7	164.9	20.03	552.29
OW410C	572.57	572.72	7/17/1989	4	486.5	471.5	86.2	101.2	471.5	101.2	16.30	556.27
OW410D	571.96	572.64	6/27/1989	6.25	547.1	516.3	25.5	56.3	516.3	56.3	18.85	553.11
OW411B	574.08	574.82	4/4/1989	4	454.9	406.6	119.9	168.2	406.6	168.2	20.20	553.88
OW411C	574.39	574.78	4/11/1989	4	500.0	470.0	74.8	104.8	470.0	104.8	17.66	556.73
OW411D	574.51	574.84	4/14/1989	6.25	546.7	515.2	28.1	59.6	515.2	59.6	21.04	553.47
OW415B	571.38	571.73	5/31/1989	4	482.1	467.1	89.6	104.6	467.1	104.6	13.68	557.70
OW415C	571.26	571.56	5/30/1989	4	511.9	497.1	59.7	74.5	497.1	74.5	14.23	557.03
OW415D	571.3	571.6	5/31/1989	6.25	548.7	511.8	22.9	59.8	511.8	59.8	15.23	556.07
OW416B	570	570.69	5/22/1989	6.25	470.8	455.8	99.9	114.9	455.8	114.9	14.08	555.92
OW416C	569.9	570.57	~5/22/1989	6.25	500.7	470.7	69.9	99.9	470.7	99.9	11.77	558.13
OW416D	569.68	570.32	~5/22/1989	6.25	539.6	500.5	30.7	69.8	500.5	69.8	10.83	558.85
OW417B	572.93	572.7	~5/19/1989	6.25	461.1	412.6	111.6	160.1	412.6	160.1	16.30	556.63
OW417C	572.23	572.9	~5/19/1989	6.25	490.1	460.8	82.8	112.1	460.8	112.1	(1)	(1)
OW417D	572.26	572.5	~5/19/1989	6.25	545.5	505.9	27.0	66.6	505.9	66.6	16.28	555.98
OW418C	569.62	570.08	5/29/2003	4	501.0	458.7	69.1	111.4	458.7	111.4	11.61	558.01

Table 7

Bedrock Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Monitored Interval				Well Bottom		Water Level Data	
					Top (AMSL)	Bottom (AMSL)	Top (BGS)	Bottom (BGS)	Elev. of (AMSL)	Depth to (BGS)	9/8/2022 (ft BTOC)	(ft AMSL)
OW418D	569.72	570.14	1/11/2002	6	547.0	504.3	23.1	65.8	504.3	65.8	11.80	557.92
OW419C	570.4	570.7	6/4/2003	4	502.7	455.7	68.0	115.0	455.7	115.0	12.50	557.90
OW419D	570.22	570.75	1/10/2002	6	550.3	505.6	20.5	65.2	505.6	65.2	13.40	556.82
OW420C	571.03	571.28	6/2/2003	4	500.3	452.5	71.0	118.8	452.5	118.8	13.62	557.41
OW420D	570.67	571.24	1/4/2002	6	548.7	503.1	22.5	68.1	503.1	68.1	14.52	556.15
OW649C	567.52	568.04	~10/31/1991	4	488.5	458.1	79.6	110.0	458.1	110.0	9.10	558.42
OW649D	568.29	568.35	10/31/1991	4	549.2	510.4	19.1	57.9	510.4	57.9	9.80	558.49
OW651C	568.62	568.91	10/10/1991	4	507.9	477.6	61.1	91.3	477.6	91.3	10.65	557.97
OW651D	568.53	568.72	~9/16/1991	6	553.2	507.7	15.5	61.0	507.7	61.0	10.70	557.83
OW652B	570.48	570.83	~9/16/1991	4	473.8	443.8	97.1	127.1	443.8	127.1	13.50	556.98
OW652C	570.18	570.64	2/5/1993	4	509.4	477.4	61.3	93.3	477.4	93.3	12.15	558.03
OW652D	569.98	570.25	9/16/1991	4	552.7	509.7	17.6	60.6	509.7	60.6	12.19	557.79
OW653B	572.19	572.55	~2/12/1993	4	475.4	451.4	97.2	121.2	451.4	121.2	16.03	556.16
OW653C	572.12	572.49	2/12/1993	4	503.1	478.1	69.4	94.4	478.1	94.4	18.07	554.05
OW653D	572	572.38	9/10/1991	6	552.1	503.7	20.3	68.7	503.7	68.7	19.38	552.62
OW654B	569.53	569.91	~8/27/1991	4	478.8	444.3	91.1	125.6	444.3	125.6	12.50	557.03
OW654C	570.14	570.39	~8/27/1991	4	509.7	481.8	60.7	88.6	481.8	88.6	12.90	557.24
OW654D	570.16	570.41	8/27/1991	6	556.0	510.7	14.4	59.7	510.7	59.7	12.80	557.36
OW655D	571.23	571.46	8/22/1991	6	552.7	507.4	18.8	64.1	507.4	64.1	18.60	552.63
OW657B	570.22	570.59	~4/9/1993	4	472.9	439.5	97.7	131.1	439.5	131.1	12.70	557.52
OW657C	570.42	570.83	~4/9/1993	4	503.7	475.7	67.2	95.2	475.7	95.2	12.42	558.00
OW657D	571.65	570.21	~4/9/1993	4	553.6	507.6	16.6	62.6	507.6	62.6	13.90	557.75
OW658B	570.48	570.93	~4/6/1993	4	473.4	439.9	97.6	131.1	439.9	131.1	15.31	555.17
OW658C	570.66	570.94	~4/6/1993	4	502.9	475.8	68.0	95.1	475.8	95.1	15.00	555.66
OW658D	570.75	571.1	~4/6/1993	4	552.6	506.1	18.6	65.1	506.1	65.1	16.55	554.20
OW659B	570.02	570.49	~3/30/1993	4	474.0	440.4	96.5	130.1	440.4	130.1	13.05	556.97
OW659C	570	570.41	~3/30/1993	4	503.9	475.8	66.5	94.6	475.8	94.6	13.00	557.00
OW659D	570.01	570.29	~3/30/1993	4	549.7	505.8	20.6	64.5	505.8	64.5	13.90	556.11
OW660B	579.42	579.85	10/19/1994	4	454.8	409.5	125.0	170.3	409.5	170.3	21.10	558.32
OW661B	568.63	569.05	12/15/1994	4	451.0	419.0	118.1	150.1	419.0	150.1	15.65	552.98
OW661C	568.87	569.22	10/24/1994	4	502.2	454.2	67.0	115.0	454.2	115.0	15.30	553.57
OW661D	568.88	569.25	11/1/1994	4	546.9	505.1	22.3	64.1	505.1	64.1	13.10	555.78

Table 7

Bedrock Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Monitored Interval						Well Bottom		Water Level Data	
					Top (AMSL)		Bottom (AMSL)	Top (BGS)		Bottom (BGS)	Elev. of (AMSL)	Depth to (BGS)	9/8/2022 (ft BTOC)	(ft AMSL)
OW662B	569.79	570.08	7/6/1994	4	456.1	-	415.1	114.0	-	155.0	415.1	155.0	11.80	557.99
OW662C	569.75	570.02	7/5/1994	4	501.0	-	459.0	69.0	-	111.0	459.0	111.0	11.70	558.05
OW662D	569.92	570.24	7/1/1994	4	546.1	-	503.2	24.1	-	67.0	503.2	67.0	11.90	558.02
OW663B	571.79	572.15	8/9/1994	4	452.7	-	413.6	119.5	-	158.6	413.6	158.6	13.61	558.18
OW663C	572.08	572.37	8/10/1994	4	501.4	-	455.9	71.0	-	116.5	455.9	116.5	14.72	557.36
OW663D	572.21	572.33	8/9/1994	4	549.5	-	504.5	22.8	-	67.8	504.5	67.8	15.11	557.10
OW664B	571.53	571.85	12/14/1994	4	449.9	-	418.9	122.0	-	153.0	418.9	153.0	15.42	556.11
OW664C	571.5	571.84	12/5/1994	4	499.8	-	452.8	72.0	-	119.0	452.8	119.0	15.10	556.40
OW664D	571.56	571.9	12/12/1994	4	548.1	-	502.9	23.8	-	69.0	502.9	69.0	16.61	554.95
OW665B	573.06	573.37	7/22/1994	4	450.0	-	415.0	123.4	-	158.4	415.0	158.4	17.07	555.99
OW665C	573.04	573.33	7/25/1994	4	498.9	-	453.4	74.4	-	119.9	453.4	119.9	15.64	557.40
OW665D	573.13	573.42	7/22/1994	4	547.0	-	502.3	26.4	-	71.2	502.3	71.2	17.11	556.02
OW666B	571.37	571.59	1/12/1995	4	453.2	-	410.2	118.4	-	161.4	410.2	161.4	19.21	552.16
OW666C	571.29	571.69	1/10/1995	4	504.7	-	456.2	67.0	-	115.5	456.2	115.5	14.32	556.97
OW666D	571.2	571.57	1/10/1995	4	552.5	-	507.1	19.1	-	64.5	507.1	64.5	19.43	551.77
OW667B	576.28	573.48	10/6/1994	4	453.4	-	413.4	120.1	-	160.1	413.4	160.1	21.02	555.26
OW667C	575.78	572.97	10/5/1994	4	503.8	-	456.2	69.2	-	116.8	456.2	116.8	23.81	551.97
OW667D	576.31	573.48	10/6/1994	4	552.2	-	506.2	21.3	-	67.3	506.2	67.3	18.64	557.67
OW668B	570.86	571.29	1/4/1995	4	454.3	-	420.8	117.0	-	150.5	420.8	150.5	15.75	555.11
OW668C	570.95	571.2	1/4/1995	4	502.9	-	457.7	68.3	-	113.5	457.7	113.5	14.33	556.62
OW668D	571.1	571.25	12/23/1994	4	551.0	-	506.0	20.3	-	65.3	506.0	65.3	15.75	555.35
River	568.91	N/A	N/A	N/A	N/A	-	N/A	N/A	-	N/A	N/A	N/A	6.30	562.61

Notes:

ft BTOC – feet below top of casing
ft AMSL – feet above mean sea level
NM - Not measured
NC - Not calculated
N/A - Not applicable
(1) - Well buried under stone

Table 8

Overburden Weekly Flow Rates
Third Quarter 2022
Buffalo Avenue Plant

	Flow Zone 1						Flow Zone 3		Abandoned Outfall 005		Abandoned D-Area Sanitary Sewer	
	System Total		Wet Well 2		Wet Well 1		WWB		MH159L		MH301	
Date	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)	Total Flow (gallons)	Average Flow Rate (gpm)
7/4/2022	528000	61.36	5000	4.39	523000	56.97	19000	2.06	35000	3.47	12000	1.30
7/11/2022	180000	38.33	5000	0.94	175000	37.39	10000	1.92	18000	1.79	10000	1.92
7/18/2022	453000	58.49	2000	0.22	451000	58.27	24000	2.82	33000	3.27	14000	1.64
7/25/2022	391000	38.79	10000	0.99	381000	37.80	67000	6.65	38000	3.77	46000	4.56
8/1/2022	405000	40.18	5000	0.50	400000	39.68	28000	2.78	39000	3.87	21000	2.08
8/8/2022	399000	39.78	3000	0.50	396000	39.29	19000	1.88	39000	3.87	13000	1.29
8/15/2022	410000	40.48	5000	0.30	405000	40.18	24000	2.38	40000	3.97	18000	1.79
8/22/2022	396000	39.29	3000	0.30	393000	38.99	14000	1.39	40000	3.97	9000	0.89
8/29/2022	403000	40.22	25000	2.50	378000	37.72	153000	15.27	37000	3.67	114000	11.38
9/5/2022	235000	23.31	15000	1.49	220000	21.83	64000	6.35	38000	3.77	46000	4.56
9/12/2022	306000	31.68	16000	1.66	290000	30.02	71000	7.35	30000	2.98	47000	4.87
9/19/2022	274000	50.74	7000	1.30	267000	49.44	28000	5.13	20000	1.98	24000	4.40
9/26/2022	444000	52.09	16000	1.85	428000	50.23	74000	8.56	31000	3.08	44000	5.13

Notes:

GPM - gallons per minute.
Flow rates shown are the average flow rate while the pump is operational.

Table 9

Overburden Performance Summary
Third Quarter 2022
Buffalo Avenue Plant

Flow Rate Summary

System Component	Average Flow				Quarterly Total (gallons)
	Jul-22	Aug-22	Sep-22	Quarterly	
Flow Zone 1					
Wet Well 1	46.0	52.3	37.9	45.4	4,707,000
Wet Well 2	0.5	0.9	0.9	0.77	101,000
TOTAL	**53.2**	**38.8**	**46.2**	**46.1**	**4,808,000**
Flow Zone 3					
WWB	3.2	5.2	6.8	5.1	595,000
Abandoned Outfall 005					
MH159L	3.2	3.9	3.0	3.4	438,000
Abandoned D-Area Sanitary Sewer					
MH301	2.3	3.8	4.7	3.6	418,000

Operating Time Summary

System Component	Average Percent Operational			
	Jul-22	Aug-22	Sep-22	Quarterly
Flow Zone 1				
Wet Well 1	86.0%	99.8%	80.6%	88.8%
Wet Well 2	86.0%	99.8%	80.6%	88.8%
Flow Zone 3				
WWB	86.0%	99.8%	80.6%	88.8%
Abandoned Outfall 005				
MH159L	86.0%	99.8%	80.6%	88.8%
Abandoned D-Area Sanitary Sewer				
MH301	86.0%	99.8%	80.6%	88.8%

Notes:

GPM - gallons per minute.

Table 10

Overburden Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Screened Interval Top (ft AMSL)		Screened Interval Bottom (ft AMSL)	Screened Interval Top (ft BGS)		Screened Interval Bottom (ft BGS)	Well Bottom Elev. of (ft AMSL)	Well Bottom Depth to (ft BGS)	Water Level Data 9/9/2022 (ft BTOC)	Water Level Data 9/9/2022 (ft AMSL)
BH1B-88[1]	572.53	572.70	12/20/1988	2	568.8	-	557.8	3.9	-	14.9	557.8	14.9	7.08	565.45
BH4-88[1]	572.12	572.45	12/9/1988	2	568.2	-	565.2	4.3	-	7.3	565.2	7.3	2.34	569.78
BH7-89	572.32	572.67	5/24/1989	2	560.6	-	553.2	12.1	-	19.5	553.2	19.5	13.99	558.33
BH8-89	568.00	568.23	1/6/1989	2	563.4	-	549.4	4.8	-	18.8	549.4	18.8	4.53	563.47
CMH1	569.50	568.53	1997	NA	NA	-	558.0	NA	-	10.5	558.0	10.5	.95	568.55
CMH2	569.42	568.49	1997	NA	NA	-	562.5	NA	-	6.0	562.5	6.0	6.00	563.42
MH-A	568.89	569.85	Unknown	NA	NA	-	556.5	NA	-	13.4	556.5	13.4	4.18	564.71
MH-B	568.87	568.72	Unknown	NA	NA	-	556.5	NA	-	12.2	556.5	12.2	4.09	564.78
MH-C	568.88	568.59	Unknown	NA	NA	-	557.0	NA	-	11.6	557.0	11.6	4.13	564.75
MH-D	569.89	568.50	Unknown	NA	NA	-	556.3	NA	-	12.2	556.3	12.2	5.14	564.75
MH-E	568.81	567.48	Unknown	NA	NA	-	555.8	NA	-	11.7	555.8	11.7	4.00	564.81
MH-F	568.90	567.83	1998	NA	NA	-	553.5	NA	-	14.4	553.5	14.4	3.89	565.01
OW270	571.55	570.88	10/16/1987	2	564.5	-	545.5	6.4	-	25.4	545.5	25.4	7.98	563.57
OW273	570.00	570.28	10/20/1987	2	563.5	-	551.5	6.8	-	18.8	551.5	18.8	7.09	562.91
OW300	567.07	567.56	5/25/1989	2	560.5	-	545.0	7.1	-	22.6	545.0	22.6	4.54	562.53
OW301	568.38	568.95	7/24/1989	2	564.8	-	557.8	4.2	-	11.2	557.8	11.2	2.96	565.42
OW302[1]	569.98	570.10	10/26/1988	2	565.6	-	563.6	4.5	-	6.5	563.6	6.5	4.94	565.04
OW303[1]	570.81	570.10	11/2/1988	2	566.3	-	562.3	3.8	-	7.8	562.3	7.8	2.68	568.13
OW304[1]	571.50	571.40	10/20/1988	2	565.3	-	560.3	6.1	-	11.1	560.3	11.1	4.96	566.54
OW305[1]	572.75	573.20	10/31/1988	2	569.4	-	564.4	3.8	-	8.8	564.4	8.8	2.82	569.93
OW306[1]	571.85	571.90	11/15/1988	2	567.9	-	564.9	4.0	-	7.0	564.9	7.0	2.78	569.07
OW308	574.24	571.40	11/17/1988	2	567.6	-	564.6	3.8	-	6.8	564.6	6.8	4.56	569.68
OW310[1]	572.28	572.80	11/22/1988	2	569.3	-	564.3	3.5	-	8.5	564.3	8.5	1.48	570.80
OW313	569.26	568.70	10/13/1988	2	550.8	-	545.8	17.9	-	22.9	545.8	22.9	4.43	564.83
OW314	569.04	568.90	6/12/1989	2	565.4	-	553.4	3.5	-	15.5	553.4	15.5	4.38	564.66
OW316	569.77	570.10	11/9/1988	2	566.1	-	559.1	4.0	-	11.0	559.1	11.0	1.04	568.73
OW317[1]	572.60	572.50	9/26/1988	2	568.8	-	563.8	3.7	-	8.7	563.8	8.7	1.73	570.87
OW327[1]	570.75	571.40	2/9/1990	2	567.4	-	565.4	4.0	-	6.0	565.4	6.0	1.99	568.76
OW358	571.49	569.02	9/26/1989	2	563.9	-	550.9	5.1	-	18.1	550.9	18.1	6.02	565.47
OW553	573.51	573.77	8/27/1991	2	570.1	-	565.1	3.7	-	8.7	565.1	8.7	6.47	567.04
OW554	573.83	572.35	9/3/1991	2	568.4	-	563.4	4.0	-	9.0	563.4	9.0	5.25	568.58
OW555	571.51	571.65	9/3/1991	2	568.5	-	563.5	3.2	-	8.2	563.5	8.2	4.49	567.02
OW556	571.73	571.93	8/30/1991	2	567.8	-	562.8	4.1	-	9.1	562.8	9.1	2.66	569.07
OW557[1]	571.69	572.16	5/16/1991	2	567.5	-	562.5	4.7	-	9.7	562.5	9.7	4.86	566.83
OW558[1]	571.28	571.21	5/16/1991	2	567.4	-	562.4	3.8	-	8.8	562.4	8.8	1.94	569.34
OW559[1]	569.73	570.35	9/10/1991	2	566.7	-	561.7	3.7	-	8.7	561.7	8.7	1.62	568.11
OW562	568.49	568.48	12/9/1996	2	555.2	-	550.2	13.3	-	18.3	550.2	18.3	5.35	563.14

Table 10

Overburden Groundwater Elevation Summary
Third Quarter 2022
Buffalo Avenue Plant

Well	Top of Riser Elevation	Ground Surface Elevation	Date of Installation	Riser Diameter (inches)	Screened Interval Top (ft AMSL)		Screened Interval Bottom (ft AMSL)	Screened Interval Top (ft BGS)		Screened Interval Bottom (ft BGS)	Well Bottom Elev. of (ft AMSL)	Well Bottom Depth to (ft BGS)	Water Level Data 9/9/2022 (ft BTOC)	Water Level Data 9/9/2022 (ft AMSL)
OW563	567.67	568.02	12/5/1996	2	560.6	-	555.6	7.4	-	12.4	555.6	12.4	2.35	565.32
OW564	569.05	569.58	12/11/1996	2	560.4	-	555.4	9.2	-	14.2	555.4	14.2	4.00	565.05
OW565	568.89	569.53	12/10/1996	2	557.0	-	552.0	12.5	-	17.5	552.0	17.5	5.48	563.41
OW566	568.55	568.83	12/5/1996	2	559.4	-	554.4	9.4	-	14.4	554.4	14.4	1.08	567.47
OW567	569.12	569.15	4/23/1998	2	560.1	-	555.1	9.0	-	14.0	555.1	14.0	1.83	567.29
OW568	568.26	568.95	4/23/1998	2	560.3	-	555.3	8.7	-	13.7	555.3	13.7	.82	567.44
OW569	567.20	567.74	4/23/1998	2	562.7	-	559.7	5.0	-	8.0	559.7	8.0	3.66	563.54
OW570	568.46	568.70	4/23/1998	2	563.6	-	560.6	5.1	-	8.1	560.6	8.1	4.20	564.26
OW571	567.80	568.52	4/24/1998	2	566.2	-	561.2	2.3	-	7.3	561.2	7.3	2.55	565.25
OW572	567.95	568.30	4/24/1998	2	565.9	-	560.9	2.4	-	7.4	560.9	7.4	1.53	566.42
OW573R(1)	573.02	573.48	6/29/2004	2	569.0	-	564.0	4.5	-	9.5	564.0	9.5	2.30	570.72
OW574(1)	571.16	571.24	11/15/1999	2	560.8	-	555.8	10.4	-	15.4	555.8	15.4	3.46	567.70
OW575	568.40	568.45	1/15/2002	1	564.6	-	559.8	3.9	-	8.7	559.8	8.7	1.60	566.80
OW576	568.32	568.52	1/15/2002	1	565.6	-	560.9	2.9	-	7.6	560.9	7.6	1.98	566.34
OW577	567.53	567.59	1/15/2002	1	563.3	-	558.0	4.3	-	9.6	558.0	9.6	2.70	564.83
OW578(1)	572.21	572.48	6/6/2002	1	568.6	-	564.6	3.9	-	7.9	564.6	7.9	2.74	569.47
OWG8(1)	570.66	571.10	6/3/1986	2	566.2	-	564.2	4.9	-	6.9	564.2	6.9	1.08	569.58
WS107	573.18	573.73	7/30/1980	1.5	565.6	-	563.6	8.1	-	10.1	563.6	10.1	.77	572.41
WS10A	572.58	569.78	1/16/1979	1.5	567.9	-	552.9	1.9	-	16.9	552.9	16.9	6.76	565.82
WS111R(1)	572.35	572.70	6/6/2002	1	568.2	-	565.2	4.5	-	7.5	565.2	7.5	-	-
WS122(1)	571.57	572.25	7/7/1980	1.5	564.6	-	562.6	7.7	-	9.7	562.6	9.7	1.03	570.54
WS23A(1)	572.30	572.74	1/29/1979	1.5	570.5	-	565.5	2.2	-	7.2	565.5	7.2	1.34	570.96
WS25A(1)	571.10	571.67	1/26/1979	1.5	569.3	-	564.3	2.4	-	7.4	564.3	7.4	1.45	569.65
WS8A	570.10	570.20	3/19/1979	1.5	566.3	-	551.3	3.9	-	18.9	551.3	18.9	2.00	568.10
WW1	570.30	569.26	1997	NA	NA	-	545.3	NA	-	24.0	545.3	24.0	5.57	564.73
WW2	569.27	568.82	1997	NA	NA	-	553.8	NA	-	15.0	553.8	15.0	10.29	558.98
WWB	573.74	572.68	1980	NA	NA	-	556.7	NA	-	16.0	556.7	16.0	13.24	560.50

Notes:

ft BGS - Feet below ground surface
ft BTOC - Feet below top of casing
ft AMSL - Feet above mean sea level
MH - Manhole chamber
NA - Not applicable
NM - Not measured
"-" Not measured per monitoring schedule
(1) - Annual measurements only
(2) - Dry

Table 11

Summary of Bedrock NAPL Monitoring and Collection
Third Quarter 2022
Buffalo Avenue Plant

	Bedrock A-Wells				S-Area Bedrock Wells in the N-Area									
					Shallow						Intermediate		Deep	
Date	**OW402A (Gallons)**	**OW413A (Gallons)**	**OW417A (Gallons)**	**OW401B (Gallons)**	**OW229 (Gallons)**	**OW243 (Gallons)**	**OW618 (Gallons)**	**OW619 (Gallons)**	**OW620 (Gallons)**	**OW621 (Gallons)**	**OW634 (Gallons)**	**OW638 (Gallons)**	**OW635 (Gallons)**	**OW643 (Gallons)**
August 5, 2022	--	--	--	--	0.5	0.75	NR	ND	NR	0.6	NR	0.1	NR	0.2
August 15, 2022	4.1	NR	NR	NR	--	--	--	--	--	--	--	--	--	--
Cumulative Volume (as of June 30, 2022)	6160.05	579.75	<40.80	6.00	12.15	59.30	21.45	0.00	0.00	35.75	5.50	147.80	8.75	242.70
Cumulative Volume (as of September 30, 2022)	6164.15	579.75	<40.80	6.00	12.65	60.05	21.45	0.00	0.00	36.35	5.50	147.90	8.75	242.90
Monitoring Frequency [1]	Annual	Annual	Annual	Annual	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly

Notes:

-- Not checked per schedule.
ND None detected.
NR Not recoverable
(1) Frequency revised in second quarter 2010 to reflect NYSDEC's May 4, 2010 letter.

Table 12

Summary of Overburden NAPL Monitoring and Collection
Third Quarter 2022
Buffalo Avenue Plant

Date	003 NAPL Collection Trench (Gallons)	OW313 (Gallons)	OW572 (Gallons)	OW317 (Gallons)	OW320 (Gallons)	OW358 (Gallons)	OW523 (Gallons)	OW562 (Gallons)	OW563 (Gallons)	TW-7 (Gallons)	OW306 (Gallons)	BH8-89 (Gallons)	OW564 (Gallons)	OW537 (Gallons)	OW577 (Gallons)	Energy Boulevard Drain Tile System (Gallons)
July 15, 2022	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September 9, 2022	--	0.25	0.25	--	--	--	--	--	--	--	--	--	--	--	--	0.75
Subtotal (First Quarter)	0.25	0.10	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cumulative volume (as of June 30, 2022)	959.75	46.40	39.03	0.21	1.50	0.50	0.30	0.00	9.00	0.56	0.00	0.00	0.00	0.00	0.25	6011.25
Cumulative volume (as of September 30, 2022)	950.00	46.50	39.28	0.21	1.50	0.50	0.30	0.00	9.00	0.56	0.00	0.00	0.00	0.00	0.25	6011.25
Monitoring Frequency [1]	Quarterly	Semiannual	Semiannual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Quarterly

Notes:

-- Not checked per schedule.
ND - None detected.
NR - Not recoverable.
[1] Frequency revised in second quarter 2010 to reflect NYSDEC's May 4, 2010 letter.

Attachment A

Technical Memorandum

June 8, 2022

To	John Pentilchuk	**Tel**	716-205-1942
Copy to	John Sweeney	**Email**	Kathleen.willy@ghd.com
From	Kathy Willy/cs/32	**Ref. No.**	11215553
Subject	Analytical Results and Reduced Validation Annual Bedrock Extraction Wells Chemical Monitoring Program Niagara Falls, New York April-May 2022		

1. Introduction

This document details a reduced validation of analytical results for water samples collected in support of the Glenn Springs Holdings, Inc. (GSH) Chemical Monitoring Program for the bedrock groundwater extraction system at the Buffalo Avenue Plant Site during April and May 2022. Samples were submitted to ALS Laboratory located in Rochester, New York. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard Level 2 report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "Chemical Sampling and Quality Assurance Plan Niagara Plant Supplemental Data Collection Program", March 1998 (Revised 2007) Quality Assurance Project Plan (QAPP)

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

iii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation, with the exception of a low concentration of chlorobenzene detected in one method blank. The associated sample result similar in concentration to that of the blank was qualified as non-detect (see Table 4).

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile (VOC) and semi-volatile compound (SVOC) and pesticide determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of SVOC analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. Some surrogate recoveries could not be assessed due to necessary secondary dilutions. All assessed recoveries were within the laboratory limits with the exception of one low base/neutral recovery. Since only one surrogate was out in the fraction, no qualification of the data was required.

5. Laboratory Control Sample Analyses

LCS and/or LCS/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS/LCSD contained all compounds of interest. All percent recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision with the exception of some high pesticide RPDs. All associated positive sample results were qualified as estimated to reflect the indicated variability (see Table 5).

Inorganic Analyses

The LCS contained the analyte of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the extraction process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1.

Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy with the exception of a high pesticide RPD. The associated positive sample result was qualified as estimated to reflect the indicated variability (see Table 6).

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. For this study, MS samples were prepared and analyzed by the laboratory as specified in Table 1.

The MS results were evaluated per the "Guidelines".

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy.

8. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory for alkalinity analyses as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of ten trip blank samples, two rinse blank sample, and three field duplicate sample sets.

9.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, ten trip blanks were submitted to the laboratory for volatile organic compound (VOC) analysis. All results were non-detect for the compounds of interest.

9.2 Rinse Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, two rinse blanks were submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest.

9.3 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results met the above criteria, demonstrating acceptable sampling and laboratory precision.

10. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

Pesticide analyses were performed using dual column analysis. In general, the pesticide results showed good correlation between the two columns. Variability was observed between the alpha-BHC results for one sample and the associated result was qualified as estimated to reflect the lack of precision (see Table 7).

11. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Regards,

Kathy Willy

Kathy Willy
Digital Intelligence-Data Management-Chemist

Table 1

Sample Collection and Analysis Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

					Analysis/Parameters				
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**SSI VOC**	**SSI SVOC**	**SSI Pesticide**	**Alkalinity**	**Comments**
BEW700B-0422	BEW700B	Water	04/11/2022	13:20	X	X	X	X	
BEW701B-0422	BEW701B	Water	05/04/2022	11:00	X	X	X	X	
BEW701C-0422	BEW701C	Water	05/04/2022	09:50	X	X	X	X	
BEW701D-0422	BEW701D	Water	05/04/2022	10:35	X	X	X	X	
BEW702B-0422	BEW702B	Water	04/08/2022	13:50	X	X	X	X	
BEW702C-0422	BEW702C	Water	05/04/2022	12:25	X	X	X	X	
BEW702D-0422	BEW702D	Water	05/04/2022	13:20	X	X	X	X	
BEW703B-0422	BEW703B	Water	04/08/2022	14:15	X	X	X	X	
BEW703C-0422	BEW703C	Water	04/15/2022	13:15	X	X	X	X	
BEW703D-0422	BEW703D	Water	05/04/2022	14:20	X	X	X	X	
BEW-704B-0422	BEW704B	Water	04/01/2022	12:05	X	X	X	X	
BEW-704C-0422	BEW704C	Water	04/01/2022	12:20	X	X	X	X	
BEW-704D-0422	BEW704D	Water	04/01/2022	13:05	X	X	X	X	
BEW-705B-0422	BEW705B	Water	04/01/2022	13:25	X	X	X	X	
BEW-705C-0422	BEW705C	Water	04/01/2022	13:40	X	X	X	X	
BEW-705D-0422	BEW705D	Water	04/01/2022	13:50	X	X	X	X	
BEW706B-0422	BEW706B	Water	04/07/2022	13:35	X	X	X	X	
BEW706C-0422	BEW706C	Water	04/11/2022	12:15	X	X	X	X	MS/MSD/MD
BEW706D-0422	BEW706D	Water	04/11/2022	12:45	X	X	X	X	
BEW540B-0422	BEW706D	Water	04/11/2022	12:45	X	X	X	X	Field duplicate of sample BEW706D-0422
OW403B-0422	OW403B	Water	04/07/2022	10:30	X	X	X	X	
OW403C-0422	OW403C	Water	04/07/2022	12:15	X	X	X	X	
OW403D-0422	OW403D	Water	04/07/2022	13:00	X	X	X	X	
OW560B-0422	OW403D	Water	04/07/2022	13:00	X	X	X	X	Field duplicate of sample OW403D-0422
OW404C-0422	OW404C	Water	05/03/2022	09:15	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

					Analysis/Parameters				
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**SSI VOC**	**SSI SVOC**	**SSI Pesticide**	**Alkalinity**	**Comments**
OW405C-0422	OW405C	Water	04/20/2022	13:40	X	X	X	X	
OW406C-0422	OW406C	Water	05/02/2022	15:35	X	X	X	X	
OW407B-0422	OW407B	Water	04/21/2022	09:45	X	X	X	X	
OW407C-0422	OW407C	Water	04/18/2022	12:55	X	X	X	X	
OW408B-0422	OW408B	Water	05/03/2022	12:30	X	X	X	X	
OW408C-0422	OW408C	Water	05/03/2022	10:30	X	X	X	X	
OW409B-0422	OW409B	Water	05/03/2022	14:45	X	X	X	X	
OW570B-0422	OW409B	Water	05/03/2022	14:45	X	X	X	X	Field duplicate of sample OW409B-0422
OW409C-0422	OW409C	Water	04/21/2022	10:20	X	X	X	X	
OW410B-0422	OW410B	Water	05/02/2022	13:50	X	X	X	X	
OW410C-0422	OW410C	Water	04/22/2022	08:25	X	X	X	X	
OW649C-0422	OW649C	Water	04/06/2022	13:10	X	X	X	X	
OW649D-0422	OW649D	Water	04/06/2022	13:55	X	X	X	X	
OW651C-0422	OW651C	Water	04/06/2022	10:45	X	X	X	X	
OW651D-0422	OW651D	Water	04/06/2022	11:30	X	X	X	X	
OW652B-0422	OW652B	Water	04/14/2022	10:45	X	X	X	X	
OW652C-0422	OW652C	Water	04/14/2022	12:45	X	X	X	X	
OW652D-0422	OW652D	Water	04/14/2022	11:20	X	X	X	X	
OW653B-0422	OW653B	Water	04/20/2022	10:15	X	X	X	X	
OW653C-0422	OW653C	Water	04/21/2022	09:00	X	X	X	X	
OW653D-0422	OW653D	Water	04/18/2022	10:45	X	X	X	X	
OW654B-0422	OW654B	Water	04/15/2022	10:45	X	X	X	X	MS/MSD/MD
OW654C-0422	OW654C	Water	04/14/2022	14:45	X	X	X	X	
OW654D-0422	OW654D	Water	04/15/2022	11:25	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters: SSI VOC	SSI SVOC	SSI Pesticide	Alkalinity	Comments
BEDRIN1-0422	-	Water	04/11/2022	14:00	X	X	X	X	Rinse Blank
BEDRIN2-0422	-	Water	04/20/2022	13:35	X	X	X	X	Rinse Blank
NPANNUALBR-040122	-	Water	04/01/2022	-	X				Trip Blank
NPANNUALBR-040622	-	Water	04/06/2022	-	X				Trip Blank
NPANNUALBR-040722	-	Water	04/07/2022	-	X				Trip Blank
NPANNUALBR-040822	-	Water	04/08/2022	-	X				Trip Blank
NPANNUALBR-041422	-	Water	04/14/2022	-	X				Trip Blank
NPANNUALBR-041522	-	Water	04/15/2022	-	X				Trip Blank
NPANNUALBR-041822	-	Water	04/18/2022	-	X				Trip Blank
NPANNUALBR-042122	-	Water	04/21/2022	-	X				Trip Blank
NPANNUALBR-050222	-	Water	05/02/2022	-	X				Trip Blank
NPANNUALBR-050422	-	Water	05/04/2022	-	X				Trip Blank

Notes:

VOC - Volatile Organic Compounds
SVOC - Semi-volatile Organic Compounds
SSI - Site-Specific Indicators
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MD - Matrix Duplicate
- - Not applicable

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW700B	BEW701B	BEW701C	BEW701D	BEW702B	BEW702C	BEW702D
Sample Name:		BEW700B-0422	BEW701B-0422	BEW701C-0422	BEW701D-0422	BEW702B-0422	BEW702C-0422	BEW702D-0422
Sample Date:		04/11/2022	05/04/2022	05/04/2022	05/04/2022	04/08/2022	05/04/2022	05/04/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	500 U	10 U	1.0 U	1.0 U	2.0 U	1.0 U	9.8
1,2,4-Trichlorobenzene	µg/L	500 U	10 U	0.83 J	1.0 U	2.0 U	1.0 U	63
1,2-Dichlorobenzene	µg/L	500 U	7.3 J	1.0 U	1.0 U	17	1.0 U	25
1,3-Dichlorobenzene	µg/L	500 U	10 U	1.7	1.0 U	12	0.32 J	170
1,4-Dichlorobenzene	µg/L	280 J	8.5 J	2.2	1.0 U	48	0.35 J	370
2,3,6-Trichlorotoluene	µg/L	2500 U	50 U	5.0 U	5.0 U	10 U	5.0 U	25 U
2,3/3,4-Dichlorotoluene	µg/L	500 U	10 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
2,4,5-Trichlorotoluene	µg/L	2500 U	50 U	5.0 U	5.0 U	10 U	5.0 U	25 U
2,4-Dichlorobenzotrifluoride	µg/L	500 U	10 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	750 U	6.2 J	1.1 J	1.5 U	1.5 J	1.5 U	5.6 J
2-Chlorotoluene	µg/L	11000	1500	0.76 J	1.0 U	23	1.0 U	150
3,4-Dichlorobenzotrifluoride	µg/L	500 U	10 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
4-Chlorotoluene	µg/L	570	11	1.5	1.0 U	3.0	1.0 U	1.5 J
Benzene	µg/L	140 J	37	1.0 U	1.0 U	240	1.0 U	43
Chlorobenzene	µg/L	250 J	26	1.0 U	1.0 U	200	1.0 U	52
o-Monochlorobenzotrifluoride	µg/L	500 U	10 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
p-Monochlorobenzotrifluoride	µg/L	270 J	4.5 J	30	4.9	6.7	18	16
Tetrachloroethene	µg/L	4600	7.3 J	0.25 J	3.3	1.2 J	1.0 U	5.0 U
Toluene	µg/L	150 J	6.8 J	1.0 U	1.0 U	0.44 J	1.0 U	5.0 U
Trichloroethene	µg/L	54000	15	0.79 J	16	4.3	0.53 J	5.0 U
Vinyl chloride	µg/L	1800	1800	1.0 U	1.0 U	2.0 U	1.0 U	19

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW700B	BEW701B	BEW701C	BEW701D	BEW702B	BEW702C	BEW702D
Sample Name:		BEW700B-0422	BEW701B-0422	BEW701C-0422	BEW701D-0422	BEW702B-0422	BEW702C-0422	BEW702D-0422
Sample Date:		04/11/2022	05/04/2022	05/04/2022	05/04/2022	04/08/2022	05/04/2022	05/04/2022
Parameters	**Unit**							
Semi-volatile Organic Compounds								
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	5.0 U	4.5 U	4.5 U
1,2,4,5-Tetrachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	3.8 J
2,4,5-Trichlorophenol	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U
Hexachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U
Hexachlorobutadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U
Hexachlorocyclopentadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U
Octachlorocyclopentene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	5.0 U	4.5 U	4.5 U
Pesticides								
alpha-BHC	µg/L	0.050 U	0.045 U	0.029 J	0.045 U	0.050 U	0.046 J	42
beta-BHC	µg/L	0.050 UJ	0.045 U	0.25	0.054	0.078 J	0.14	5.7
delta-BHC	µg/L	0.050 U	0.045 U	0.045 U	0.045 U	0.050 U	0.045 U	0.74 J
gamma-BHC (lindane)	µg/L	0.050 U	0.045 U	0.045 U	0.045 U	0.050 U	0.045 U	0.77 J
Mirex	µg/L	0.050 U	0.045 U	0.045 U	0.045 U	0.050 U	0.045 U	0.91 U
General Chemistry								
Alkalinity, total (as CaCO3)	mg/L	132	117	90.2	112	133	59.7	131

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW703B	BEW703C	BEW703D	BEW704B	BEW704C	BEW704D	BEW705B
Sample Name:		BEW703B-0422	BEW703C-0422	BEW703D-0422	BEW-704B-0422	BEW-704C-0422	BEW-704D-0422	BEW-705B-0422
Sample Date:		04/08/2022	04/15/2022	05/04/2022	04/01/2022	04/01/2022	04/01/2022	04/01/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	1.0 U	2.5 U	15 J	11	2.0 U	20 U	20 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	2.5 U	160	28	2.0 U	20 U	8.3 J
1,2-Dichlorobenzene	µg/L	5.1	2.5 U	240	180	2.0 U	82	91
1,3-Dichlorobenzene	µg/L	16	0.89 J	1000	680	0.76 J	170	1000
1,4-Dichlorobenzene	µg/L	12	2.0 J	2700	1400	1.3 J	700	2100
2,3,6-Trichlorotoluene	µg/L	5.0 U	13 U	130 U	50 U	10 U	100 U	100 U
2,3/3,4-Dichlorotoluene	µg/L	1.0 U	2.5 U	25 U	10 U	2.0 U	20 U	20 U
2,4,5-Trichlorotoluene	µg/L	5.0 U	13 U	130 U	50 U	10 U	100 U	100 U
2,4-Dichlorobenzotrifluoride	µg/L	1.0 U	2.5 U	25 U	10 U	2.0 U	20 U	20 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	1.5 U	3.8 U	21 J	51	3.0 U	12 J	44
2-Chlorotoluene	µg/L	0.82 J	2.5 U	870	42	2.0 U	52	53
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	2.5 U	25 U	10 U	2.0 U	20 U	20 U
4-Chlorotoluene	µg/L	1.0 U	2.5 U	25 U	10 U	2.0 U	20 U	20 U
Benzene	µg/L	3.4	2.5 U	980	160	2.0 U	2600	260
Chlorobenzene	µg/L	28	2.5 U	750	970	1.9 J	950	2500
o-Monochlorobenzotrifluoride	µg/L	1.0 U	2.5 U	25 U	10 U	2.0 U	20 U	20 U
p-Monochlorobenzotrifluoride	µg/L	1.0 U	2.9	50	9.2 J	2.2	6.0 J	8.8 J
Tetrachloroethene	µg/L	2.0	45	25 U	12	28	30	7.3 J
Toluene	µg/L	1.0 U	2.5 U	7.3 J	10 U	2.0 U	20 U	20 U
Trichloroethene	µg/L	0.85 J	260	25 U	20	170	52	11 J
Vinyl chloride	µg/L	0.28 J	2.5 U	86	5.0 J	2.0 U	20 U	20 U

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW703B	BEW703C	BEW703D	BEW704B	BEW704C	BEW704D	BEW705B
Sample Name:		BEW703B-0422	BEW703C-0422	BEW703D-0422	BEW-704B-0422	BEW-704C-0422	BEW-704D-0422	BEW-705B-0422
Sample Date:		04/08/2022	04/15/2022	05/04/2022	04/01/2022	04/01/2022	04/01/2022	04/01/2022
Parameters	**Unit**							
Semi-volatile Organic Compounds								
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.5 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4,5-Tetrachlorobenzene	µg/L	9.1 U	9.1 U	5.4 J	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	9.1 U	9.1 U	9.1 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	µg/L	9.1 U	9.1 U	9.1 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	µg/L	9.1 U	9.1 U	9.1 U	10 U	10 U	10 U	10 U
Octachlorocyclopentene	µg/L	4.5 U	4.5 U	4.5 U	5.0 U	5.0 U	5.0 U	5.0 U
Pesticides								
alpha-BHC	µg/L	0.050 U	0.045 U	6.4	4.7	0.060	0.11	0.076
beta-BHC	µg/L	0.020 J	0.045 U	1.2	0.35	0.25	0.086	0.11
delta-BHC	µg/L	0.050 U	0.045 U	0.078 J	0.40	0.045	0.045 U	0.21
gamma-BHC (lindane)	µg/L	0.050 U	0.045 U	0.11	1.0	0.030 J	0.045 U	0.045 U
Mirex	µg/L	0.050 U	0.045 U	0.091 U	0.091 U	0.045 U	0.045 U	0.045 U
General Chemistry								
Alkalinity, total (as CaCO3)	mg/L	14.3	94.5	185	116	109	96.7	108

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW705C	BEW705D	BEW706B	BEW706C	BEW706D	BEW706D	OW403B
Sample Name:		BEW-705C-0422	BEW-705D-0422	BEW706B-0422	BEW706C-0422	BEW706D-0422	BEW540B-0422	OW403B-0422
Sample Date:		04/01/2022	04/01/2022	04/07/2022	04/11/2022	04/11/2022	04/11/2022 Duplicate	04/07/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	1.0 U	53 J	10 U	2.0 U	20 U	3.6	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	100 U	10 U	2.0 U	8.0 J	9.2	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	770	25	0.48 J	160	180	5.7
1,3-Dichlorobenzene	µg/L	1.0 U	1300	120	0.70 J	130	150	1.7
1,4-Dichlorobenzene	µg/L	0.27 J	4100	240	1.4 J	560	670	13
2,3,6-Trichlorotoluene	µg/L	5.0 U	500 U	50 U	10 U	21 J	22	5.0 U
2,3/3,4-Dichlorotoluene	µg/L	1.0 U	100 U	10 U	2.0 U	16 J	19	1.0 U
2,4,5-Trichlorotoluene	µg/L	5.0 U	500 U	50 U	10 U	21 J	27	5.0 U
2,4-Dichlorobenzotrifluoride	µg/L	1.0 U	100 U	10 U	2.0 U	20 U	1.0 U	1.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	1.5 U	100 J	15 U	1.5 J	120	150	1.5 U
2-Chlorotoluene	µg/L	1.0 U	870	27	28	1100	1200	5.0
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	100 U	10 U	1.5 J	20 U	1.0	1.0 U
4-Chlorotoluene	µg/L	1.0 U	46 J	10 U	2.0 U	28	31	1.0 U
Benzene	µg/L	1.0 U	8400	67	0.47 J	1600	1800	11
Chlorobenzene	µg/L	0.33 J	8300	600	1.7 J	1700	2000	33
o-Monochlorobenzotrifluoride	µg/L	1.0 U	100 U	10 U	1.6 J	20 U	3.0	1.0 U
p-Monochlorobenzotrifluoride	µg/L	11	130	29	270	270	300	2.5
Tetrachloroethene	µg/L	6.7	100 U	10 U	3.0	20 U	0.61 J	0.95 J
Toluene	µg/L	1.0 U	35 J	10 U	2.0 U	19 J	20	0.21 J
Trichloroethene	µg/L	19	100 U	10 U	4.9	20 U	0.80 J	1.5
Vinyl chloride	µg/L	1.0 U	420	10 U	0.91 J	1700	1900	2.7

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		BEW705C	BEW705D	BEW706B	BEW706C	BEW706D	BEW706D	OW403B
Sample Name:		BEW-705C-0422	BEW-705D-0422	BEW706B-0422	BEW706C-0422	BEW706D-0422	BEW540B-0422	OW403B-0422
Sample Date:		04/01/2022	04/01/2022	04/07/2022	04/11/2022	04/11/2022	04/11/2022 Duplicate	04/07/2022
Parameters	**Unit**							
Semi-volatile Organic Compounds								
1,2,3,4-Tetrachlorobenzene	µg/L	5.0 U	5.0 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
1,2,4,5-Tetrachlorobenzene	µg/L	10 U	10 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
2,4,5-Trichlorophenol	µg/L	10 U	10 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobenzene	µg/L	10 U	10 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobutadiene	µg/L	10 U	10 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorocyclopentadiene	µg/L	10 U	10 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Octachlorocyclopentene	µg/L	5.0 U	5.0 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
Pesticides								
alpha-BHC	µg/L	0.043 J	1.6	0.050 U	0.023 J	0.17 J	0.17 J	0.050 U
beta-BHC	µg/L	0.098	0.94	0.050 UJ	0.048 J	0.050 UJ	0.050 UJ	0.026 J
delta-BHC	µg/L	0.020 J	0.78	0.050 U	0.050 U	0.050 U	0.033 J	0.050 U
gamma-BHC (lindane)	µg/L	0.045 U	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Mirex	µg/L	0.045 U	0.045 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
General Chemistry								
Alkalinity, total (as CaCO3)	mg/L	94.4	147	229	104	167	171	122

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW403C	OW403D	OW403D	OW404C	OW405C	OW406C	OW407B	OW407C
Sample Name:		OW403C-0422	OW403D-0422	OW560B-0422	OW404C-0422	OW405C-0422	OW406C-0422	OW407B-0422	OW407C-0422
Sample Date:		04/07/2022	04/07/2022	04/07/2022	05/03/2022	04/20/2022	05/02/2022	04/21/2022	04/18/2022
				Duplicate					
Parameters	**Unit**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 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	2.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.48 J	2.0 U	1.9	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5	2.0 U	19	1.0 U
1,4-Dichlorobenzene	µg/L	0.21 J	0.29 J	0.27 J	1.0 U	2.2	2.0 U	21	0.20 J
2,3,6-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U
2,3/3,4-Dichlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U
2,4,5-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U
2,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	1.5 U	1.5 U	1.5 U	1.5 U	0.62 J	3.0 U	0.71 J	1.5 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.2	0.72 J	33	1.0 U
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U
4-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.8	2.0 U	1.1	1.0 U
Chlorobenzene	µg/L	1.0 U	0.42 J	0.42 J	1.0 U	3.7	0.42 J	50	1.0 U
o-Monochlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.21 J	1.0 U
p-Monochlorobenzotrifluoride	µg/L	6.0	4.0	4.0	1.9	2.7	3.5	41	4.0
Tetrachloroethene	µg/L	1.9	2.8	2.9	24	44	29	1.0 U	31
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	7.6	4.9	4.5	38	77	230	1.0 U	53
Vinyl chloride	µg/L	1.0 U	0.21 J	1.0 U	1.0 U	1.0 U	2.0 U	0.93 J	1.0 U

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW403C	OW403D	OW403D	OW404C	OW405C	OW406C	OW407B	OW407C
Sample Name:		OW403C-0422	OW403D-0422	OW560B-0422	OW404C-0422	OW405C-0422	OW406C-0422	OW407B-0422	OW407C-0422
Sample Date:		04/07/2022	04/07/2022	04/07/2022	05/03/2022	04/20/2022	05/02/2022	04/21/2022	04/18/2022
				Duplicate					
Parameters	**Unit**								
Semi-volatile Organic Compounds									
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	5.0 U	4.5 U	4.5 U	5.0 U
1,2,4,5-Tetrachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U	10 U
2,4,5-Trichlorophenol	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U	10 U
Hexachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U	10 U
Hexachlorobutadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U	10 U
Hexachlorocyclopentadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	10 U	9.1 U	9.1 U	10 U
Octachlorocyclopentene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	5.0 U	4.5 U	4.5 U	5.0 U
Pesticides									
alpha-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.045 U	0.026 J	0.13	0.045 U	0.039 J
beta-BHC	µg/L	0.026 J	0.060 J	0.077 J	0.045 U	0.071	0.069	0.045 U	0.067
delta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.045 U	0.045 U	0.024 J	0.045 U	0.045 U
gamma-BHC (lindane)	µg/L	0.050 U	0.050 U	0.050 U	0.045 U	0.045 U	0.055	0.045 U	0.025 J
Mirex	µg/L	0.050 U	0.050 U	0.050 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
General Chemistry									
Alkalinity, total (as CaCO3)	mg/L	98.3	104	104	103	99.0	101	120	105

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW408B	OW408C	OW409B	OW409B	OW409C	OW410B	OW410C	OW649C
Sample Name:		OW408B-0422	OW408C-0422	OW409B-0422	OW570B-0422	OW409C-0422	OW410B-0422	OW410C-0422	OW649C-0422
Sample Date:		05/03/2022	05/03/2022	05/03/2022	05/03/2022	04/21/2022	05/02/2022	04/22/2022	04/06/2022
					Duplicate				
Parameters	**Unit**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.2 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	29	0.20 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.5 J	0.33 J	1.0 U	1.0 U	1.0 U	0.21 J	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	48	0.67 J	1.0 U	1.0 U	1.0 U	0.35 J	1.0 U	1.0 U
2,3,6-Trichlorotoluene	µg/L	7.5 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3/3,4-Dichlorotoluene	µg/L	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,4,5-Trichlorotoluene	µg/L	8.8 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dichlorobenzotrifluoride	µg/L	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	80	0.68 J	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
2-Chlorotoluene	µg/L	270	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
3,4-Dichlorobenzotrifluoride	µg/L	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	µg/L	200	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	280	0.29 J	24	24	1.0 U	13	1.0 U	1.0 U
Chlorobenzene	µg/L	390	1.7	4.4	4.5	1.0 U	0.39 J	1.0 U	1.0 U
o-Monochlorobenzotrifluoride	µg/L	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
p-Monochlorobenzotrifluoride	µg/L	2.5 U	3.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7
Tetrachloroethene	µg/L	5.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.78 J
Toluene	µg/L	240	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	7.9	0.49 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.1
Vinyl chloride	µg/L	2.5 U	4.7	6.4	5.8	1.0 U	4.6	1.0 U	1.0 U

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW408B	OW408C	OW409B	OW409B	OW409C	OW410B	OW410C	OW649C
Sample Name:		OW408B-0422	OW408C-0422	OW409B-0422	OW570B-0422	OW409C-0422	OW410B-0422	OW410C-0422	OW649C-0422
Sample Date:		05/03/2022	05/03/2022	05/03/2022	05/03/2022	04/21/2022	05/02/2022	04/22/2022	04/06/2022
					Duplicate				
Parameters	**Unit**								
Semi-volatile Organic Compounds									
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
1,2,4,5-Tetrachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
2,4,5-Trichlorophenol	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobutadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorocyclopentadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Octachlorocyclopentene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
Pesticides									
alpha-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
beta-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
delta-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
gamma-BHC (lindane)	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
Mirex	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
General Chemistry									
Alkalinity, total (as CaCO3)	mg/L	264	216	269	271	266	237	264	92.3

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW649D	OW651C	OW651D	OW652B	OW652C	OW652D
Sample Name:		OW649D-0422	OW651C-0422	OW651D-0422	OW652B-0422	OW652C-0422	OW652D-0422
Sample Date:		04/06/2022	04/06/2022	04/06/2022	04/14/2022	04/14/2022	04/14/2022
Parameters	**Unit**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	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	0.88 J
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	8.2	1.0 U	2.3
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	9.7	0.25 J	7.2
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	24	0.39 J	6.5
2,3,6-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3/3,4-Dichlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,4,5-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	1.5 U	1.5 U	1.5 U	7.4	1.5 U	0.60 J
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	75	0.36 J	6.7
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	0.27 J	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.3
Chlorobenzene	µg/L	0.31 J	1.0 U	1.0 U	110	0.24 J	17
o-Monochlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J
p-Monochlorobenzotrifluoride	µg/L	2.9	6.2	3.8	0.36 J	2.7	3.6
Tetrachloroethene	µg/L	1.2	3.8	2.1	1.0 U	41	25
Toluene	µg/L	1.0 U	1.0 U	1.0 U	0.28 J	1.0 U	1.0 U
Trichloroethene	µg/L	4.1	7.9	4.8	1.0 U	52	31
Vinyl chloride	µg/L	0.44 J	1.0 U	1.0 U	1.0 U	1.0 U	5.5

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW649D	OW651C	OW651D	OW652B	OW652C	OW652D
Sample Name:		OW649D-0422	OW651C-0422	OW651D-0422	OW652B-0422	OW652C-0422	OW652D-0422
Sample Date:		04/06/2022	04/06/2022	04/06/2022	04/14/2022	04/14/2022	04/14/2022
Parameters	**Unit**						
Semi-volatile Organic Compounds							
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
1,2,4,5-Tetrachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
2,4,5-Trichlorophenol	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobenzene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorobutadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Hexachlorocyclopentadiene	µg/L	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
Octachlorocyclopentene	µg/L	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
Pesticides							
alpha-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
beta-BHC	µg/L	0.021 J	0.027 J	0.021 J	0.045 U	0.025 J	0.043 J
delta-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
gamma-BHC (lindane)	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
Mirex	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	95.5	97.1	106	154	97.4	115

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW653B	OW653C	OW653D	OW654B	OW654C	OW654D
Sample Name:		OW653B-0422	OW653C-0422	OW653D-0422	OW654B-0422	OW654C-0422	OW654D-0422
Sample Date:		04/20/2022	04/21/2022	04/18/2022	04/15/2022	04/14/2022	04/15/2022
Parameters	**Unit**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	0.82 J	0.30 J	0.83 J
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.1	0.43 J	8.8
1,2-Dichlorobenzene	µg/L	4.5	1.0 U	1.0 U	1.7	1.0 U	57
1,3-Dichlorobenzene	µg/L	19	1.0 U	1.0 U	1.5	0.31 J	99
1,4-Dichlorobenzene	µg/L	26	1.0 U	0.44 J	5.1	0.61 J	230
2,3,6-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
2,3/3,4-Dichlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
2,4,5-Trichlorotoluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
2,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.61 J	2.0 J
2,4/2,5/2,6-Dichlorotoluene	µg/L	0.98 J	1.5 U	0.88 J	0.70 J	1.5 U	10
2-Chlorotoluene	µg/L	14	0.20 J	2.1	2.4	1.0 U	3.6
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 J
4-Chlorotoluene	µg/L	0.23 J	1.0 U	1.0 U	1.0 U	1.0 U	0.98 J
Benzene	µg/L	4.3	0.74 J	0.21 J	0.23 J	1.0 U	7.1
Chlorobenzene	µg/L	75	1.0 U	1.1	4.1	1.0 U	76
o-Monochlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	0.40 J	0.33 J	3.8
p-Monochlorobenzotrifluoride	µg/L	6.8	1.0 U	0.72 J	2.2	1.9	21
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	10	32	16
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.78 J
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	6.1	17	18
Vinyl chloride	µg/L	2.3	0.38 J	0.51 J	1.3	1.0 U	3.1

Table 2

Analytical Results Summary
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Location ID:		OW653B	OW653C	OW653D	OW654B	OW654C	OW654D
Sample Name:		OW653B-0422	OW653C-0422	OW653D-0422	OW654B-0422	OW654C-0422	OW654D-0422
Sample Date:		04/20/2022	04/21/2022	04/18/2022	04/15/2022	04/14/2022	04/15/2022
Parameters	**Unit**						
Semi-volatile Organic Compounds							
1,2,3,4-Tetrachlorobenzene	µg/L	5.0 U	4.5 U	5.0 U	4.5 U	4.5 U	2.1 J
1,2,4,5-Tetrachlorobenzene	µg/L	10 U	9.1 U	10 U	9.1 U	9.1 U	1.5 J
2,4,5-Trichlorophenol	µg/L	10 U	9.1 U	10 U	9.1 U	9.1 U	9.1 U
Hexachlorobenzene	µg/L	10 U	9.1 U	10 U	9.1 U	9.1 U	9.1 U
Hexachlorobutadiene	µg/L	10 U	9.1 U	10 U	9.1 U	9.1 U	9.1 U
Hexachlorocyclopentadiene	µg/L	10 U	9.1 U	10 U	9.1 U	9.1 U	9.1 U
Octachlorocyclopentene	µg/L	5.0 U	4.5 U	5.0 U	4.5 U	4.5 U	4.5 U
Pesticides							
alpha-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.077	0.084	0.38
beta-BHC	µg/L	0.053	0.045 U	0.045 U	0.052	0.12	0.22
delta-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.033 J	0.082	0.057
gamma-BHC (lindane)	µg/L	0.045 U	0.023 J	0.045 U	0.093	0.066	0.087
Mirex	µg/L	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	117	125	162	113	108	122

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration

Table 3

Analytical Methods
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
SSI Volatile Organic Compounds (VOCs)	SW-846 8260	Water	-	14
SSI Semi-volatile Organic Compounds (SVOCs)	SW-846 8270C	Water	7	40
SSI Pesticides	SW-846 8081	Water	7	40
Alkalinity	SM 2320B	Water	-	14

Notes:

SSI - Site-Specific Indicators
\- - Not applicable

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	Chlorobenzene	5/3/2022	0.24 J	OW653C-0422	0.90 J	1.0 U	µg/L

Notes:

* - Blank result adjusted for sample factors where applicable
U - Not detected at the associated reporting limit
J - Estimated concentration

Table 5

Qualified Sample Results Due to Outlying LCS/LCSD Results
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Associated Sample ID	Qualified Result	Units
Pesticides	beta-BHC	04/13/2022	48	77	46	55 - 149	30	OW403B-0422	0.026 J	µg/L
								OW403C-0422	0.026 J	µg/L
								OW403D-0422	0.060 J	µg/L
								OW560B-0422	0.077 J	µg/L
								BEW706B-0422	0.050 UJ	µg/L
								BEW702B-0422	0.078 J	µg/L
								BEW703B-0422	0.020 J	µg/L
								BEW706C-0422	0.048 J	µg/L
								BEW706D-0422	0.050 UJ	µg/L
								BEW540B-0422	0.050 UJ	µg/L
								BEW700B-0422	0.050 UJ	µg/L
Pesticides	alpha-BHC	04/13/2022	42	72	53	36 - 151	30	BEW706C-0422	0.023 J	µg/L
								BEW706D-0422	0.17 J	µg/L
								BEW540B-0422	0.17 J	µg/L
Pesticides	delta-BHC	04/13/2022	43	74	53	29 - 159	30	BEW540B-0422	0.033 J	µg/L

Notes:

LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
RPD - Relative Percent Difference
J - Rejected
UJ - Not detected; associated reporting limit is estimated

Table 6

Qualified Sample Results Due to Outlying MS/MSD Results
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Qualified Result	Units
Pesticides	OW654B-0422	delta-BHC	77	51	36	10 - 182	30	0.033 J	µg/L

Notes:

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
J - Estimated concentration

Table 7

Qualified Sample Data Due to Differences in Dual Column Results
Annual Bedrock Extraction Wells
Chemical Monitoring Program
Niagara Falls, New York
April-May 2022

Parameter	Analyte	RPD (percent)	Criteria (percent)	Associated Sample ID	Qualified Result	Units
Pesticides	alpha-BHC	> 40	< 40	BEW702C-0422	0.046 J	µg/L

Notes:

RPD - Relative Percent Difference
J - Estimated concentration

Technical Memorandum

September 8, 2022

To	John Pentilchuk	**Tel**	716-205-1942
Copy to	John Sweeney	**Email**	Kathleen.willy@ghd.com
From	Kathy Willy/cs/39	**Ref. No.**	11215553
Subject	Analytical Results and Reduced Validation Overburden Monitoring Wells Chemical Monitoring Program Niagara Falls, New York July 2022		

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Glenn Springs Holdings, Inc. (GSH) Chemical Monitoring Program for the Overburden Monitoring Wells at the Buffalo Avenue Plant Site during July 2022. Samples were submitted to ALS Environmental located in Rochester, New York. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard Level 2 report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, and recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "Chemical Sampling and Quality Assurance Plan Niagara Plant Supplemental Data Collection Program, March 1998 (Revised 2007) QAPP"

ii) "National Functional Guidelines for Organic Superfund Methods Data Review", United States Environmental Protection Agency (USEPA) 540/R 20 005, November 2020.

iii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 542-R-20-006, November 2020

Items ii) and iii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C)

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC), semi-volatile organic compound (SVOC), and pesticide determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of SVOC analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria with the exception of a severely low (<10%) recovery for a pesticide surrogate in sample OW314-0722. The sample was re-extracted with a similar severely low recovery being recorded, demonstrating a potential matrix interference/suppression. The non-detect sample result was rejected due to the demonstrated poor analytical efficiency (see Table 4).

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch. The LCS was analyzed in duplicate (LCSD) for SVOC and pesticide analysis.

The LCS and LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs (where applicable) were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision with the exception of some high SVOC RPD values. Associated positive sample results were qualified as estimated to reflect the indicated variability (see Table 5).

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the extraction process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD recovery was outside of control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with all compounds of interest. Some recoveries could not be assessed due to the original sample concentration being significantly higher than the spike concentration. All assessed percent recoveries and RPD values met the above criteria, demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples, two rinse blank samples, and three field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for volatile organic compound (VOC) analysis. All results were non-detect for the compounds of interest.

Rinse Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, two rinse blanks were submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest with the exception of a low concentration of alpha-BHC. Associated sample results with concentrations similar to that found in the blank were qualified non-detect to reflect the potential field contamination (see Table 6).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value.

Most field duplicate results met the above criteria, demonstrating acceptable sampling and analytical precision. Where variability was observed, sample results were qualified as estimated (see Table 7).

8. Analyte Reporting

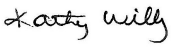
The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

The alpha-BHC result for sample WW1-0722 was qualified as estimated due to the result exceeding the instruments calibrated range (see Table 8).

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific exception and qualifications noted herein.

Regards,



Kathy Willy
Digital Intelligence-Data Management-Chemist

Table 1

Sample Collection and Analysis Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

					Analysis/Parameters				
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Mercury**	**SSI Pesticide**	**SSI VOC**	**SSI SVOC**	**Comments**
MH159L-0722	MH159L	Water	07/19/2022	09:45		X	X	X	
MH301L-0722	MH301	Water	07/19/2022	08:30		X	X	X	
OW270-0722	OW270	Water	07/18/2022	12:35		X	X	X	
OW300-0722	OW300	Water	07/19/2022	13:15		X	X	X	MS/MSD
OW537-0722	OW537	Water	07/18/2022	13:20		X	X	X	
OW554-0722	OW554	Water	07/19/2022	10:25		X	X	X	
OW555-0722	OW555	Water	07/19/2022	11:45		X	X	X	
OW574-0722	OW574	Water	07/19/2022	13:21	X				
RIN1-0722	-	Water	07/18/2022	14:20		X	X	X	Rinse Blank
RIN2-0722	-	Water	07/19/2022	14:30	X				Rinse Blank
NPOBTRIP-071822	-	Water	07/18/2022	-			X		Trip Blank
WW1-0722	WW1	Water	07/18/2022	13:40		X	X	X	
WWB_NP-0722	WWB_NP	Water	07/19/2022	08:45		X	X	X	
OW273-0722	OW273	Water	07/21/2022	12:00		X	X	X	
OW303-0722	OW303	Water	07/21/2022	09:40		X	X	X	
OW304-0722	OW304	Water	07/21/2022	09:10	X	X	X	X	
OW970-0722	OW304	Water	07/21/2022	09:10		X	X	X	Field duplicate of sample OW304-0722
OW305-0722	OW305	Water	07/21/2022	08:35	X				
OW960-0722	OW305	Water	07/21/2022	08:35	X				Field duplicate of sample OW305-0722
OW306-0722	OW306	Water	07/21/2022	08:50	X				
OW310-0722	OW310	Water	07/21/2022	08:25		X	X	X	
OW314-0722	OW314	Water	07/21/2022	11:45		X	X	X	

Table 1

Sample Collection and Analysis Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

					Analysis/Parameters				
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Mercury**	**SSI Pesticide**	**SSI VOC**	**SSI SVOC**	**Comments**
OW556-0722	OW556	Water	07/21/2022	10:00		X	X	X	
OW557-0722	OW557	Water	07/21/2022	10:50		X	X	X	
OW558-0722	OW558	Water	07/21/2022	10:30		X	X	X	
OW559-0722	OW559	Water	07/20/2022	11:00		X	X	X	
OW560-0722	OW560	Water	07/20/2022	13:30		X	X	X	
OW565-0722	OW565	Water	07/21/2022	11:15		X	X	X	
OW965-0722	OW565	Water	07/21/2022	11:15		X	X	X	Field duplicate of sample OW565-0722
OW567-0722	OW567	Water	07/21/2022	11:30		X	X	X	
OW573R-0722	OW573R	Water	07/20/2022	10:12		X	X	X	
NPOBTRIP-072022	-	Water	07/20/2022	-			X		Trip Blank
WW2-0722	WW2	Water	07/20/2022	13:40		X	X	X	

Notes:

"-" - Not applicable
MS/MSD - Matrix Spike/Matrix Spike Duplicate
SSI - Site-specific Indicators
SVOC - Semi-volatile Organic Compounds
VOC - Volatile Organic Compounds

Table 2

Analytical Results Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Location ID:		MH159L	MH301	OW270	OW273	OW300	OW303	OW304	OW304
Sample Name:		MH159L-0722	MH301L-0722	OW270-0722	OW273-0722	OW300-0722	OW303-0722	OW304-0722	OW970-0722
Sample Date:		07/19/2022	07/19/2022	07/18/2022	07/21/2022	07/19/2022	07/21/2022	07/21/2022	07/21/2022
									Duplicate
Parameters	**Unit**								
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	µg/L	2.7	13	2.5 U	10 U	59	1.9	170	180
1,2-Dichlorobenzene	µg/L	0.88 J	17	4.5	10 U	37 J	0.57 J	150	150
1,3-Dichlorobenzene	µg/L	28	8.5 J	210	33	300	0.33 J	67	62
1,4-Dichlorobenzene	µg/L	31	20	85	32	130	0.56 J	91	86
2,4/2,5/2,6-Dichlorotoluene	µg/L	6.6	18	9.1	7.6 J	69 J	1.5 U	2.9	2.4 J
2-Chlorotoluene	µg/L	1.1	45	81	960	7400	1.0 U	0.28 J	2.5 U
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	33	2.5 U	10 U	50 U	1.0 U	1.0 U	2.5 U
4-Chlorotoluene	µg/L	0.55 J	18	2.5	10 U	530	1.0 U	1.0 U	2.5 U
Benzene	µg/L	4.3	4.1 J	200	41	22 J	1.0 U	1.4	1.3 J
Chlorobenzene	µg/L	7.8	38	330	450	99	1.0 U	18	16
o-Monochlorobenzotrifluoride	µg/L	1.0 U	530	2.5 U	5.2 J	50 U	1.0 U	1.0 U	2.5 U
p-Monochlorobenzotrifluoride	µg/L	2.5	1300	44	360	50 U	1.0 U	1.0 U	2.5 U
Tetrachloroethene	µg/L	0.25 J	240	3.9	10 U	170	1.0 U	1.0 U	2.5 U
Toluene	µg/L	1.0 U	27	3.2	10 U	100	1.0 U	1.0 U	2.5 U
Trichloroethene	µg/L	0.21 J	150	3.3	10 U	69	1.0 U	1.0 U	2.5 U
Semivolatile Organic Compounds									
1,2,3,4-Tetrachlorobenzene	µg/L	5.7 J	4.5 U	4.5 U	4.5 U	11 J	4.6 U	38	42
1,2,4,5-Tetrachlorobenzene	µg/L	8.9 U	8.9 U	8.9 U	8.9 U	29 J	9.3 U	9.2 J	11
2,4,5-Trichlorophenol	µg/L	8.9 U	8.9 U	8.9 U	8.9 U	8.9 U	9.3 U	9.3 U	9.3 U
Pesticides									
alpha-BHC	µg/L	26	0.089 U	0.58	3.3	16	0.045 U	0.045 U	0.045 U
Metals									
Mercury	µg/L	--	--	--	--	--	--	0.11 J	--

Table 2

Analytical Results Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Location ID:		OW305	OW305	OW306	OW310	OW314	OW537	OW554	OW555	OW556
Sample Name:		OW305-0722	OW960-0722	OW306-0722	OW310-0722	OW314-0722	OW537-0722	OW554-0722	OW555-0722	OW556-0722
Sample Date:		07/21/2022	07/21/2022	07/21/2022	07/21/2022	07/21/2022	07/18/2022	07/19/2022	07/19/2022	07/21/2022
			Duplicate							
Parameters	**Unit**									
Volatile Organic Compounds										
1,2,4-Trichlorobenzene	µg/L	--	--	--	1.0 U	100 J	410	2.2 J	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	--	--	--	1.0 U	48 J	65	4.1	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	--	--	--	1.2	46 J	840	0.72 J	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	--	--	--	1.0 U	65 J	360	3.4	1.0 U	1.0 U
2,4/2,5/2,6-Dichlorotoluene	µg/L	--	--	--	1.5 U	300 U	150	18	1.5 U	1.5 U
2-Chlorotoluene	µg/L	--	--	--	2.0	19000	39000	820	1.0 U	1.0 U
3,4-Dichlorobenzotrifluoride	µg/L	--	--	--	1.0 U	200 U	95	2.5 U	1.0 U	1.0 U
4-Chlorotoluene	µg/L	--	--	--	1.0 U	1500	15000	33	1.0 U	1.0 U
Benzene	µg/L	--	--	--	1.0 U	200	220	7.8	1.0 U	1.0 U
Chlorobenzene	µg/L	--	--	--	0.29 J	140 J	1000	19	1.0 U	1.0 U
o-Monochlorobenzotrifluoride	µg/L	--	--	--	1.0 U	200 U	130	1.2 J	1.0 U	1.0 U
p-Monochlorobenzotrifluoride	µg/L	--	--	--	1.0 U	200 U	13000	3.4	1.0 U	1.0 U
Tetrachloroethene	µg/L	--	--	--	1.0 U	200 U	190	2.9	1.0 U	1.0 U
Toluene	µg/L	--	--	--	1.0 U	2400	300	19	1.0 U	1.0 U
Trichloroethene	µg/L	--	--	--	1.0 U	200 U	99	18	0.30 J	1.0 U
Semivolatile Organic Compounds										
1,2,3,4-Tetrachlorobenzene	µg/L	--	--	--	4.6 U	1.8 J	120	4.5 U	4.5 U	4.6 U
1,2,4,5-Tetrachlorobenzene	µg/L	--	--	--	9.3 U	8.9 U	25	8.9 U	8.9 U	9.3 U
2,4,5-Trichlorophenol	µg/L	--	--	--	9.3 U	10	8.9 U	8.9 U	8.9 U	9.3 U
Pesticides										
alpha-BHC	µg/L	--	--	--	0.045 U	R	68	0.045 U	0.045 U	0.045 U
Metals										
Mercury	µg/L	0.20 U	0.20 U	0.38	--	--	--	--	--	--

Table 2

Analytical Results Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Location ID:		OW557	OW558	OW559	OW560	OW565	OW565
Sample Name:		OW557-0722	OW558-0722	OW559-0722	OW560-0722	OW565-0722	OW965-0722
Sample Date:		07/21/2022	07/21/2022	07/20/2022	07/20/2022	07/21/2022	07/21/2022 Duplicate
Parameters	**Unit**						
Volatile Organic Compounds							
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	400	650
1,2-Dichlorobenzene	µg/L	1.0 U	0.21 J	1.0 U	1.0 U	87 J	150 J
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	600 J	1200 J
1,4-Dichlorobenzene	µg/L	1.0 U	0.31 J	0.25 J	1.0 U	420 J	910 J
2,4/2,5/2,6-Dichlorotoluene	µg/L	1.5 U	1.5 U	1.5 U	1.5 U	75 U	380 U
2-Chlorotoluene	µg/L	0.23 J	1.0 U	1.0 U	1.0 U	9800 J	21000 J
3,4-Dichlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	50 U	250 U
4-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	860 J	1700 J
Benzene	µg/L	1.0 U	1.0 U	1.0 U	0.43 J	150 J	290 J
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	2700 J	5900 J
o-Monochlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	50 U	250 U
p-Monochlorobenzotrifluoride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	12 J	250 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	50 U	250 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	0.27 J	290 J	490 J
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	50 U	250 U
Semivolatile Organic Compounds							
1,2,3,4-Tetrachlorobenzene	µg/L	4.5 U	4.5 U	4.6 U	4.5 U	14	12
1,2,4,5-Tetrachlorobenzene	µg/L	8.9 U	9.1 U	9.3 U	9.1 U	50	43
2,4,5-Trichlorophenol	µg/L	8.9 U	9.1 U	9.3 U	9.1 U	14	12
Pesticides							
alpha-BHC	µg/L	0.045 U	0.045 U	0.045 U	0.046 U	0.045 U	0.045 U
Metals							
Mercury	µg/L	--	--	--	--	--	--

Table 2

Analytical Results Summary
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Location ID:		**OW567**	**OW573R**	**OW574**	**WW1**	**WW2**	**WWB NP**
Sample Name:		**OW567-0722**	**OW573R-0722**	**OW574-0722**	**WW1-0722**	**WW2-0722**	**WWB NP-0722**
Sample Date:		**07/21/2022**	**07/20/2022**	**07/19/2022**	**07/18/2022**	**07/20/2022**	**07/19/2022**
Parameters	**Unit**						
Volatile Organic Compounds							
1,2,4-Trichlorobenzene	µg/L	120 J	1.0 U	--	64 J	130	14
1,2-Dichlorobenzene	µg/L	68 J	1.0 U	--	80 J	38	14
1,3-Dichlorobenzene	µg/L	250 U	1.0 U	--	87 J	25 J	17
1,4-Dichlorobenzene	µg/L	140 J	1.0 U	--	290	55	32
2,4/2,5/2,6-Dichlorotoluene	µg/L	610	1.5 U	--	74 J	130	27
2-Chlorotoluene	µg/L	6200	1.0 U	--	7400	2300	35
3,4-Dichlorobenzotrifluoride	µg/L	250 U	1.0 U	--	100 U	25 U	16
4-Chlorotoluene	µg/L	1000	1.0 U	--	1300	1400	18
Benzene	µg/L	110 J	1.0 U	--	160	38	4.8 J
Chlorobenzene	µg/L	210 J	1.0 U	--	190	77	46
o-Monochlorobenzotrifluoride	µg/L	250 U	1.0 U	--	100 U	25 U	280
p-Monochlorobenzotrifluoride	µg/L	250 U	1.0 U	--	2100	25 U	700
Tetrachloroethene	µg/L	33000	1.0 U	--	1400	1400	150
Toluene	µg/L	350	1.0 U	--	240	140	23
Trichloroethene	µg/L	48000	1.0 U	--	1000	780	110
Semivolatile Organic Compounds							
1,2,3,4-Tetrachlorobenzene	µg/L	20	4.5 U	--	9.4	4.8 J	4.5 U
1,2,4,5-Tetrachlorobenzene	µg/L	13	9.1 U	--	4.7 J	5.9 J	8.9 U
2,4,5-Trichlorophenol	µg/L	2.1 J	9.1 U	--	1.8 J	2.6 J	8.9 U
Pesticides							
alpha-BHC	µg/L	0.045 U	0.045 U	--	3.7 J	0.045 U	1.6
Metals							
Mercury	µg/L	--	--	27.0	--	--	--

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
R - Rejected
-- - Not applicable

Table 3

Analytical Methods
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
SSI Volatile Organic Compounds	SW-846 8260	Water	-	14
SSI Semi-volatile Organic Compounds	SW-846 8270C	Water	7	40
SSI Pesticides	SW-846 8081	Water	7	40
Mercury	SW-846 7470	Water	-	28

Notes:

SSI - Site-specific Indicators
\- - Not applicable

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 4

Qualified Sample Data Due to Outlying of Surrogate Recoveries
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Sample ID	Surrogate	Surrogate % Recovery	Control Limits % Recovery	Analyte	Qualified Result	Units
Pesticides	OW314-0722	(PCB 209) Decachlorobiphenyl	9	10 - 164	alpha-BHC	R	µg/L

Notes:

R - Rejected

Table 5

Qualified Sample Results Due to Outlying LCS/LCSD Results
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Associated Sample ID	Qualified Result	Units
SVOCs	1,2,3,4-Tetrachlorobenzene	07/25/2022	63	39	47	25 - 127	30	MH159L-0722	5.7 J	µg/L
								OW300-0722	11 J	µg/L
								WW2-0722	4.8 J	µg/L
SVOCs	1,2,4,5-Tetrachlorobenzene	07/25/2022	45	26	54	15 - 132	30	OW300-0722	29 J	µg/L
								WW2-0722	5.9 J	µg/L
SVOCs	1,2,4,5-Tetrachlorobenzene	07/28/2022	36	26	32	15 - 132	30	OW304-0722	9.2 J	µg/L
								OW970-0722	11 J	µg/L
								OW567-0722	13 J	µg/L
								OW565-0722	50 J	µg/L
								OW965-0722	43 J	µg/L

Notes:

LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
RPD - Relative Percent Difference
J - Estimated concentration
SVOCs - Semi-volatile Organic Compounds

Table 6

Qualified Sample Data Due to Analyte Concentrations in the Rinse Blanks
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Rinse Blank ID	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
Pesticides	RIN1-0722	07/18/2022	alpha-BHC	0.55	OW554-0722	0.12	0.12 U	µg/L
					WW2-0722	0.048	0.048 U	µg/L
					OW304-0722	0.29	0.29 U	µg/L
					OW970-0722	0.42	0.42 U	µg/L
					OW565-0722	0.12	0.12 U	µg/L
					OW965-0722	0.14	0.14 U	µg/L

Notes:

U - Not detected at the associated reporting limit

Table 7

Qualified Sample Data Due to Variability in Field Duplicate Results
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Analyte	RPD	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
VOCs	1,2-Dichlorobenzene	53.2	OW565-0722	87 J	OW965-0722	150 J	µg/L
	1,3-Dichlorobenzene	66.7		600 J		1200 J	µg/L
	1,4-Dichlorobenzene	73.7		420 J		910 J	µg/L
	2-Chlorotoluene	72.7		9800 J		21000 J	µg/L
	4-Chlorotoluene	65.6		860 J		1700 J	µg/L
	Benzene	63.6		150 J		290 J	µg/L
	Chlorobenzene	74.4		2700 J		5900 J	µg/L
	Toluene	51.3		290 J		490 J	µg/L

Notes:

RPD - Relative Percent Difference
J - Estimated concentration
VOCs - Volatile Organic Compounds

Table 8

Qualified Sample Data Due to Exceedance of Calibration Range
Overburden Monitoring Wells
Chemical Monitoring Program
Niagara Falls, New York
July 2022

Parameter	Sample ID	Analyte	Qualified Result	Units
Pesticides	WW1-0722	alpha-BHC	3.7 J	µg/L

Notes:

J - Estimated concentration