Charles Gibson Site
Site No. 932063
Periodic Review Report Revision

July 21, 2023

TABLE OF CONTENTS

ATTACHMENTS

I. INTRODUCTION

Brief Summary, Nature and Extent, Remedial History:

Construction of the remedy on the Charles Gibson Site concluded in 1990. The remedy consisted of rerouting Cayuga Creek around and away from the waste, installation of a fully circumscribed soil-bentonite slurry wall barrier and installation of a double flexible membrane liner cap with a perimeter collection drain system. The first year of operations and maintenance (O&M) of the containment remedy for the site and the groundwater monitoring program began in 1993. Waters collected in the site perimeter collection drain system are managed by direct discharge to the City of Niagara Falls Wastewater Treatment Facility. The Charles Gibson site is classified as a commercial/small industrial/residential user (CSIRU) and does not require a permit.

Effectiveness of Remedial Program:

Groundwater monitoring indicates there are no increased concentrations of compounds being monitored. Evaluation of the monitor well and sediment analytical results indicate the containment remedy is effective. An evaluation of data from the piezometer pairs at the Site indicates that a materially inward hydraulic gradient has been established in the containment area of the site. The remedial program is achieving the objectives of containing groundwater flow and maintaining groundwater quality standards.

Compliance:

There are no areas of non-compliance.

Recommendations:

No recommendations. Conditions at the Site are stable.

II. SITE OVERVIEW

Site Description and Nature/Extent Prior to Remediation:

The Site as now defined incorporates approximately two acres bounded to the east and north by Cayuga Creek, to the west by Tuscarora Road and to the south by Niagara Mohawk Power Corporation right-of-way and the Auto Zone Incorporated auto parts store and parking lot. The Site cap is slightly mounded with the center of the capped area essentially flat. The capped area is enclosed by a chain link fence. A wooden privacy fence is immediately next to and outside of the chain link fence on portions of the perimeter.

Remediation Chronology:

The Agreement includes a provision in the event that after seven years following the delivery of a Release of Liability (issued December 15, 1992), Olin demonstrates that conditions at the Site are such that the stated frequency or duration of the requirements are no longer necessary to determine whether the remediation is effective, Olin may reduce the frequency and duration of such monitoring or inspections. Olin has submitted annual reports and has conducted the required monitoring for the duration of the remediation.

III. REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

The work performed for the Site during 2021 was reviewed and found to be in accordance with the approved O&M Manual (Revised 2019), the Site Management Plan approved by NYSDEC on July 17, 2020, as well as the NYSDEC approved reduction in annual sampling dated April 25, 2013. Groundwater monitoring indicates there are no increased concentrations of the Site compounds being monitored. Evaluation of the groundwater data generated during the 2021 monitoring year indicates that the containment remedy is effective. Drawdown in both manholes was effectively maintained.

IV. IC/EC PLAN

IC/EC Requirements:

A fence is in place around the landfill, effectively restricting access.

A clean soil cover is in place on the landfill, restricting infiltration and promoting runoff. No excavations, change of use, or groundwater use occurred during the Certifying Period.

A hydraulic control system is in place, effectively controlling groundwater flow direction. Leachate collected along the inside perimeter of the slurry wall is routed to Manhole A then Manhole B. A submersible sump pump, installed at the bottom of Manhole B, is set to turn on when groundwater reaches 563.32 feet above mean sea level (msl), and turn off when groundwater falls to 560.34 feet above msl.

Certification:

Attachment A

V. MONITORING PLAN COMPLIANCE REPORT

Components of Monitoring Plan:

Operation, maintenance, and monitoring activities to be performed are presented in **Table 1** and include:

- Performance of a groundwater monitoring program to monitor ground water quality at the site and to verify the inward hydraulic gradient within the capped area.

- The current groundwater level monitoring system for the Site consists of six piezometers (P-1 through P-6) and two manholes (A and B). Piezometers P-1, P-2 and Manhole A are located in the northeast section of the Site; P-3, P-4, and Manhole B are located in the southeast section; and P-5 and P-6 are located toward the southwest (see ***Attachment B***).

- All piezometers are constructed of Schedule 80 PVC and are 2 inches in diameter. Each piezometer has been constructed with 5 feet of screen and was screened at the water table.

- The construction of the piezometer screens at the water table allows for continued monitoring of the water table elevation inside and outside of the containment area during periods of water level fluctuations. Piezometers P-1, P-3, and P-5 are located outside of the

slurry wall that runs along the perimeter of the Site. Piezometers P-2, P-4, and P-6 are inside the slurry wall and paired opposite the three piezometers outside the slurry wall.

- Water level elevations are measured quarterly at the Site in Manholes A and B and piezometers P-1 through P-6. Water level elevations are measured by means of an acoustical sounder or electronic water level probe. The sounder or probe is lowered into the manhole or piezometer until it makes contact with the free water surface. The depth from the top of the piezometer riser pipe or manhole rim to the water surface is measured to an accuracy of 0.01 ft. Depth to water measurements are converted into mean sea level elevations by referring to the surveyed elevation of the top of the piezometer riser pipe or manhole rim provided on the Groundwater Elevation Form. The depth to water measurements for Manholes A and B are checked to see that they are not greater than 14.07 feet and 17.07 feet, respectively to ensure that the automatic sump pump is functioning.

- Monitoring wells are sampled in accordance with the SMP, using a peristaltic pump with dedicated tubing.

Summary and Comparison to Remedial Objectives:

The isolation of groundwater within the capped area has been established and is being maintained by current operation and maintenance activities. The groundwater monitoring and sampling is performed on an annual basis in rotating quarters to help assess seasonal variability with Groundwater Sampling Field Parameters presented in **Attachment C**.

Tables 2 through 4 present analytical results for monitoring wells, manholes, and sediment sampling locations. Results are compared to Groundwater Quality Standards (GWQS) and Sediment Guidance Values (GV) as applicable. Non-detect results are reported as less than the laboratory reporting limits (RLs), which for certain parameters are higher than GWQS or GVs. Future laboratory analysis will be performed to method detection limits (MDLs) below the allowable limits wherever possible.

Currently two locations, immediately upstream and downstream of the Site and the adjacent remediated portion of the Cayuga Creek bed, are sampled once per year, in the Fall or 'low water' period. Beginning with the October 2000 sample event, annual creek sediment samples have been analyzed for hexachlorocyclohexane (BHC) isomers only. Sample collection and analysis of creek sediments are performed annually during the second half of the calendar year. The fall 2021 data appeared to be consistent with historical results. The downstream sediment trap had been disturbed and there was no sample taken from the trap. The fall 2022 data showed no detections in the upstream location **(Table 4)**.

The water elevation data collected from the piezometers and groundwater wells was used to determine whether an inward hydraulic gradient exists. Gradient direction was made by comparing water level measurements within the capped area to those measured outside the capped area. The groundwater elevation data indicates that groundwater within the capped area is consistent with historical data. An evaluation of data from the piezometer pairs at the Site indicates that historically an inward gradient exists during the spring and summer seasons while the fall/winter seasons exhibit conditions that reflect outward gradients. An evaluation

of the seasonal trends from 2008 through 2022 shows that the spring elevations have remained consistent with all piezometers **(Table 7).** The fall data has shown roughly a 3 foot drop among the wells outside the slurry wall while elevations within the slurry wall has remained consistent. This is further evidence that the remedy has remained effective.

Table 5 and Table 5B shows the most recent piezometric data and graphs.

Deficiencies:
None

Recommendations for Changes:
No recommendations. Conditions at the Site are stable.

VI. O&M PLAN COMPLIANCE REPORT

Components of the O&M Plan:
Site remediation requirements have been met by Olin through rerouting of Cayuga Creek around and away from the waste, by constructing a fully circumscribing soil-bentonite slurry wall barrier, and through installing a double flexible membrane liner cap as part of the final cover with a perimeter collection drain system. This O&M Plan safeguards that remedy and provides for monitoring of the Gibson Site in compliance with the Settlement Agreement.

Quarterly inspections of the Gibson Site are conducted to identify any potential problems with physical deterioration of structures, possible malfunctions of the slurry wall or of the perforated chlorinated polyvinyl chloride (CPVC) drain system, and to ensure that all site remedial measures components are operating effectively, in accordance with the Settlement Agreement.

The Environmental Inspector conducts the inspections to ensure that the remedial measures at the Site will remain operative. Additionally, the inspections address the safeguards to control, minimize or eliminate threats to human health and the environment. Operation, maintenance, and monitoring activities are conducted to identify proposed changes to the O&M Manual or site procedures which would provide a safer and/or more efficient and cost-effective operation.

Recordkeeping is conducted for each site visit and inspection.

Operation & Monitoring (O&M) Summary:
The groundwater collection system is inspected for the buildup of hard or soft scale-like deposits. The inspection is performed concurrently with inspection of the capped area. If a component of the groundwater collection system is found to be damaged or malfunctioning, it is repaired or replaced.

The capped area is mowed on a regular basis to prevent establishment of woody vegetation during this reporting period. The capped area functions as designed and complies with the O&M Plan.

Inspections are conducted using the items listed on the Site Inspection Form presented in ***Attachment D***. Information to be entered on these forms includes the inspector's name, date, and time of inspection, item inspected and any comments. The inspector indicates on the forms whether the condition of each item was acceptable or unacceptable to ensure that the requirements of this O&M Plan are fulfilled. The scheduled Site monitoring inspections are performed by a qualified individual assigned to inspect the items and systems noted on the Site Inspection Form. The completed Site Inspection Forms are maintained at Olin Environmental Remediation offices in Cleveland, TN. Inspections are performed, at a minimum, on a quarterly basis.

Evaluation of Remedial Systems:

All components are performing as designed. Manhole B sump was online for the entire Certifying Period.

O&M deficiencies:

None. There are no outstanding maintenance items.

Conclusions:

The O&M system is being run and maintained properly and does not require additions or modifications at this time.

VII. OVERALL PRR CONCLUSIONS AND RECOMMENDATIONS

Compliance with SMP:

Based on the operations and maintenance documentation listed above, the system requirements are being met. There are no new exposure pathways. Additional plans and modifications are not necessary.

Remedy Effectiveness:

The groundwater elevation data indicates that groundwater within the capped area is consistent with historical data and is being maintained by current operation and maintenance activities.

Review of the groundwater elevation data indicate that inward hydraulic gradients were observed between piezometers within the capped area and piezometers outside of the capped area with previously noted exceptions. Fluctuations of groundwater elevations indicate that minor outward hydraulic gradients historically occur, but typically revert back to inward gradients by the next quarter.

Currently two locations, immediately upstream and downstream of the Site and the adjacent remediated portion of the Cayuga Creek bed, are sampled once per year, in the Fall or 'low water' period. A sample is collected downstream of the Site to monitor changes in levels of contaminants in creek sediments, if any. The other sample, immediately upstream of the Site is used to monitor potential upstream contaminant sources or potential 'backwash' effects caused by the changing level of the Niagara River. Historically, upstream samples show higher concentrations than downstream. Beginning with the October 2000 sample event, annual creek sediment samples have been analyzed for BHC isomers only.

Downstream sample collection amounts were insufficient for analysis and the upstream analysis revealed undetected concentrations of BHC.

Based on the data developed to date, the remedy has been effective in attaining the remedial objectives.

Future Submittals:

Future submittals of this report will continue to be submitted annually, typically on or around March 1 of each year, as dictated by NYSDEC.

Attachment A

Institutional & Engineering Certification Form

Enclosure 2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. **932063**

Site Name Charles Gibson Site

Site Address: N.E. Cnr. of Niagara Falls Blvd. & Tuscarora Rd. Zip Code: 14304
City/Town: Niagara Falls
County: Niagara
Site Acreage: 2.000

Reporting Period: January 31, 2021 to January 31, 2022

	YES	NO
1. Is the information above correct?	☑	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☑
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☑
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☑
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☑

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Closed Landfill	☑	☐
7. Are all ICs in place and functioning as designed?	☑	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 932063

Box 3

Description of Institutional Controls

Parcel	Owner	Institutional Control
161.05-3-7	OLIN CORPORATION	Monitoring Plan O&M Plan

Consent Judgement 3/12/85 including IC stipulations p. 23 Permits and Easements, sections 11-24.
Operation and Maintenance Manual; September 30, 2009.
- Groundwater Quality Monitoring.
- Leachate Monitoring.
- Creek Sediment Monitoring.

161.05-5-12	OLIN CORPORATION	Monitoring Plan O&M Plan

Consent Judgment 3/12/85 including IC stipulations p. 23 Permits and Easements, sections 11-24.

- Groundwater Quality Monitoring.
- Leachate Monitoring.
- Creek Sediment Monitoring.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
161.05-3-7	Cover System Groundwater Containment Leachate Collection Fencing/Access Control

- Realignment of Cayuga Creek from the waste.
- Fully circumscribed soil-bentonite slurry wall barrier.
- Double flexible membrane liner cap.
- Perimeter Leachate Collection System with discharge to NFWWTP.
- Final cover soil cap.
- Perimeter chain link and portions of wooden privacy fencing with locked gates.

161.05-5-12	Cover System Groundwater Containment Leachate Collection Fencing/Access Control

- Realignment of Cayuga Creek away from the waste.
- Fully circumscribed soil-bentonite slurry barrier wall.
- Double flexible membrane liner cap.
- Perimeter leachate collection system with discharge to the NFWWTP.
- Final soil cover cap.
- Perimeter chain link with portions of wooden privacy fencing with locked gates.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☑	☐

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☑	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 932063

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Adam B Carringer at 490 Stuart Road NE, Cleveland, TN 37312,
print name print business address

am certifying as Olin Corporation (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

2/28/2023
Date

EC CERTIFICATIONS

Box 7

Qualified Environmental Professional Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Carrie Hunt (print name) at 490 Stuart Road NE, Cleveland TN 37312 (print business address),

am certifying as a Qualified Environmental Professional for the Olin Corporation (Owner or Remedial Party)

Carrie Hunt CHMM, 11148 — Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

2/28/2023 — Date

Attachment B

Site Features Map, Site Boundary, and Slurry Wall

FIGURE 1
Charles Gibson Site
Niagara Falls, NY
with Sampling Locations

Niagara County color digital orthoimagery
(2017) obtained from New York State
GIS Clearinghouse at: https://gis.ny.gov

N

0 35 70 Feet

Legend

- Monitoring Well
- Piezometer
- Manhole
- Sediment Trap
- Site Boundary
- Current Property Boundary
- Former Property Boundary

Prepared/Date: BRP 03/12/20 | Checked/Date: HP 03/12/20

Figure 1.2
Site Layout

Site Management Plan
Olin Charles Gibson
Niagara Falls, New York

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.2_Work_Plans\Site Management Plan\Figures\Figure 1.2 - Site Layout.pdf 03/12/2020 10:22 AM brian.peters

Niagara County color digital orthoimagery
(2017) obtained from New York State
GIS Clearinghouse at: https://gis.ny.gov

N

0 25 50 Feet

Prepared/Date: BRP 03/11/20 | Checked/Date: HP 03/11/20

Legend

- Monitoring Well
- Piezometer
- Manhole
- Sediment Trap
- Direct Discharge Line to Niagara Falls Waste Water Treatment Facility
- Wooden Picket Fence
- Chain Link Fence
- Slurry Wall
- Landfill Cap

Figure 3.1
Engineering and Institutional Control Boundaries

Site Management Plan
Olin Charles Gibson
Niagara Falls, New York

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.2_Work_Plans\Site Management Plan\Figures - update numbers\Figure 3.1 - Eng and Inst Ctrl Boundaries.pdf 03/11/2020 8:57 AM brian.peters

Attachment C

Field Sampling Forms

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER SAMPLING FIELD PARAMETERS
FIELD INSTRUMENTATION CALIBRATION FORM

DATE: 9/20/22 SAMPLING EVENT: Gibson Fall Sampling

PERSON CALIBRATING METER: Max Liffton

INSTRUMENT USED:

MANUFACTURER: ~~Max Liffton~~ Horiba

MODEL NUMBER: U-52

HGS NUMBER: SPPY03FX

DATE OF MANUFACTURE: March 2021

CALIBRATION STANDARDS USED:

STANDARD 7.00 METER READ: _____

STANDARD 4.00 METER READ: ✓

STANDARD 10.00 METER READ: _____

CALIBRATION SOLUTION EXPIRATION DATE: _____

	PRE CALIBRATION READINGS	POST CALIBRATION READINGS
TEMPERATURE (°F or °C):	20.16	20.19
pH:	4.02	4.00
pHmv:	154	154
OX-RED POT (ORPmv):	257	258
CONDUCTIVITY (ms/cm):	4.55	4.50
TURBIDITY (NTU):	0.5	0.0
mg/L DO:	12.10	10.21
% DO:	150.3	105.9

OTHER CALIBRATION COMMENTS: _____

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER SAMPLING FIELD PARAMETERS -
FIELD INSTRUMENTATION CALIBRATION FORM

DATE: 9/20/22 SAMPLING EVENT: ~~dup~~ Gibson Fall Sampling
PERSON CALIBRATING METER: Max Liffton
INSTRUMENT USED:
MANUFACTURER: Horiba
MODEL NUMBER: U-52
HGS NUMBER: SPPY03FX
DATE OF MANUFACTURE: March 2021
CALIBRATION STANDARDS USED:
STANDARD 7.00 METER READ: _____
STANDARD 4.00 METER READ: ✓
STANDARD 10.00 METER READ: _____
CALIBRATION SOLUTION EXPIRATION DATE: _____

	PRE CALIBRATION READINGS	POST CALIBRATION READINGS
TEMPERATURE (°F or °C):	20.64	20.79
pH:	3.94	4.00
pHmv:	154	154
OX-RED POT (ORPmv):	260	261
CONDUCTIVITY (ms/cm):	4.62	4.48
TURBIDITY (NTU):	10.9	0.1
mg/L DO:	20.06	9.56
% DO:	225.3	107.9

OTHER CALIBRATION COMMENTS: _____

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Liffiton
SAMPLED BY: Max Liffiton
COMPANY: Sevenson

SAMPLE ID: US-1-092122
SAMPLING EVENT/DATE: 9/21/22
MONITORING WELL: —
CONDITION: —

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)
DEPTH TO WATER FROM TOP OF RISER: (FT.)
WATER COLUMN: (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= (GALS)

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS:

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAINLESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
1				
2				
3				
4				
5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/21/22

MEDIA: GROUNDWATER
CREEK SEDIMENT ✓

SAMPLE TIME: 0950

LOCATION: Upstream sediment trap
SAMPLE METHOD: Sediment trap
SAMPLING OBSERVATIONS: —
QC SAMPLES TAKEN: —
OTHER OBSERVATIONS/COMMENTS: Trap cleaned before re-placement in stream.

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {(T-25)(0.02)}+1

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Lifton
SAMPLED BY: Max Lifton
COMPANY: Severson

SAMPLE ID: DS-1-092122
SAMPLING EVENT/DATE: 9/21/22
MONITORING WELL: —
CONDITION: —

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)
DEPTH TO WATER FROM TOP OF RISER: (FT.)
WATER COLUMN: (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= (GALS)

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS:

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAIN-LESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
1				
2				
3				
4				
5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/21/22

MEDIA: GROUNDWATER
CREEK SEDIMENT ✓

SAMPLE TIME: 0900

LOCATION: Downstream sediment trap

SAMPLE METHOD: Sediment trap

SAMPLING OBSERVATIONS: —

QC SAMPLES TAKEN: Blind dup taken here as MS-1-0921-22. Reported time 0845

OTHER OBSERVATIONS/COMMENTS: Trap cleaned before replacement in stream

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= $\frac{\text{SC measured}}{\{(T-25)(0.02)\}+1}$

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Liffton
SAMPLED BY: Max Liffton
COMPANY: SES

SAMPLE ID: FIELD BLANK-092122
SAMPLING EVENT/DATE: 9/21/22
MONITORING WELL: —
CONDITION: —

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)
DEPTH TO WATER FROM TOP OF RISER: (FT.)
WATER COLUMN: (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= (GALS)

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS:

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAINLESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
1				
2				
3				
4				
5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/21/22

MEDIA: GROUNDWATER X D.I. water
CREEK SEDIMENT X
SAMPLE TIME: 1131

LOCATION: /

SAMPLE METHOD: Field blank taken w/ lab provided D.I. water.

SAMPLING OBSERVATIONS: /

QC SAMPLES TAKEN: /

OTHER OBSERVATIONS/COMMENTS: Sample I.D. FIELD BLANK-092122

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {(T-25)(0.02)}+1

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Liffton
SAMPLED BY: Max Liffton
COMPANY: Severson

SAMPLE ID: MH-B-092122
SAMPLING EVENT/DATE: 9/21/22
MONITORING WELL: MH-B
CONDITION: Good

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)
DEPTH TO WATER FROM TOP OF RISER: (FT.)
WATER COLUMN: (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= (GALS)

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS:

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAINLESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
1				
2				
3				
4				
5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/21/22

MEDIA: GROUNDWATER ✓
CREEK SEDIMENT

SAMPLE TIME: ~~0800~~ 1115

LOCATION: MH-B

SAMPLE METHOD: Peristaltic w/ dedicated tubing

SAMPLING OBSERVATIONS: ✓

QC SAMPLES TAKEN: MS/MSD volumes taken here

OTHER OBSERVATIONS/COMMENTS: ✓

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {{T-25)(0.02)}+1

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Liffton
SAMPLED BY: Max Liffton
COMPANY: Severson

SAMPLE ID: MW-4-092022
SAMPLING EVENT/DATE: 9/20/22
MONITORING WELL: MW-4
CONDITION: Good

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: 13.75 (FT.)
DEPTH TO WATER FROM TOP OF RISER: 8.09 (FT.)
WATER COLUMN: 5.66 (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= 0.91 (GALS)

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAIN-LESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
~~MW-A3~~	~~11.95'~~
MW-4	13.75'
MW-5	15.28'

PURGE METHOD: Peristaltic pump w/ dedicated tubing
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: 1425 STOP TIME: 1516
PURGE OBSERVATIONS: well pumped dry

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	Turbidity NOTES:
0 1	6.70	1.96	21.04	32.4 NTU
1 2	6.85	1.85	17.91	3.1
2 3	6.75	1.93	18.18	3.7
3 4	6.82	2.11	17.04	46.1
4 5	dry			

TOTAL VOLUME PURGED: 3.5 gallons

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/21/22

MEDIA: GROUNDWATER ✓
CREEK SEDIMENT
SAMPLE TIME: 1205

LOCATION: MW-4
SAMPLE METHOD: Peristaltic w/ dedicated tubing
SAMPLING OBSERVATIONS: Well pumped dry on 9/20, returned 9/21 to sample.
QC SAMPLES TAKEN: Blind duplicate taken here as MW-7-092122.
OTHER OBSERVATIONS/COMMENTS: Reported dup sample time was 1300.

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {(T-25)(0.02)}+1

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Liffton
SAMPLED BY: Max Liffton
COMPANY: Severson

SAMPLE ID: MW-5-092022
SAMPLING EVENT/DATE: 9/20/22
MONITORING WELL: MW-5
CONDITION: Good

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: 15.28 (FT.)
DEPTH TO WATER FROM TOP OF RISER: 7.90 (FT.)
WATER COLUMN: 7.38 (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= 1.18 (GALS)

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAIN-LESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

PURGE METHOD: Peristaltic pump w/ dedicated tubing
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: 1530 STOP TIME: 1621
PURGE OBSERVATIONS:

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	Turb. NOTES:
0 1	6.64	1.92	16.87	315 NTU
1 2	6.40	1.72	16.39	9.9
2 3	6.45	1.70	16.75	3.2
3 4	6.49	1.72	16.60	1.8
5				

TOTAL VOLUME PURGED: 3.6 gal

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/20/22

MEDIA: GROUNDWATER ✓
CREEK SEDIMENT

SAMPLE TIME: 1626

LOCATION: MW-5

SAMPLE METHOD: Peristaltic w/ dedicated tubing

SAMPLING OBSERVATIONS: Turbidity ran higher during sampling (50's <100 NTU)

QC SAMPLES TAKEN: None

OTHER OBSERVATIONS/COMMENTS: —

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {(T-25)(0.02)}+1

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER AND SEDIMENT
SAMPLING FIELD FORM

RECORDED BY: Max Lifton
SAMPLED BY: —
COMPANY: Severson

SAMPLE ID: —
SAMPLING EVENT/DATE: 9/21/22
MONITORING WELL: MW-A3
CONDITION: Good

GROUNDWATER PURGE DATA PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)
DEPTH TO WATER FROM TOP OF RISER: (FT.)
WATER COLUMN: (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= (GALS)

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS:

NOTE: ALL GIBSON SITE MONITORING WELLS ARE 2-INCH DIAMETER STAINLESS STEEL. WELL DEPTHS:

MW-1R	12.10'
MW-2	12.13'
MW-A3	11.95'
MW-4	13.75'
MW-5	15.28'

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
1				
2				
3				
4				
5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: —

MEDIA: GROUNDWATER —
CREEK SEDIMENT /

SAMPLE TIME: —

LOCATION: MW-A3

SAMPLE METHOD: /

SAMPLING OBSERVATIONS: Well dry upon arrival at 12.00 ft.

QC SAMPLES TAKEN: No sample taken.

OTHER OBSERVATIONS/COMMENTS: /

Note: specific conductivity formula to 25 degrees Celcius: SC(25)= SC measured / {(T-25)(0.02)}+1

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

065609

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Charles Gibson-Olin	Project Number: 1283
Project Manager: Adam Carringer	Report CC: Adam Carringer
Company/Address: Olin Corp 3855 North Ocoee St. Cleveland, TN 37312	
Phone #: 423-836-4989	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffiton	Sampler's Printed Name: Maxwell Liffiton

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 0 | 0

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
FIELD BLANK-092122		9/21/22	1131	GW	4		2		2				
MH-B-092122		9/21/22	1115	GW	12		6		6				MS/MSD volume.
MW-4-092122		9/21/22	1205	GW	4		2		2				
MW-5-092022		9/20/22	1626	GW	4		2		2				
MW-7-092122		9/21/22	1300	GW	4		2		2				
TEMP BLANK		—	—	—	1								Provided by lab

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
X Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE: Std.

REPORT REQUIREMENTS
_____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data

Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO: Olin

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Max Liffiton	UPS	Signature	Signature	Signature	Signature
Printed Name: Max Liffiton	Signature	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Sevenson	Printed Name	Firm	Firm	Firm	Firm
Date/Time: 9/21/22 1500	Firm	Date/Time	Date/Time	Date/Time	Date/Time
	Date/Time				

Distribution: White - Lab Copy; Yellow - Return to Originator

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

065609

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Charles Gibson-Olin	Project Number: 1283
Project Manager: Adam Carringer	Report CC: Adam Carringer
Company/Address: Olin Corp 3855 North Ocoee St. Cleveland, TN 37312	
Phone #: 423-836-4989	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffton	Sampler's Printed Name: Maxwell Liffton

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
						0								
US-1-092122	[redacted]	9/21/22	0950	SED	2				2					
MS-1-092122	[redacted]	9/21/22	0845	SED	2				2					
DS-1-092122	[redacted]	9/21/22	0900	SED	2				2					
TEMP BLANK	[redacted]	—	—	—	1									
	[redacted]													
	[redacted]													
	[redacted]													
	[redacted]													
	[redacted]													
	[redacted]													

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
X Standard (10 business days-No Surcharge)
REQUESTED REPORT DATE: Std.

REPORT REQUIREMENTS
_____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO: Olin

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Max Liffton	UPS				
Printed Name: Max Liffton					
Firm: Sevenson					
Date/Time: 9/21/22 1500					

Distribution: White - Lab Copy; Yellow - Return to Originator

Attachment D

Site Inspection Forms

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
SITE INSPECTION FORM

THIS FORM TO BE USED FOR QUARTERLY AND ALL OTHER SITE INSPECTIONS

DATE: 3/16/22 TIME: 0830

INSPECTOR: Max Liffiton, Greg Ernst COMPANY: SES

WEATHER: Foggy / Cloudy 40°F

REASON FOR INSPECTION (QUARTERLY OR OTHER): Spring 2022

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

(Note: For general site conditions note existence of bare areas (number,size), cracks, subsidence (sinking), ponded water, stressed vegetation, soil discoloration or seeps, and rodent burrows. For site security, note absence of locks, gates open or damaged, missing signs or evidence of vandalism. Note any other unusual occurences.)

		COMMENTS
ACCESS ROAD	A	Access gate temporarily impeded (see below)
COVER VEGETATION	A	
TREES	U	Tree in danger of falling on nearby power line (see below)
LITTER	A	
EROSION (CAP)	A	
EROSION (BANK)	A	
SECURITY:		
FENCE/LOCKS	A	
PIEZOMETERS/LOCKS	U	P-5 lock had seized. Lock was cut off and will need to be replaced.
MONITORING WELLS/LOCKS	A	
MANHOLES/LIDS/LOCKS	A	Well cover was damaged and will need replacement as well.
ELECTRICAL PANEL	A	

ADDITIONAL COMMENTS: A beaver had felled a tree on top of the access gate at the head of the driveway. The tree was able to be removed from the gate by hand, the access gate and road are no longer blocked. The gate sustained no significant damage.

The beaver is partially through cutting a tree that is in danger of falling on a nearby power line. National Grid was alerted on 3/16/22.

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
SITE INSPECTION FORM

THIS FORM TO BE USED FOR QUARTERLY AND ALL OTHER SITE INSPECTIONS

DATE: 5/18/2022 TIME: 1300

INSPECTOR: Walker COMPANY: Sevenson Environmental Services

WEATHER:

REASON FOR INSPECTION (QUARTERLY OR OTHER): 2nd Quarter Inspection 2022

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

(Note: For general site conditions note existence of bare areas (number,size), cracks, subsidence (sinking), ponded water, stressed vegetation, soil discoloration or seeps, and rodent burrows. For site security, note absence of locks, gates open or damaged, missing signs or evidence of vandalism. Note any other unusual occurences.)

		COMMENTS
ACCESS ROAD	A	
COVER VEGETATION	A	
TREES	A	
LITTER	A	
EROSION (CAP)	A	
EROSION (BANK)	A	
SECURITY:		
FENCE/LOCKS	U	South East portion of fence needs repair.
PIEZOMETERS/LOCKS	A	
MONITORING WELLS/LOCKS	A	
MANHOLES/LIDS/LOCKS	A	
ELECTRICAL PANEL	A	

ADDITIONAL COMMENTS: Site looked good, except the portion of wooden fence and 1 fence post was damaged by rot and possible high winds. I called fox Fence and Mark Fox met me on site to look at the damage and start repairs.

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
SITE INSPECTION FORM

THIS FORM TO BE USED FOR QUARTERLY AND ALL OTHER SITE INSPECTIONS

DATE: 9/20/22 TIME: 1500

INSPECTOR: Maxwell Lifton COMPANY: Sevenson

WEATHER: Sunny 70°F

REASON FOR INSPECTION (QUARTERLY OR OTHER): Fall 2022 Ins. + Sampling

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

(Note: For general site conditions note existence of bare areas (number,size), cracks, subsidence (sinking), ponded water, stressed vegetation, soil discoloration or seeps, and rodent burrows. For site security, note absence of locks, gates open or damaged, missing signs or evidence of vandalism. Note any other unusual occurences.)

		COMMENTS
ACCESS ROAD	A	
COVER VEGETATION	A	
TREES	A	
LITTER	A	
EROSION (CAP)	A	
EROSION (BANK)	A	

SECURITY:

FENCE/LOCKS	A	
PIEZOMETERS/LOCKS	A	
MONITORING WELLS/LOCKS	A	
MANHOLES/LIDS/LOCKS	A	
ELECTRICAL PANEL	A	

ADDITIONAL COMMENTS:

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
SITE INSPECTION FORM

THIS FORM TO BE USED FOR QUARTERLY AND ALL OTHER SITE INSPECTIONS

DATE: 1/17/22 TIME: 0925

INSPECTOR: Greg Ernst COMPANY: Sevenson

WEATHER: Cloudy 32°F

REASON FOR INSPECTION (QUARTERLY OR OTHER): Winter Quarterly inspection

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

(Note: For general site conditions note existence of bare areas (number,size), cracks, subsidence (sinking), ponded water, stressed vegetation, soil discoloration or seeps, and rodent burrows. For site security, note absence of locks, gates open or damaged, missing signs or evidence of vandalism. Note any other unusual occurences.)

		COMMENTS
ACCESS ROAD	A	
COVER VEGETATION	A	
TREES	A	
LITTER	A	
EROSION (CAP)	A	
EROSION (BANK)	A	

SECURITY:

FENCE/LOCKS	A	
PIEZOMETERS/LOCKS	A	
MONITORING WELLS/LOCKS	A	
MANHOLES/LIDS/LOCKS	A	
ELECTRICAL PANEL	A	

ADDITIONAL COMMENTS:

Attachment E

Historical Detections at Manhole B

Manhole B - Historical Detections

Sample Date	Parameter	Result	Qualifier
4/3/2008	alpha-BHC	0.03	J
4/3/2008	beta-BHC	0.066	
4/3/2008	delta-BHC	0.072	
4/3/2008	gamma-BHC	0.019	J
4/2/2009	alpha-BHC	0.049	
4/2/2009	beta-BHC	0.04	J
4/2/2009	delta-BHC	0.17	
4/2/2009	alpha-BHC	0.038	J
4/2/2009	beta-BHC	0.025	J
4/2/2009	delta-BHC	0.16	
4/19/2011	delta-BHC	1.1	J
9/18/2014	delta-BHC	0.053	J
9/25/2018	beta-BHC	0.062	
9/28/2020	beta-BHC	0.25	
9/28/2020	delta-BHC	2.2	
3/17/2021	beta-BHC	0.13	J
9/21/2022	beta-BHC	0.074	
9/21/2022	delta-BHC	0.15	J
3/15/2023	beta-BHC	0.1	
3/15/2023	delta-BHC	1.1	

Notes: Concentration in ug/l
J - Estimated value

Tables

TABLE 1
CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

SAMPLING AND ANALYSIS PLAN

Requirement	Element	Frequency
Inspections	Fencing, gates, and Site access	Quarterly
	Monitoring well integrity	
	Landfill Cover System	
Monitoring	Hydraulic Monitoring	Quarterly
	Manhole B water samples	Annual (BHC Isomers) Every 5 Years (HBC)
	Monitoring wells MW-A3, MW-4, MW-5	Annual (BHC Isomers) Biennial (HBC)
Maintenance	Pump maintenance	As needed
	Landfill cover mowing	Annual
Reporting	Periodic Review Report	Annual

Notes:
BHC = hexachlorocyclohexane
HCB = hexachlorobenzene

TABLE 2
CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

ANALYTICAL SUMMARY
GROUND WATER SAMPLING 2016-2022

MONITOR WELL: MW-A3

	GA	2016		2017		2018		2019		2020		2021		2022	
Parameter		May	September	May	September	May	September	May	September	May	September	March	September	March	September
Alpha-BHC	0.01	NR	-	0.047U	NR	NR	-	-	NR	NR	-	0.049U	NR	NR	-
Beta-BHC	0.04	NR	-	0.047U	NR	NR	-	-	NR	NR	-	0.049U	NR	NR	-
Gamma-BHC	0.05	NR	-	0.047U	NR	NR	-	-	NR	NR	-	0.049U	NR	NR	-
Delta-BHC	0.04	NR	-	0.047U	NR	NR	-	-	NR	NR	-	0.049U	NR	NR	-
Hexachlorobenzene	0.04	NR	-	NR	NR	NR	-	-	NR	NR	-	NR	NR	NR	-

MONITOR WELL: MW-4

	GA	2016		2017		2018		2019		2020		2021		2022	
Parameter		May	September	May	September	May	September	May	September	May	September	March	September	March	September
Alpha-BHC	0.01	NR	0.056U	0.047U	NR	NR	0.047U	0.13	NR	NR	0.047U	0.045U	NR	NR	0.046U
Beta-BHC	0.04	NR	0.056U	0.047U	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.045U	NR	NR	0.046U
Gamma-BHC	0.05	NR	0.056U	0.047U	NR	NR	0.047U	0.48	NR	NR	0.047U	0.045U	NR	NR	0.046U
Delta-BHC	0.04	NR	0.056U	0.047U	NR	NR	0.047U	0.18	NR	NR	0.047U	0.045U	NR	NR	0.046U
Hexachlorobenzene	0.04	NR	10U	NR	NR	NR	9.4U	NR	NR	NR	9.4U	NR	NR	NR	8.8U

MONITOR WELL: MW-5

	GA	2016		2017		2018		2019		2020		2021		2022	
Parameter		May	September	May	September	May	September	May	September	May	September	March	September	March	September
Alpha-BHC	0.01	NR	0.056U	0.047U	NR	NR	0.047U	0.1	NR	NR	0.047U	0.050U	NR	NR	0.044U
Beta-BHC	0.04	NR	0.056U	0.047U	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.050U	NR	NR	0.044U
Gamma-BHC	0.05	NR	0.056U	0.047U	NR	NR	0.047U	0.41	NR	NR	0.047U	0.050U	NR	NR	0.044U
Delta-BHC	0.04	NR	0.056U	0.047U	NR	NR	0.047U	0.25	NR	NR	0.047U	0.050U	NR	NR	0.044U
Hexachlorobenzene	0.04	NR	10U	NR	NR	NR	9.4U	NR	NR	NR	9.4U	NR	NR	NR	8.8U

Notes: Concentration in ug/l
- - insufficient sample
- U Not detected at reported quantitation limit
- J Estimated value
- NR Not required

Next hexachlorobenzene (HCB) sampling scheduled for fall 2024.
GA guidance value for groundwater effluent limitations as established by 6CRR-NY 703.6
Shaded values indicate contaminant present in sample at levels at or above the GA

Table 3
Annual Manhole B Sampling

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

ANALYTICAL RESULTS SUMMARY
ANNUAL LEACHATE SAMPLING

September 21, 2022

	MANHOLE B (MHB)
PARAMETER	
alpha-BHC	0.044U
beta-BHC	0.074
delta-BHC	0.15J
gamma-BHC	0.044U
Hexachlorobenzene	9.3U

Notes:
U - Not detected at reported quantitation limit
J - Estimated value (see data narrative)
NR - Not Required
Concentration in ug/L
Field blank was non-detect for all parameters of interest.
Data has been validated and judged acceptable as qualified.
Next hexachlorobenzene (HCB) sampling scheduled for fall 2025.

TABLE 4
Charles Gibson Site
Niagara Falls, New York

ANALYTICAL SUMMARY

Annual Cayuga Creek Sediment Sampling 2011 - 2022

UPSTREAM

	Class A GV	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		2021	2022
Parameter		September	September	September	September	September	September	September	September	September	May	September	September	September
Alpha- BHC	NS	200J	17	170J	120	NS	9.7	200	57U	3200	270	32U	150U	66UJ
Beta- BHC	NS	120J	48	190J	280	NS	25	190	57U	1100	350	32U	150U	66U
Gamma- BHC	47	190U	5.5U	28U	49U	NS	5.6U	51U	57U	510U	59U	32U	150U	66UJ
Delta- BHC	NS	140J	23	28U	49U	NS	19	51U	57U	510U	59U	32U	150U	66U

DOWNSTREAM

	Class A GV	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		2021	2022
Parameter		September	September	September	September	September	September	September	September	September	May	September	September	September
Alpha- BHC	NS	230J	9.8	29U	55	52U	7	69U	63U	NS	73U	40U	NS	81UJ
Beta- BHC	NS	130J	37	89	100	76	18	87	63U	NS	110	40U	NS	81U
Gamma- BHC	47	220U	5.9U	29U	52U	52U	4.9U	69U	63U	NS	73U	40U	NS	81UJ
Delta- BHC	NS	170J	18	29U	52U	52U	15	69U	63U	NS	73U	40U	NS	81U

Notes:
Concentration in microgram per kilogram (ug/kg)
U Not detected at reported quantitation limit
J Estimated value
NS No sample in trap
GV Guidance value for groundwater effluent limitations as established by 6CRR-NY 703.6
Shaded values indicate contaminant present in sample at levels at or above the GV

Table 5

2022 Quarterly Groundwater Elevations Summary

Piezometer Pair	3/16/2022	Inward gradient	5/18/2022	Inward gradient	9/20/22	Inward gradient	11/17/2022	Inward gradient
P1 outside **P2 inside**	565.39 565.57	Outward	565.85 565.58	Inward	564.37 565.39	Outward	564.45 565.31	Outward
P3 outside **P4 inside**	570.00 565.53	Inward	567.36 565.46	Inward	563.76 565.30	Outward	567.26 565.49	Inward
P5 outside **P6 inside**	569.34 567.66	Inward	568.85 567.58	Inward	566.73 566.68	Inward	568.01 566.99	Inward
		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl
Manhole A **Manhole B**	563.04 563.14	Yes Yes	563.02 563.09	Yes Yes	563.18 563.25	Yes Yes	563.01 563.06	Yes Yes

Notes: Measurement units are in feet above MSL.
Piezometers P1, P3, P5 are outside the slurry wall.
Piezometers P2, P4, P6 are located within the containment area.
NA – Not Available

Manhole monitoring:

- Maintain water level below 565 feet to prevent hydrostatic pressure buildup under concrete slab.
- Pump Manhole B as required to maintain an inward gradient.

Table 5B - Groundwater Elevations Data

	PIEZOMETER							
DATE	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**MHA**	**MHB**
MP	572.86	575	574.18	576.4	575.09	578.34	575.27	577.41
2/13/2008	NA	NA	NA	NA	NA	NA	NA	NA
4/3/2008	565.44	565.50	567.55	565.44	569.84	567.99	564.13	564.17
9/11/2008	566.13	565.28	566.31	565.20	568.37	567.39	564.11	564.23
11/5/2008	565.46	565.24	566.52	565.17	568.76	567.43	563.81	563.89
2/13/2009	NA	NA	NA	NA	NA	NA	NA	NA
4/2/2009	565.46	565.43	566.81	565.34	569.11	567.77	563.97	564.03
9/17/2009	566.37	565.42	566.51	565.29	568.60	567.58	563.67	563.74
11/23/2009	565.31	565.29	566.41	565.24	568.70	567.37	563.52	563.61
3/3/2010	565.27	565.42	566.18	565.22	568.83	567.57	563.77	563.84
4/14/2010	565.72	565.46	567.05	565.19	569.45	567.77	564.02	564.09
9/17/2010	566.40	565.20	564.91	565.07	567.23	566.93	564.20	563.68
11/11/2010	564.53	565.16	565.57	565.02	567.40	566.78	563.82	563.88
3/9/2011	565.05	565.49	568.11	565.42	569.75	567.88	563.94	564.03
4/19/2011	565.50	565.48	567.74	565.26	569.46	567.77	564.01	564.15
9/22/2011	565.54	565.28	565.11	565.18	567.27	567.09	563.42	563.46
11/8/2011	565.33	565.41	567.41	565.28	568.77	567.53	563.32	563.40
3/15/2012	565.36	565.54	568.25	565.34	569.23	567.75	564.21	567.27
5/22/2012	566.01	565.50	567.40	565.46	569.01	567.75	563.40	563.49
9/17/2012	564.50	565.26	564.37	565.16	566.77	566.80	563.47	563.53
11/9/2012	564.51	565.38	568.28	565.22	568.40	567.25	563.62	563.99
3/6/2013	565.32	565.54	569.56	565.34	569.35	567.83	563.92	564.09
5/13/2013	565.63	565.43	567.74	565.24	568.75	567.63	563.67	563.73
9/18/2013	565.62	565.33	566.04	565.26	567.79	567.24	563.29	563.33
11/6/2013	565.35	565.51	569.11	566.09	569.17	567.70	563.36	563.42
3/18/2014	565.34	565.49	569.24	565.19	569.35	567.76	563.86	563.89
5/9/2014	565.50	565.50	568.44	565.35	569.36	567.82	563.83	563.91
9/18/2014	565.54	566.88	565.37	568.55	567.76	567.17	563.27	563.32
12/8/2014	566.65	565.08	568.15	565.15	568.14	566.86	563.50	563.56
3/11/2015	565.15	564.68	567.45	565.15	568.39	567.07	568.80	563.89
5/27/2015	565.84	565.53	566.71	565.44	568.46	567.49	563.84	563.83
9/1/2015	565.16	565.41	565.17	565.49	567.46	577.07	563.51	563.54
11/10/2015	564.97	565.40	566.11	565.34	568.92	567.07	563.67	563.76
3/8/2016	565.08	565.67	570.39	565.46	569.34	567.67	563.51	563.59
5/27/2016	565.87	565.56	567.24	565.50	568.60	567.88	563.94	563.48
9/8/2016	564.27	565.37	563.95	565.33	566.18	566.53	563.32	563.49
11/11/2016	563.28	565.11	565.17	565.17	565.44	566.13	563.36	563.39
3/7/2017	565.22	565.58	570.75	565.37	568.68	567.07	563.64	563.74
5/30/2017	566.00	566.31	568.71	565.43	569.09	567.63	563.57	563.63
9/6/2017	565.12	565.48	565.88	565.49	566.60	567.33	563.40	563.49
11/21/2017	565.01	565.51	569.92	565.43	569.24	567.60	563.52	563.60
3/13/2018	565.64	565.54	568.64	565.49	568.26	567.77	563.77	563.79
5/24/2018	565.90	565.53	567.21	565.35	568.70	567.57	563.24	563.31
9/25/2018	564.33	565.34	563.86	569.13	566.20	567.12	563.10	563.14
11/18/2018	563.33	565.19	568.91	568.16	568.85	566.57	563.21	563.25
3/7/2019	565.52	565.58	567.96	567.75	569.08	567.67	563.90	563.99
5/21/2019	566.11	565.58	568.87	565.46	569.43	567.88	563.63	563.69
9/24/2019	564.91	565.35	564.71	565.22	567.90	567.17	562.94	563.03
11/6/2019	564.74	565.40	567.51	565.19	568.85	567.36	563.08	563.14
3/19/2020	565.57	566.69	568.44	566.59	569.24	567.78	566.53	566.62
5/18/2020	566.49	565.55	567.55	565.51	568.85	567.58	560.67	560.72
9/22/2020	563.89	565.36	563.63	565.19	566.49	566.62	561.88	561.98
11/12/2020	563.02	565.17	562.54	564.89	565.75	566.16	562.03	562.09
3/17/2021	563.99	570.51	567.72	565.28	568.79	567.12	562.61	562.66
5/12/2021	565.47	565.44	568.11	565.18	568.62	567.15	562.87	562.94
9/20/2021	564.73	565.48	564.28	565.78	567.75	567.13	562.81	562.90
11/8/2021	565.18	565.54	567.7	565.49	569.17	567.68	562.81	562.90
3/16/2022	565.39	565.57	570	565.53	569.34	567.66	563.04	563.14
5/18/2022	565.85	565.58	567.36	565.46	568.85	567.58	563.02	563.09
9/20/2022	564.37	565.39	563.76	565.3	566.73	566.68	563.18	563.25
11/17/2022	564.45	565.31	567.26	565.49	568.01	566.99	563.01	563.06

MP-Measuring Point Elevation
NA-Not Available

Table 6
Olin Corp. Gibson Site
Discharge Volumes

Summary of Yearly Discharge Volumes

Date	Volume (gallons)
2010	28,118
2011	40,625
2012	29,623
2013	46,766
2014	33,564
2015	18,537
2016	28,172
2017	35,492
2018	33,837
2019	47,182
2020	297,712
2021	43,740
2022	**36,074**
TOTALS	**719,442**

Monthly Discharge Volumes 2022

Month	Volume (gallons)
Jan	3,245
Feb	12,080
Mar	6,666
Apr	3,140
May	2,900
Jun	2,831
Jul	0
Aug	6
Sep	2,710
Oct	0
Nov	0
Dec	2,496
TOTALS	**36,074**

Table 7 - Seasonal Piezometer Data

PIEZOMETER - Spring								
DATE	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**MHA**	**MHB**
2/13/2008	NA	NA	NA	NA	NA	NA	NA	NA
4/3/2008	565.44	565.50	567.55	565.44	569.84	567.99	564.13	564.17
2/13/2009	NA	NA	NA	NA	NA	NA	NA	NA
4/2/2009	565.46	565.43	566.81	565.34	569.11	567.77	563.97	564.03
3/3/2010	565.27	565.42	566.18	565.22	568.83	567.57	563.77	563.84
4/14/2010	565.72	565.46	567.05	565.19	569.45	567.77	564.02	564.09
3/9/2011	565.05	565.49	568.11	565.42	569.75	567.88	563.94	564.03
4/19/2011	565.50	565.48	567.74	565.26	569.46	567.77	564.01	564.15
3/15/2012	565.36	565.54	568.25	565.34	569.23	567.75	564.21	567.27
5/22/2012	566.01	565.50	567.40	565.46	569.01	567.75	563.40	563.49
3/6/2013	565.32	565.54	569.56	565.34	569.35	567.83	563.92	564.09
5/13/2013	565.63	565.43	567.74	565.24	568.75	567.63	563.67	563.73
3/18/2014	565.34	565.49	569.24	565.19	569.35	567.76	563.86	563.89
5/9/2014	565.50	565.50	568.44	565.35	569.36	567.82	563.83	563.91
3/11/2015	565.15	564.68	567.45	565.15	568.39	567.07	568.80	563.89
5/27/2015	565.84	565.53	566.71	565.44	568.46	567.49	563.84	563.83
3/8/2016	565.08	565.67	570.39	565.46	569.34	567.67	563.51	563.59
5/27/2016	565.87	565.56	567.24	565.50	568.60	567.88	563.94	563.48
3/7/2017	565.22	565.58	570.75	565.37	568.68	567.07	563.64	563.74
5/30/2017	566.00	566.31	568.71	565.43	569.09	567.63	563.57	563.63
3/13/2018	565.64	565.54	568.64	565.49	568.26	567.77	563.77	563.79
5/24/2018	565.90	565.53	567.21	565.35	568.70	567.57	563.24	563.31
3/7/2019	565.52	565.58	567.96	567.75	569.08	567.67	563.90	563.99
5/21/2019	566.11	565.58	568.87	565.46	569.43	567.88	563.63	563.69
3/19/2020	565.57	566.69	568.44	566.59	569.24	567.78	566.53	566.62
5/18/2020	566.49	565.55	567.55	565.51	568.85	567.58	560.67	560.72
3/17/2021	563.99	570.51	567.72	565.28	568.79	567.12	562.61	562.66
5/12/2021	565.47	565.44	568.11	565.18	568.62	567.15	562.87	562.94
3/16/2022	565.39	565.57	570	565.53	569.34	567.66	563.04	563.14
5/18/2022	565.85	565.58	567.36	565.46	568.85	567.58	563.02	563.09

NA-Not Available

PIEZOMETER - Fall								
DATE	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**MHA**	**MHB**
9/11/2008	566.13	565.28	566.31	565.20	568.37	567.39	564.11	564.23
11/5/2008	565.46	565.24	566.52	565.17	568.76	567.43	563.81	563.89
9/17/2009	566.37	565.42	566.51	565.29	568.60	567.58	563.67	563.74
11/23/2009	565.31	565.29	566.41	565.24	568.70	567.37	563.52	563.61
9/17/2010	566.40	565.20	564.91	565.07	567.23	566.93	564.20	563.68
11/11/2010	564.53	565.16	565.57	565.02	567.40	566.78	563.82	563.88
9/22/2011	565.54	565.28	565.11	565.18	567.27	567.09	563.42	563.46
11/8/2011	565.33	565.41	567.41	565.28	568.77	567.53	563.32	563.40
9/17/2012	564.50	565.26	564.37	565.16	566.77	566.80	563.47	563.53
11/9/2012	564.51	565.38	568.28	565.22	568.40	567.25	563.62	563.99
9/18/2013	565.62	565.33	566.04	565.26	567.79	567.24	563.29	563.33
11/6/2013	565.35	565.51	569.11	566.09	569.17	567.70	563.36	563.42
9/18/2014	565.54	566.88	565.37	568.55	567.76	567.17	563.27	563.32
12/8/2014	566.65	565.08	568.15	565.15	568.14	566.86	563.50	563.56
9/1/2015	565.16	565.41	565.17	565.49	567.46	577.07	563.51	563.54
11/10/2015	564.97	565.40	566.11	565.34	568.92	567.07	563.67	563.76
9/8/2016	564.27	565.37	563.95	565.33	566.18	566.53	563.32	563.49
11/11/2016	563.28	565.11	565.17	565.17	565.44	566.13	563.36	563.39
9/6/2017	565.12	565.48	565.88	565.49	566.60	567.33	563.40	563.49
11/21/2017	565.01	565.51	569.92	565.43	569.24	567.60	563.52	563.60
9/25/2018	564.33	565.34	563.86	569.13	566.20	567.12	563.10	563.14
11/18/2018	563.33	565.19	568.91	568.16	568.85	566.57	563.21	563.25
9/24/2019	564.91	565.35	564.71	565.22	567.90	567.17	562.94	563.03
11/6/2019	564.74	565.40	567.51	565.19	568.85	567.36	563.08	563.14
9/22/2020	563.89	565.36	563.63	565.19	566.49	566.62	561.88	561.98
11/12/2020	563.02	565.17	562.54	564.89	565.75	566.16	562.03	562.09
9/20/2021	564.73	565.48	564.28	565.78	567.75	567.13	562.81	562.90
11/8/2021	565.18	565.54	567.7	565.49	569.17	567.68	562.81	562.90
9/20/2022	564.37	565.39	563.76	565.3	566.73	566.68	563.18	563.25
11/17/2022	564.45	565.31	567.26	565.49	568.01	566.99	563.01	563.06

Table 5B - Groundwater Elevations Data

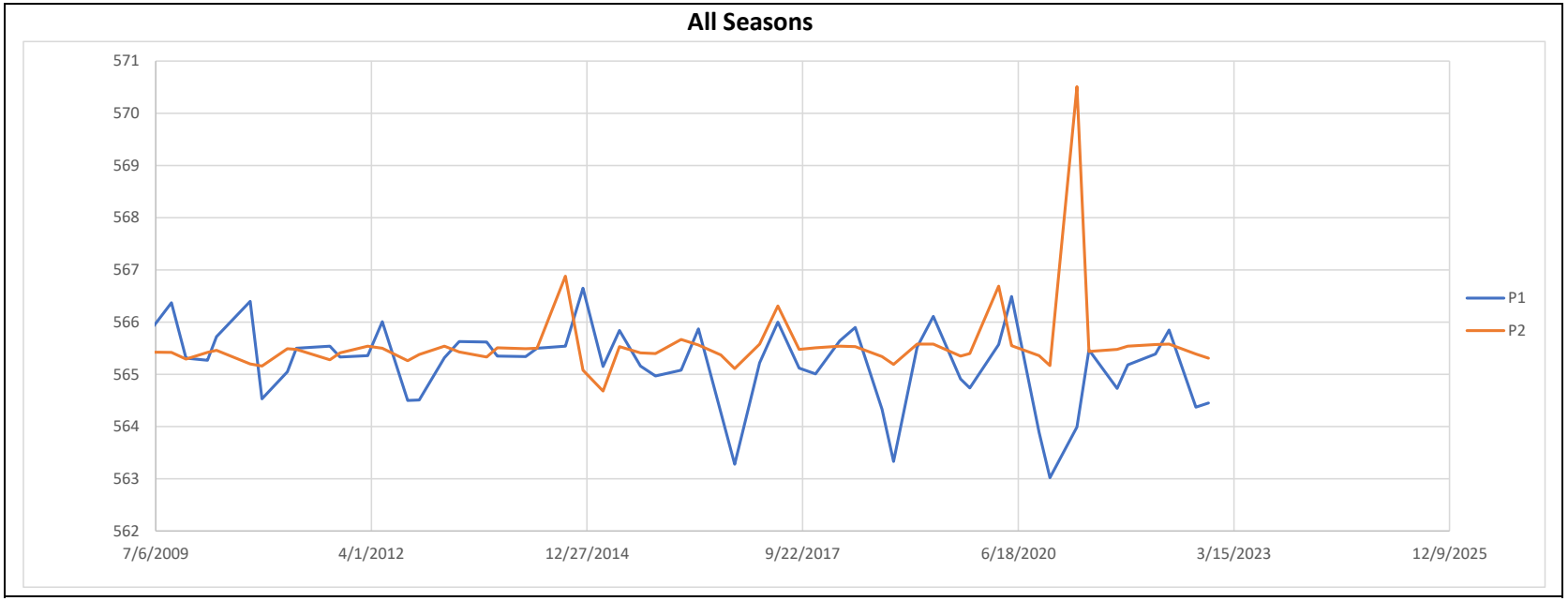


Table 5B - Groundwater Elevations Data

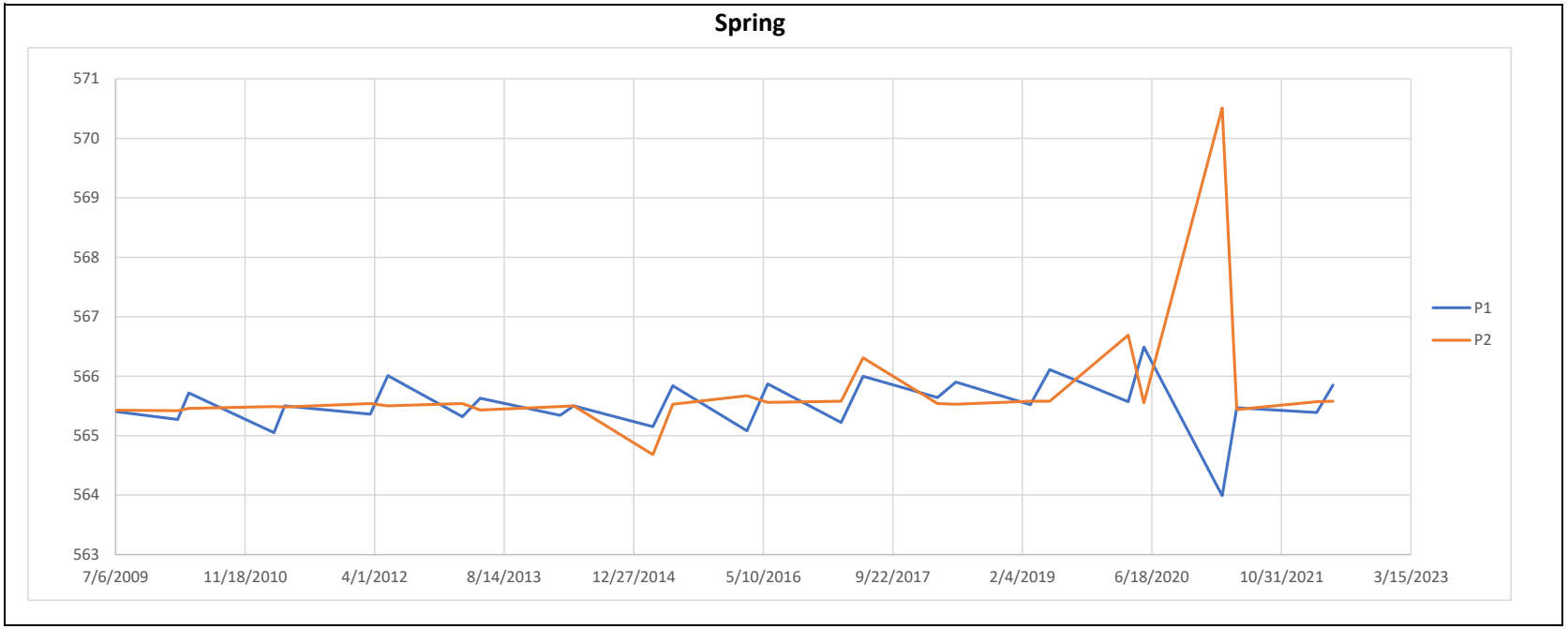


Table 5B - Groundwater Elevations Data

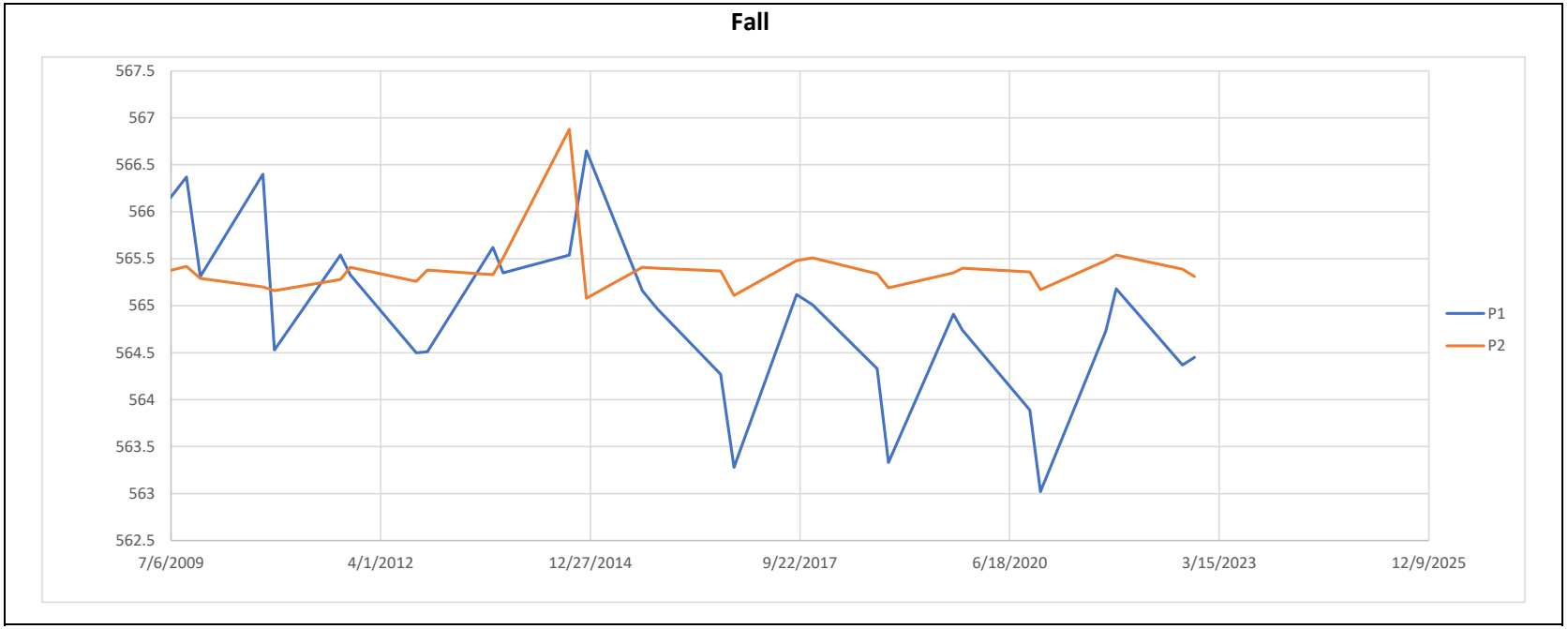


Table 5B - Groundwater Elevations Data

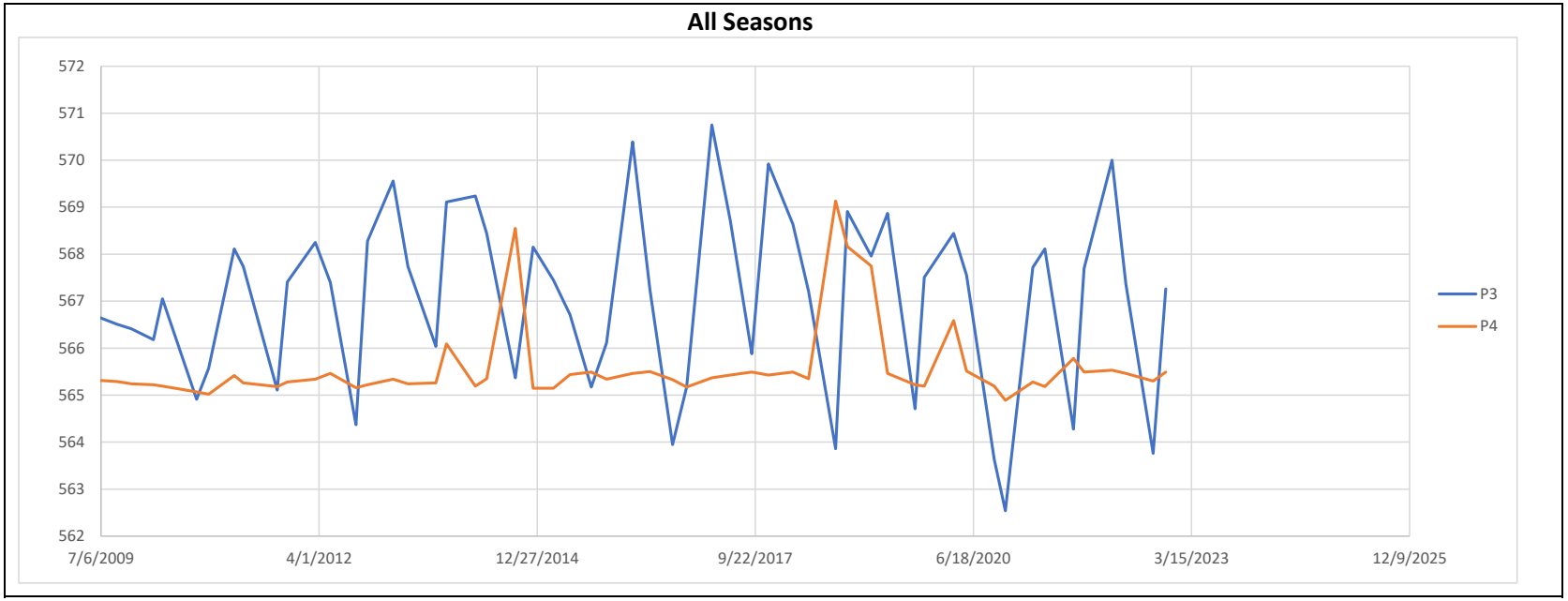


Table 5B - Groundwater Elevations Data

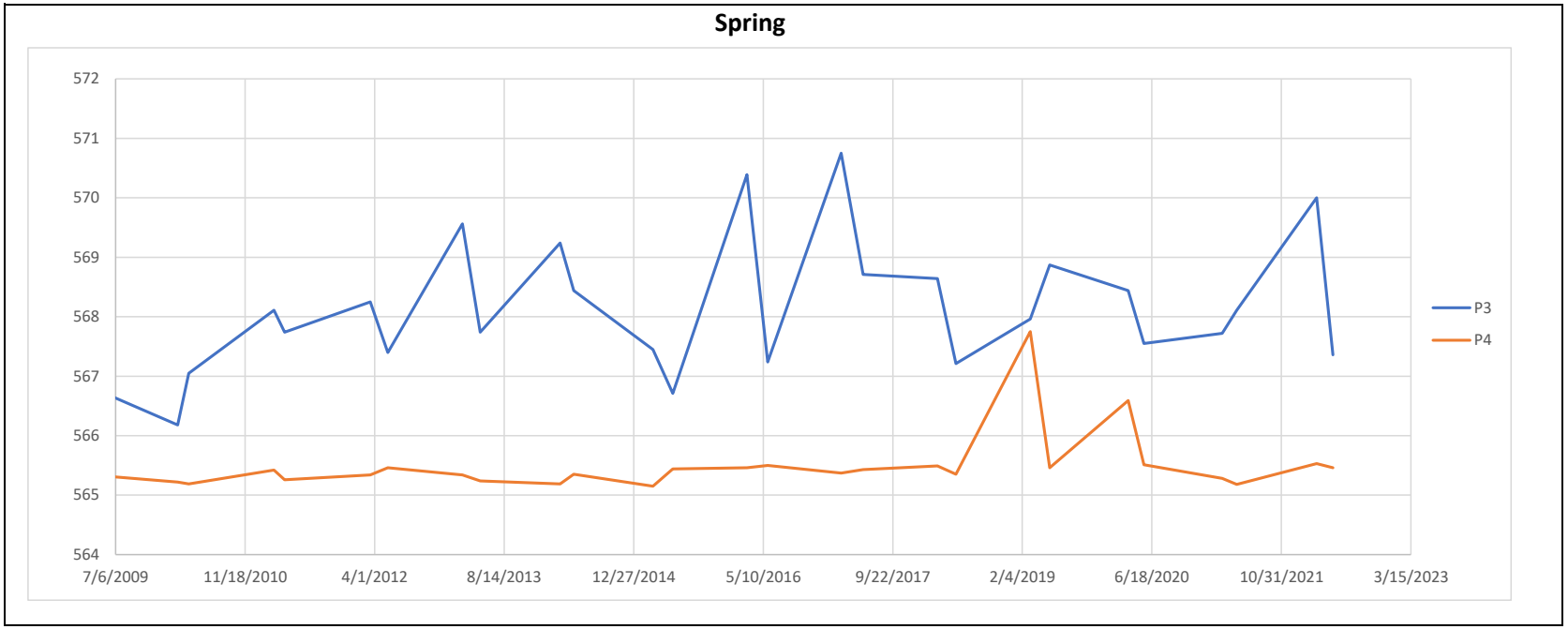


Table 5B - Groundwater Elevations Data

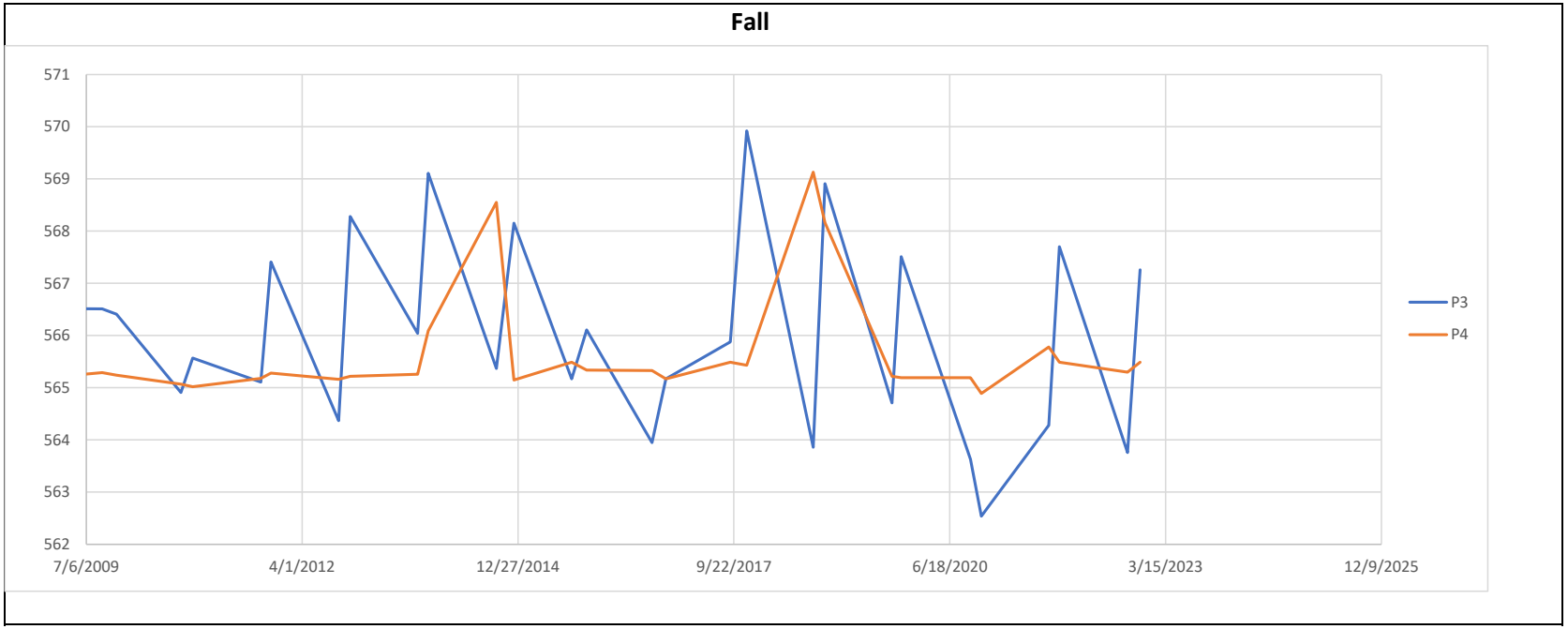


Table 5B - Groundwater Elevations Data

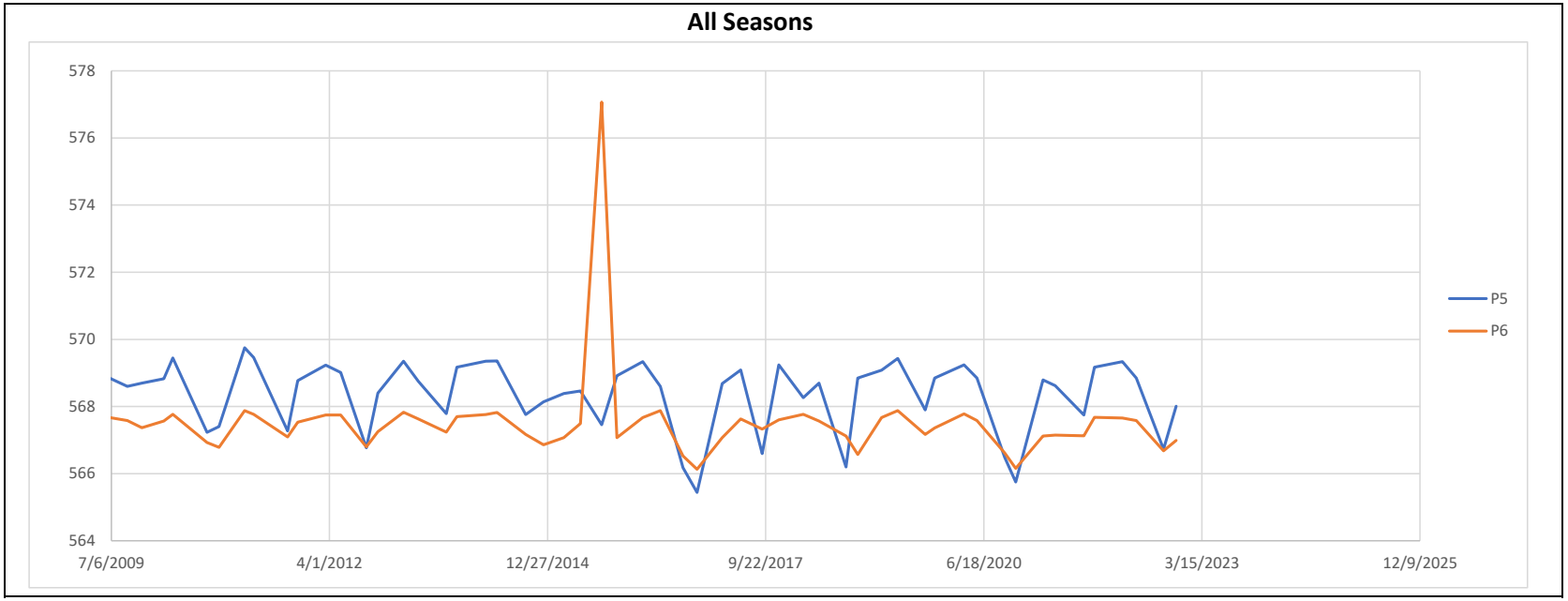


Table 5B - Groundwater Elevations Data

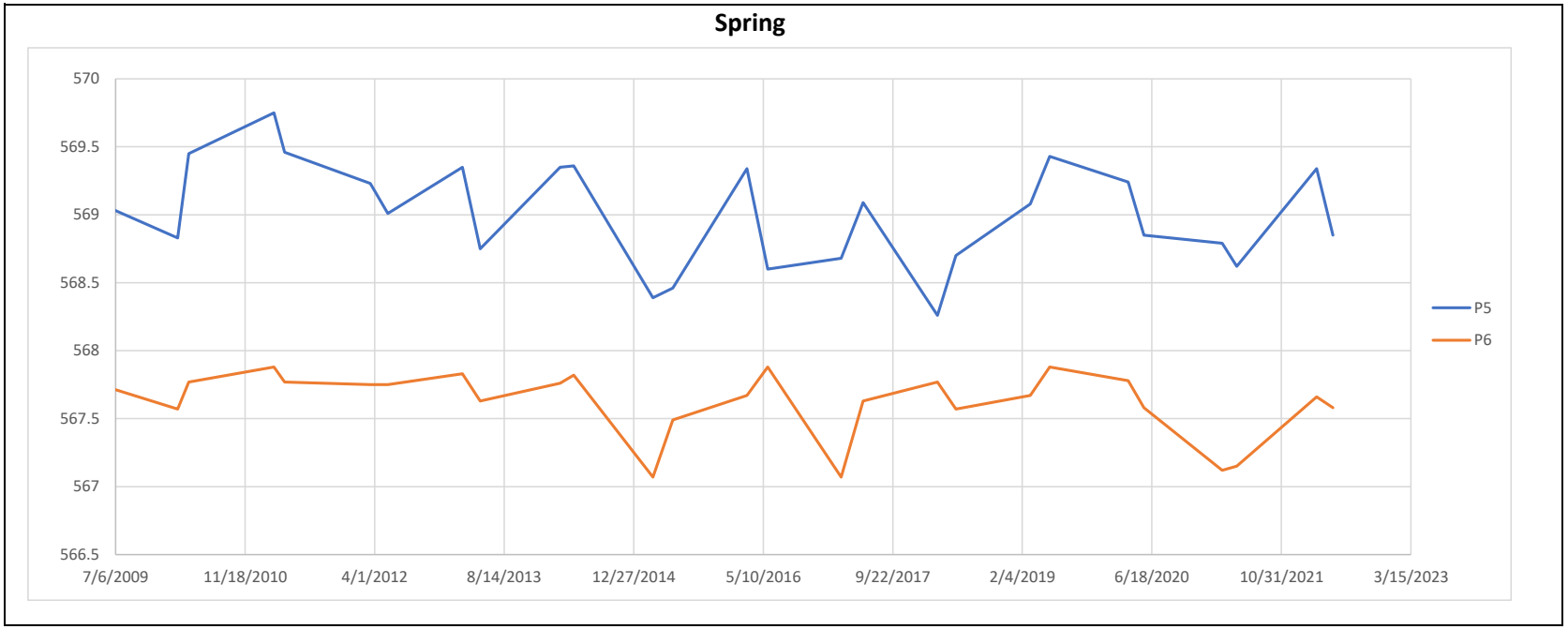


Table 5B - Groundwater Elevations Data

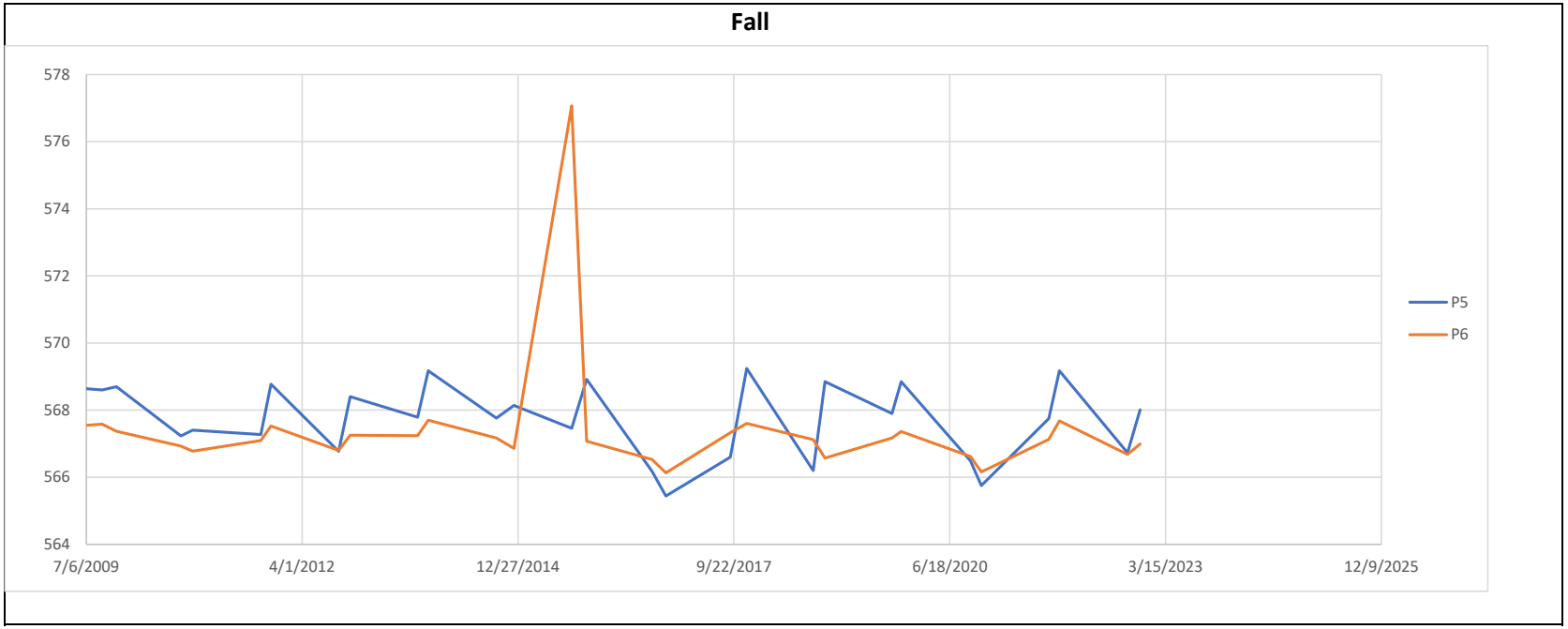
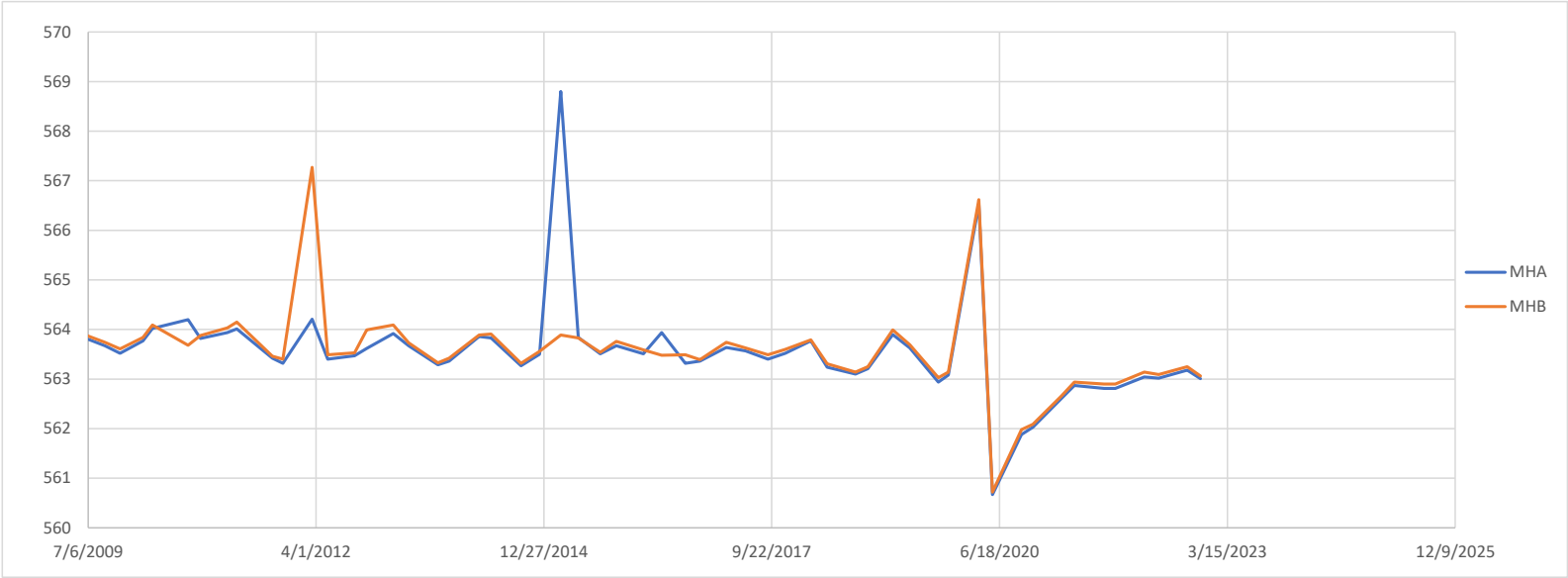


Table 5B - Groundwater Elevations Data



CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER ELEVATION FORM

THIS FORM TO BE USED FOR ALL QUARTERLY PIEZOMETER AND MANHOLE GROUND-WATER ELEVATION MEASURING EVENTS

DATE: 3/16/22 TIME: 0900

INSPECTOR: Max Littiton Greg Ernst COMPANY: SES

WEATHER: foggy/cloudy 40°F

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	7.33	565.39	—
P-2	574.89	9.32	565.57	—
P-3	574.16	4.16	570.00	—
P-4	576.14	10.61	565.53	—
P-5	575.05	5.71	569.34	—
P-6	578.28	10.62	567.66	—
MANHOLE A	575.22	12.18	563.04	—
MANHOLE B	577.34	14.20	563.14	—

(Note: Manhole A empties into Manhole B by gravity feed and Manhole B is pumped automatically to the Town of Niagara Tuscarora Road sanitary sewer line by a float controlled sump pump which maintains groundwater elevations in Manhole B (and by extension Manhole A) below an elevation of 565 ft. above mean sea level. Therefore, Depth to water distance from the manhole rim should not be less than 12.41 ft. at Manhole B and 10.22 ft. at Manhole A.
(Note: riser elevations (re)surveyed September, 1999 by Wendel Surveyors)

ADDITIONAL COMMENTS/OBSERVATIONS:

The faulty well cover on P-2 was replaced. The well lid is now secure.

After initial water level measurements, all levels were remeasured to ensure accuracy.

Niagara County color digital orthoimagery (2017) obtained from New York State GIS Clearinghouse at: https://gis.ny.gov

N

0 20 40 Feet

Prepared/Date: NES 07/21/23 | Checked/Date: ___ 07/21/23

Legend

- Piezometer
- Manhole
- Groundwater Contour
- Interpreted Groundwater Flow Arrow

Note: Groundwater level measurements were taken March 16, 2022.

Figure 1
Groundwater Contour Map
Piezometer/Manhole Levels

Olin Charles Gibson
Niagara Falls, New York

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\Figures\GW_2022\Figure 1 - GW Contours_March.pdf 07/21/2023 1:38 PM nathan.soule

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER ELEVATION FORM

THIS FORM TO BE USED FOR ALL QUARTERLY PIEZOMETER AND MANHOLE GROUND-WATER ELEVATION MEASURING EVENTS

DATE: 5/18/2022 TIME: 1300

INSPECTOR: M. Walker COMPANY: Sevenson Environmental Services

WEATHER: Cloudy, 72 F

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	6.87	565.85	OK
P-2	574.89	9.31	565.58	OK
P-3	574.16	6.8	567.36	OK
P-4	576.14	10.68	565.46	OK
P-5	575.05	6.2	568.85	OK
P-6	578.28	10.7	567.58	OK
MANHOLE A	575.22	12.2	563.02	OK
MANHOLE B	577.34	14.25	563.09	OK

(Note: Manhole A empties into Manhole B by gravity feed and Manhole B is pumped automatically to the Town of Niagara Tuscarora Road sanitary sewer line by a float controlled sump pump which maintains groundwater elevations in Manhole B (and by extension Manhole A) below an elevation of 565 ft. above mean sea level. Therefore, Depth to water distance from the manhole rim should not be less than 12.41 ft. at Manhole B and 10.22 ft. at Manhole A.
(Note: riser elevations (re)surveyed September, 1999 by Wendel Surveyors)

ADDITIONAL COMMENTS/OBSERVATIONS:

All well and manholes in good shaep covers and locks secure.

Niagara County color digital orthoimagery
(2017) obtained from New York State
GIS Clearinghouse at: https://gis.ny.gov

N

0 20 40 Feet

Legend

- Piezometer
- Manhole
- Groundwater Contour
- Interpreted Groundwater Flow Arrow

Note: Groundwater level measurements were taken May 18, 2022.

Figure 2
Groundwater Contour Map
Piezometer/Manhole Levels

Olin Charles Gibson
Niagara Falls, New York

Prepared/Date: NES 07/21/23 | Checked/Date: ___ 07/21/23

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\Figures\GW_2022\Figure 2 - GW Contours_May.pdf 07/21/2023 1:38 PM nathan.soule

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER ELEVATION FORM

THIS FORM TO BE USED FOR ALL QUARTERLY PIEZOMETER AND MANHOLE GROUND-WATER ELEVATION MEASURING EVENTS

DATE: 9/20/22 TIME: 1430

INSPECTOR: Max Lifton COMPANY: Severson

WEATHER: Sunny 70°F

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	8.35	564.37	
P-2	574.89	9.50	565.39	
P-3	574.16	10.40	563.76	
P-4	576.14	10.84	565.30	
P-5	575.05	8.32	566.73	
P-6	578.28	11.60	566.68	
MANHOLE A	575.22	12.04	563.18	
MANHOLE B	577.34	14.09	563.25	

(Note: Manhole A empties into Manhole B by gravity feed and Manhole B is pumped automatically to the Town of Niagara Tuscarora Road sanitary sewer line by a float controlled sump pump which maintains groundwater elevations in Manhole B (and by extension Manhole A) below an elevation of 565 ft. above mean sea level. Therefore, Depth to water distance from the manhole rim should not be less than 12.41 ft. at Manhole B and 10.22 ft. at Manhole A.
(Note: riser elevations (re)surveyed September, 1999 by Wendel Surveyors)

ADDITIONAL COMMENTS/OBSERVATIONS:

Niagara County color digital orthoimagery (2017) obtained from New York State GIS Clearinghouse at: https://gis.ny.gov

N

0 20 40 Feet

Legend

- Piezometer
- Manhole
- Groundwater Contour
- Interpreted Groundwater Flow Arrow

Note: Groundwater level measurements were taken September 20, 2022.

Figure 3
Groundwater Contour Map
Piezometer/Manhole Levels

Olin Charles Gibson
Niagara Falls, New York

Prepared/Date: NES 07/21/23 | Checked/Date: ___ 07/21/23

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\Figures\GW_2022\Figure 3 - GW Contours_Sept.pdf 07/21/2023 1:38 PM nathan.soule

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK
NYSDEC REGISTRY NO. 9-32-063
GROUNDWATER ELEVATION FORM

THIS FORM TO BE USED FOR ALL QUARTERLY PIEZOMETER AND MANHOLE GROUND-WATER ELEVATION MEASURING EVENTS

DATE: 111722 TIME: 0925

INSPECTOR: Greg Ecast COMPANY: Severson

WEATHER: Cloudy 32°F

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	8.27	564.45	
P-2	574.89	9.58	565.31	
P-3	574.16	6.90	567.26	
P-4	576.14	10.79	565.35	
P-5	575.05	7.04	568.01	
P-6	578.28	11.29	566.99	
MANHOLE A	575.22	12.21	563.01	
MANHOLE B	577.34	14.28	563.06	

(Note: Manhole A empties into Manhole B by gravity feed and Manhole B is pumped automatically to the Town of Niagara Tuscarora Road sanitary sewer line by a float controlled sump pump which maintains groundwater elevations in Manhole B (and by extension Manhole A) below an elevation of 565 ft. above mean sea level. Therefore, Depth to water distance from the manhole rim should not be less than 12.41 ft. at Manhole B and 10.22 ft. at Manhole A.
(Note: riser elevations (re)surveyed September, 1999 by Wendel Surveyors)

ADDITIONAL COMMENTS/OBSERVATIONS:

Niagara County color digital orthoimagery (2017) obtained from New York State GIS Clearinghouse at: https://gis.ny.gov

N

0 20 40 Feet

Prepared/Date: NES 07/21/23 | Checked/Date: ___ 07/21/23

Legend

- Piezometer
- Manhole
- Groundwater Contour
- Interpreted Groundwater Flow Arrow

Note: Groundwater level measurements were taken November 17, 2022.

Figure 4
Groundwater Contour Map
Piezometer/Manhole Levels

Olin Charles Gibson
Niagara Falls, New York

Document: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SMP\SMP_11x17LS.mxd PDF: P:\Projects\Olin Charles Gibson\4.0_Deliverables\4.5_Databases\GIS\Figures\GW_2022\Figure 4 - GW Contours_Nov.pdf 07/21/2023 1:38 PM nathan.soule

October 14, 2022 Service Request No:R2209022

Adam Carringer
Olin Corporation
490 Stuart Road
Cleveland, TN 37312

Laboratory Results for: Charles Gibson - Olin

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory September 22, 2022
For your reference, these analyses have been assigned our service request number **R2209022.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

CC: Randy Morris

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Water

Service Request: R2209022
Date Received: 09/22/2022

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 09/22/2022. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Semivoa GC:

Method 8081B, 09/28/2022: The control limits were exceeded for analytes in the Continuing Calibration Verification (CCV). The QC failure was most likely due to the composition of the sample(s) immediately preceding the failing CCV. In order to protect the integrity of the instrument, no further corrective action was taken. Results should be considered estimated.

Approved by _____ Date 10/14/2022

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Olin Corporation **Service Request:**R2209022
Project: Charles Gibson - Olin

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2209022-001	Field Blank-092122	9/21/2022	1131
R2209022-002	MH-B-092122	9/21/2022	1115
R2209022-003	MW-4-092122	9/21/2022	1205
R2209022-004	MW-5-092022	9/20/2022	1626
R2209022-005	MW-7-092122	9/21/2022	1300

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

065609

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Charles Gibson-Olin	Project Number: 1283
Project Manager: Adam Carringer	Report CC: Adam Carringer
Company/Address: Olin Corp 3855 North Ocoee St. Cleveland, TN 37312	
Phone #: 423-836-4987	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffton	Sampler's Printed Name: Maxwell Liffton

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
										O		O		
FIELD BLANK-092122		9/21/22	1131	GW	4		2		2					
MH-B-092122		9/21/22	1115	GW	12		6		6					MS/MSD volume.
MW-4-092122		9/21/22	1205	GW	4		2		2					
MW-5-092022		9/20/22	1626	GW	4		2		2					
MW-7-092122		9/21/22	1300	GW	4		2		2					
TEMP BLANK		—	—	—	1									Provided by lab

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
X Standard (10 business days-No Surcharge)
REQUESTED REPORT DATE
Std.

REPORT REQUIREMENTS
_____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO: Olin

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Max Liffton	UPS	Signature	Signature	Signature	Signature
Printed Name: Max Liffton	Printed Name	Printed Name	Printed Name: Gregory O. Somerlan	Printed Name	
Firm: Sievenson	Firm	Firm	Firm: ALS	Firm	
Date/Time: 9/21/22 1500	Date/Time	Date/Time	Date/Time: 9/22/22 0945	Date/Time	

Distribution: White - Lab Copy; Yellow - Return to Originator

R2209022 5
Olin Corporation
Charles Gibson - Olin

Gibson Fall Ground Water Monitoring and Sampling Narrative

9/20/22

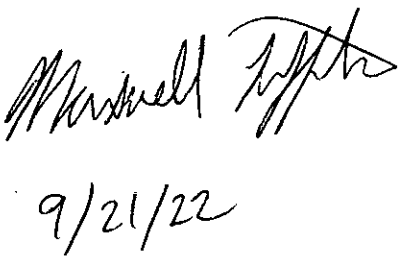
Well MW-A3 was dry upon arrival. No sample taken from this well. Monitoring well MW-4 was pumped dry during purging before sample collection. Well MW-5 was sampled at 1626.

9/21/22

Sevenson returned to site to sample recharge at well MW-4 at 1205. MH-B sampled at 1115, and MS/MSD volumes were taken here. Field Blank sampled were taken at 1131. MW-7 was sampled at 1300.

Creek sediment samples were also taken today, upstream at 0950, midstream at 0845, and downstream at 0900.

This narrative will be sent to ALS along with the sample COCs.



9/21/22

R2209022 5
Olin Corporation
Charles Gibson - Olin

Cooler Receipt and Preservati

Project/Client Severson Folder Number

Cooler received on 9/22/22 by: JK

COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N	(NA)
6	Where did the bottles originate?	(ALS/ROC)	CLIENT
7	Soil VOA received as: Bulk Encore 5035set		(NA)

8. Temperature Readings Date: 9/22/22 Time: 09:55 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.3	4.6						
Within 0-6°C?	(Y) N	(Y) N	Y N	Y N	Y N	Y N	Y N	
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by JK on 9/22/22 at 11:05

5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 09/23/22 Time: 1104 by: AL

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A) (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 050922-1GJ

Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: AL

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r19.doc 03/02/2021

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2209022-001.01					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-001.02					
	8081B				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-001.03					
	8270D				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-001.04					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.01					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.02					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.03					
	8270D				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.04					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.05					
	8081B				
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.06					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2209022-002.07					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.08					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.09					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.10					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.11					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-002.12					
		9/23/2022	1105	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-003.01					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-003.02					
	8081B				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-003.03					
	8270D				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-003.04					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2209022-004.01					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-004.02					
	8081B				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-004.03					
	8270D				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-004.04					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-005.01					
	8081B				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-005.02					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-005.03					
	8270D				
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	
R2209022-005.04					
		9/23/2022	1103	SMO / ALUGO	
		9/23/2022	1105	R-002 / ALUGO	

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Accreditations[1]

NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin/

Sample Name: Field Blank-092122 **Date Collected:** 09/21/22
Lab Code: R2209022-001 **Date Received:** 09/22/22
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
8270D	JVANHEYNINGEN	BALLGEIER

Sample Name: MH-B-092122 **Date Collected:** 09/21/22
Lab Code: R2209022-002 **Date Received:** 09/22/22
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
8270D	JVANHEYNINGEN	BALLGEIER

Sample Name: MW-4-092122 **Date Collected:** 09/21/22
Lab Code: R2209022-003 **Date Received:** 09/22/22
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
8270D	JVANHEYNINGEN	BALLGEIER

Sample Name: MW-5-092022 **Date Collected:** 09/20/22
Lab Code: R2209022-004 **Date Received:** 09/22/22
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
8270D	JVANHEYNINGEN	BALLGEIER

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin/		

Sample Name:	MW-7-092122	**Date Collected:**	09/21/22
Lab Code:	R2209022-005	**Date Received:**	09/22/22
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
8270D	JVANHEYNINGEN	BALLGEIER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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Semivolatile Organic Compounds by GC/MS

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Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 11:31
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	Field Blank-092122	**Units:**	ug/L
Lab Code:	R2209022-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	9.3	1	10/03/22 17:57	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	130	35 - 141	10/03/22 17:57	
2-Fluorobiphenyl	70	31 - 118	10/03/22 17:57	
2-Fluorophenol	41	10 - 105	10/03/22 17:57	
Nitrobenzene-d5	74	31 - 110	10/03/22 17:57	
Phenol-d6	23	10 - 107	10/03/22 17:57	
p-Terphenyl-d14	79	10 - 165	10/03/22 17:57	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 11:15
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MH-B-092122	**Units:**	ug/L
Lab Code:	R2209022-002	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	9.3	1	10/03/22 18:26	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	113	35 - 141	10/03/22 18:26	
2-Fluorobiphenyl	62	31 - 118	10/03/22 18:26	
2-Fluorophenol	40	10 - 105	10/03/22 18:26	
Nitrobenzene-d5	71	31 - 110	10/03/22 18:26	
Phenol-d6	20	10 - 107	10/03/22 18:26	
p-Terphenyl-d14	60	10 - 165	10/03/22 18:26	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 12:05
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-4-092122	**Units:**	ug/L
Lab Code:	R2209022-003	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	8.8	1	10/03/22 19:52	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	110	35 - 141	10/03/22 19:52	
2-Fluorobiphenyl	65	31 - 118	10/03/22 19:52	
2-Fluorophenol	37	10 - 105	10/03/22 19:52	
Nitrobenzene-d5	64	31 - 110	10/03/22 19:52	
Phenol-d6	22	10 - 107	10/03/22 19:52	
p-Terphenyl-d14	51	10 - 165	10/03/22 19:52	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/20/22 16:26
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-5-092022	**Units:**	ug/L
Lab Code:	R2209022-004	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	8.8	1	10/03/22 20:21	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	117	35 - 141	10/03/22 20:21	
2-Fluorobiphenyl	65	31 - 118	10/03/22 20:21	
2-Fluorophenol	42	10 - 105	10/03/22 20:21	
Nitrobenzene-d5	73	31 - 110	10/03/22 20:21	
Phenol-d6	27	10 - 107	10/03/22 20:21	
p-Terphenyl-d14	45	10 - 165	10/03/22 20:21	

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 13:00
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-7-092122	**Units:**	ug/L
Lab Code:	R2209022-005	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	8.8	1	10/03/22 20:50	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	108	35 - 141	10/03/22 20:50	
2-Fluorobiphenyl	61	31 - 118	10/03/22 20:50	
2-Fluorophenol	38	10 - 105	10/03/22 20:50	
Nitrobenzene-d5	66	31 - 110	10/03/22 20:50	
Phenol-d6	21	10 - 107	10/03/22 20:50	
p-Terphenyl-d14	53	10 - 165	10/03/22 20:50	

Semivolatile Organic Compounds by GC

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Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 11:31
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	Field Blank-092122	**Units:**	ug/L
Lab Code:	R2209022-001	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.044	1	09/30/22 17:04	9/28/22	
beta-BHC	ND U	0.044	1	09/30/22 17:04	9/28/22	
delta-BHC	ND U	0.044	1	09/30/22 17:04	9/28/22	
gamma-BHC (Lindane)	ND U	0.044	1	09/30/22 17:04	9/28/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	20	10 - 164	09/30/22 17:04	
Tetrachloro-m-xylene	75	10 - 147	09/30/22 17:04	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 11:15
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MH-B-092122	**Units:**	ug/L
Lab Code:	R2209022-002	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.044	1	09/30/22 17:24	9/28/22	
beta-BHC	**0.074**	0.044	1	09/30/22 17:24	9/28/22	
delta-BHC	**0.15 P**	0.044	1	09/30/22 17:24	9/28/22	
gamma-BHC (Lindane)	ND U	0.044	1	09/30/22 17:24	9/28/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	23	10 - 164	09/30/22 17:24	
Tetrachloro-m-xylene	62	10 - 147	09/30/22 17:24	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 12:05
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-4-092122	**Units:**	ug/L
Lab Code:	R2209022-003	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.046	1	09/30/22 18:21	9/28/22	
beta-BHC	ND U	0.046	1	09/30/22 18:21	9/28/22	
delta-BHC	ND U	0.046	1	09/30/22 18:21	9/28/22	
gamma-BHC (Lindane)	ND U	0.046	1	09/30/22 18:21	9/28/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	24	10 - 164	09/30/22 18:21	
Tetrachloro-m-xylene	57	10 - 147	09/30/22 18:21	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/20/22 16:26
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-5-092022	**Units:**	ug/L
Lab Code:	R2209022-004	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.044	1	09/28/22 18:19	9/27/22	
beta-BHC	ND U	0.044	1	09/28/22 18:19	9/27/22	
delta-BHC	ND U	0.044	1	09/28/22 18:19	9/27/22	
gamma-BHC (Lindane)	ND U	0.044	1	09/28/22 18:19	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	28	10 - 164	09/28/22 18:19	
Tetrachloro-m-xylene	57	10 - 147	09/28/22 18:19	

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22 13:00
Sample Matrix:	Water	**Date Received:**	09/22/22 09:45
Sample Name:	MW-7-092122	**Units:**	ug/L
Lab Code:	R2209022-005	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.044	1	09/30/22 18:40	9/28/22	
beta-BHC	ND U	0.044	1	09/30/22 18:40	9/28/22	
delta-BHC	ND U	0.044	1	09/30/22 18:40	9/28/22	
gamma-BHC (Lindane)	ND U	0.044	1	09/30/22 18:40	9/28/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	26	10 - 164	09/30/22 18:40	
Tetrachloro-m-xylene	73	10 - 147	09/30/22 18:40	

QC Summary Forms

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Semivolatile Organic Compounds by GC/MS

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Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3510C

Sample Name	Lab Code	2,4,6-Tribromophenol 35-141	2-Fluorobiphenyl 31-118	2-Fluorophenol 10-105
Field Blank-092122	R2209022-001	130	70	41
MH-B-092122	R2209022-002	113	62	40
MW-4-092122	R2209022-003	110	65	37
MW-5-092022	R2209022-004	117	65	42
MW-7-092122	R2209022-005	108	61	38
Method Blank	RQ2211663-01	103	55	34
Lab Control Sample	RQ2211663-02	92	63	43
Duplicate Lab Control Sample	RQ2211663-03	103	67	38
MH-B-092122 MS	RQ2211663-04	109	81	54
MH-B-092122 DMS	RQ2211663-05	114	76	53

Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3510C

Sample Name	Lab Code	Nitrobenzene-d5 31-110	Phenol-d6 10-107	p-Terphenyl-d14 10-165
Field Blank-092122	R2209022-001	74	23	79
MH-B-092122	R2209022-002	71	20	60
MW-4-092122	R2209022-003	64	22	51
MW-5-092022	R2209022-004	73	27	45
MW-7-092122	R2209022-005	66	21	53
Method Blank	RQ2211663-01	67	16	64
Lab Control Sample	RQ2211663-02	59	30	66
Duplicate Lab Control Sample	RQ2211663-03	60	29	71
MH-B-092122 MS	RQ2211663-04	80	36	62
MH-B-092122 DMS	RQ2211663-05	76	37	59

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22
Sample Matrix:	Water	**Date Received:**	09/22/22
		Date Analyzed:	10/3/22
		Date Extracted:	09/27/22

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	MH-B-092122	**Units:**	ug/L
Lab Code:	R2209022-002	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3510C		

		Matrix Spike RQ2211663-04			Duplicate Matrix Spike RQ2211663-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Hexachlorobenzene	ND U	63.4	74.1	86	56.3	74.1	76	42-125	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2211663-01	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	10	1	10/03/22 15:34	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	103	35 - 141	10/03/22 15:34	
2-Fluorobiphenyl	55	31 - 118	10/03/22 15:34	
2-Fluorophenol	34	10 - 105	10/03/22 15:34	
Nitrobenzene-d5	67	31 - 110	10/03/22 15:34	
Phenol-d6	16	10 - 107	10/03/22 15:34	
p-Terphenyl-d14	64	10 - 165	10/03/22 15:34	

Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Water

Service Request: R2209022
Date Analyzed: 10/13/22

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

			Lab Control Sample			Duplicate Lab Control Sample				
			RQ2211663-02			RQ2211663-03				
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Hexachlorobenzene	8270D	55.9	80.0	70	63.2	80.0	79	53-123	12	30

Semivolatile Organic Compounds by GC

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Client: Olin Corporation **Service Request:** R2209022
Project: Charles Gibson - Olin
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Extraction Method: EPA 3510C

Sample Name	Lab Code	Decachlorobiphenyl 10-164	Tetrachloro-m-xylene 10-147
Field Blank-092122	R2209022-001	20	75
MH-B-092122	R2209022-002	23	62
MW-4-092122	R2209022-003	24	57
MW-5-092022	R2209022-004	28	57
MW-7-092122	R2209022-005	26	73
Method Blank	RQ2211759-08	26	57
Lab Control Sample	RQ2211759-09	27	60
Duplicate Lab Control Sample	RQ2211759-10	22	66
MH-B-092122 MS	RQ2211759-01	23	75
MH-B-092122 DMS	RQ2211759-02	24	71
Method Blank	RQ2211660-01	12	54
Lab Control Sample	RQ2211660-02	17	36
Duplicate Lab Control Sample	RQ2211660-03	24	54

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	09/21/22
Sample Matrix:	Water	**Date Received:**	09/22/22
		Date Analyzed:	09/30/22
		Date Extracted:	09/28/22

Duplicate Matrix Spike Summary
Organochlorine Pesticides by Gas Chromatography

Sample Name:	MH-B-092122	**Units:**	ug/L
Lab Code:	R2209022-002	**Basis:**	NA
Analysis Method:	8081B		
Prep Method:	EPA 3510C		

		Matrix Spike			**Duplicate Matrix Spike**					
		RQ2211759-01			RQ2211759-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	ND U	0.322	0.351	92	0.325	0.357	91	27-154	<1	30
beta-BHC	0.074	0.417	0.351	98	0.408	0.357	93	32-184	2	30
delta-BHC	0.15 P	0.502	0.351	99	0.519	0.357	102	10-182	3	30
gamma-BHC (Lindane)	ND U	0.319 P	0.351	91	0.314 P	0.357	88	43-164	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2211660-01	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: Method

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.050	1	09/27/22 18:34	9/27/22	
beta-BHC	ND U	0.050	1	09/27/22 18:34	9/27/22	
delta-BHC	ND U	0.050	1	09/27/22 18:34	9/27/22	
gamma-BHC (Lindane)	ND U	0.050	1	09/27/22 18:34	9/27/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	12	10 - 164	09/27/22 18:34	
Tetrachloro-m-xylene	54	10 - 147	09/27/22 18:34	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209022
Project:	Charles Gibson - Olin	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2211759-08	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.050	1	09/30/22 16:07	9/28/22	
beta-BHC	ND U	0.050	1	09/30/22 16:07	9/28/22	
delta-BHC	ND U	0.050	1	09/30/22 16:07	9/28/22	
gamma-BHC (Lindane)	ND U	0.050	1	09/30/22 16:07	9/28/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	26	10 - 164	09/30/22 16:07	
Tetrachloro-m-xylene	57	10 - 147	09/30/22 16:07	

Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Water

Service Request: R2209022
Date Analyzed: 09/27/22

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2211660-02			RQ2211660-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	8081B	0.180	0.400	45	0.269	0.400	67	36-151	40*	30
beta-BHC	8081B	0.314	0.400	78	0.311	0.400	78	55-149	<1	30
delta-BHC	8081B	0.271	0.400	68	0.306	0.400	76	29-159	12	30
gamma-BHC (Lindane)	8081B	0.215	0.400	54	0.294	0.400	73	41-149	31*	30

Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Water

Service Request: R2209022
Date Analyzed: 09/30/22

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2211759-09			RQ2211759-10					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	8081B	0.288	0.400	72	0.286	0.400	72	36-151	<1	30
beta-BHC	8081B	0.318	0.400	80	0.311	0.400	78	55-149	2	30
delta-BHC	8081B	0.339	0.400	85	0.306	0.400	76	29-159	10	30
gamma-BHC (Lindane)	8081B	0.309	0.400	77	0.307	0.400	77	41-149	<1	30

Data Evaluation Narrative
Charles Gibson – September 2022 Groundwater and Leachate Sampling Event

SDG: R2209022 – ALS Environmental, Rochester, NY

Deliverables
The data package as submitted to Olin Corporation is complete as stipulated under the Quality Assurance Project Plan (QAPP) for the site. United States Environmental Protection Agency (USEPA) Methods 8270D and 8081B were utilized in laboratory testing of samples.

Sample Integrity
Samples within this sample delivery group (SDG) were submitted to the ALS Environmental Laboratory in Rochester, NY for chlorinated pesticides analysis. The sample cooler temperatures measured 2.8°C and 4.6°C upon arrival at the laboratory. The specified temperature limit is 4°C ± 2°C. The proper bottles were used, the Chain of Custody was properly relinquished, and the correct analytical methods were employed.

Sample Identification
This SDG contains the following water and quality control (QC) samples collected September 20-21, 2022:

SDG R2209022:

Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
Field Blank-092122	MH-B-092122	MW-4-092122	MW-5-092022	MW-7-092122*

* Blind Field Duplicate of MW-4-092122

Chlorinated Pesticides (8081B)
The samples in this SDG were submitted for site-specific chlorinated pesticides (BHCs) analysis by USEPA Method 8081B.

Holding Times:
The extraction and analytical logs indicate that applicable holding times were met for samples submitted for chlorinated pesticide analysis.

Practical Quantitation Limits:
The practical quantitation limits (PQLs) were met for all samples submitted for chlorinated pesticide analysis by USEPA Method 8081B.

Calibration:
The initial and continuing calibration data for this SDG indicates that the applicable calibration criteria were met. The column breakdowns were assessed, and the percent degradation was within QC limits.

Surrogates:
The surrogate recoveries were within applicable QC advisory limits for all samples submitted for chlorinated pesticide analysis.

Blank Summary:
The analytical results of the laboratory method blanks and the field blank indicate that chlorinated pesticides were not detected.

Laboratory Control Sample (LCS) and LCS Duplicate (LCSD):
The relative percent difference (RPD) between the LCS and LCSD spike results for alpha-BHC (40) and gamma-BHC (31) were above the QC control limit of 30. Both LCS and LCSD recoveries for the two compounds were within QC limits; no data qualification for the high RPD values was deemed necessary by professional judgment.

Second Column Confirmation:
The laboratory utilized a second column confirmation for the analysis of chlorinated pesticides. The RPDs were within guidelines for all project and quality control samples except for delta-BHC in sample MH-B-092122 and gamma-BHC in the MS/MSD of MH-B-092122. The delta-BHC detection in MH-B-092122 was qualified as an estimated detection (J) by professional judgment; no data qualification was required for the MS/MSD sample results.

Performance Evaluation Samples (PES):
The results from the PES were within quality control guidelines.

Field Duplicate Sample:
According to the sampler, MW-7-092122 was a blind field duplicate of MW-4-092122. The sample and field duplicate were non-detect for all BHC compounds.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS/MSD analyses were performed on groundwater sample MH-B-092122. All percent recoveries were within control guidelines for both the MS and MSD.

Semi-Volatile Organic Compounds (EPA Method 8270D)
Four groundwater samples and the field blank in this SDG were submitted for Semi-Volatile Organic Compounds (SVOC) analysis of hexachlorobenzene (HCB) by USEPA Method 8270D.

Holding Times:
The extraction and analytical logs indicate that applicable holding times were met for samples submitted for semi-volatiles analysis. The holding times of 7 days for extraction and 40 days for analysis were met.

Practical Quantitation Limits:
The practical quantitation limits (PQLs) were met for the analysis of HCB by USEPA Method 8270D.

Calibration:
The initial and continuing calibration data indicate that applicable initial and continuing calibration criteria were met.

GC/MS Instrument Performance Check:
The GC/MS tuning and mass calibration checks passed the criteria as established by the method.

Blank Summary:
The analytical results of the laboratory method blank and field blank indicated no HCB was detected.

Laboratory Control Sample (LCS) and LCS Duplicate (LCSD):
The LCS and LCSD spike recoveries and RPDs were within applicable QC advisory limits.

Internal Standards and Surrogates:
The internal standard area counts/retention times and surrogate recoveries were within applicable QC advisory limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS/MSD analyses were performed on sample MH-B-092122. The percent recoveries and RPD were within QC limits.

Field Duplicate:
According to the sampler, MW-7-092122 was a blind field duplicate of MW-4-092122. The RPD could not be calculated since both samples were non-detect (ND) for HCB.

Overall Site Evaluation and Professional Judgment Flagging Changes
The data within this SDG were compared to site data and an edit to the DQE flags was required based on professional judgment. Monitoring period completeness, which is the percentage of analytical results judged valid, including estimated values, was 100 percent for the September 2022 sampling event. Typically, project objectives are met when completeness is 90 percent or better.

Prepared by: *Randy T. Morris* Date: *December 15, 2022*

October 25, 2022 Service Request No:R2209021

Adam Carringer
Olin Corporation
490 Stuart Road
Cleveland, TN 37312

Laboratory Results for: Charles Gibson - Olin

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory September 22, 2022
For your reference, these analyses have been assigned our service request number **R2209021.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

CC: Randy Morris

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Soil

Service Request: R2209021
Date Received: 09/22/2022

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Three soil samples were received for analysis at ALS Environmental on 09/22/2022. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/04/2022: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8081B, 10/04/2022: The control limits were exceeded for analytes in the Continuing Calibration Verification (CCV). The QC failure was most likely due to the composition of the sample(s) immediately preceding the failing CCV. In order to protect the integrity of the instrument, no further corrective action was taken. Results should be considered estimated.

Method 8081B, 10/04/2022: The lower control limit for the spike recovery of the Laboratory Control Sample (LCS) was exceeded for one or more analyte. The discrepancy associated with reduced recovery equates to a potential low bias. All samples on prep are scheduled for re-extraction. The analytes affected are flagged in the LCS Summary.

Method 8081B, 10/04/2022: The control limits for matrix spike recovery of one or more of the spiked analytes is not applicable. The analysis of this sample required a dilution such that the added spike concentration was diluted outside of a useable level. Matrix spikes which have been diluted have been flagged with a "D". No further corrective action was required.

Method 8081B: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV) on one detector. All recoveries were acceptable on the secondary detector. Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Method 8081B, 10/19/2022: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8081B, 10/19/2022: The control limits were exceeded for analytes in the Continuing Calibration Verification (CCV). The QC failure was most likely due to the composition of the sample(s) immediately preceding the failing CCV. In order to protect the integrity of the instrument, no further corrective action was taken. Results should be considered estimated.

Method 8081B:The extraction of one or more sample(s) was initially performed within holding time, but were re-extracted due to a QC failure. Efforts were made to re-extract the samples as soon as possible. The re-extraction was performed past the recommended holding time. The data are flagged to indicate the holding time exceedance.

The RPD between the LCS and the LCSD was greater than the RPD limit. The percent recovery limit was met for both the LCS and the LCSD.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Meghan Pedro Date 10/25/2022

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Olin Corporation **Service Request:**R2209021
Project: Charles Gibson - Olin/1283

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2209021-001	US-1-092122	9/21/2022	0950
R2209021-002	MS-1-092122	9/21/2022	0845
R2209021-003	DS-1-092122	9/21/2022	0900

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

065609

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name	Project Number
Charles Gibson-Olin	1283
Project Manager	**Report CC**
Adam Carringer	Adam Carringer

Company/Address: Olin Corp, 3855 North Ocoee St., Cleveland, TN 37312

Phone #	Email
423-836-4989	ABCarringer@Olin.com
Sampler's Signature	**Sampler's Printed Name**
Maxwell Lifton	Maxwell Lifton

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 0

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
US-1-092122	[redacted]	9/21/22	0950	SED	2				2				
MS-1-092122	[redacted]	9/21/22	0845	SED	2				2				
DS-1-092122	[redacted]	9/21/22	0900	SED	2				2				
TEMP BLANK	[redacted]	—	—	—	1								
	[redacted]												
	[redacted]												
	[redacted]												
	[redacted]												
	[redacted]												
	[redacted]												
	[redacted]												

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
___ RUSH (SURCHARGES APPLY)
___ 1 day ___ 2 day ___ 3 day
___ 4 day ___ 5 day
X Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE
Std.

REPORT REQUIREMENTS
___ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data

Edata ___Yes ___No

INVOICE INFORMATION
PO #
BILL TO: Olin

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature Max Lifton	Signature UPS	Signature	Signature	Signature	Signature
Printed Name Max Lifton	Printed Name Gregory D. Esmerian	Printed Name	Printed Name	Printed Name	
Firm Sevenson	Firm A/S	Firm	Firm	Firm	
Date/Time 9/21/22 1500	Date/Time 9/22/22 0945	Date/Time	Date/Time	Date/Time	

Distribution: White - Lab Copy; Yellow - Return to Originator

R2209021 5
Olin Corporation
Charles Gibson - Olin

Gibson Fall Ground Water Monitoring and Sampling Narrative

9/20/22

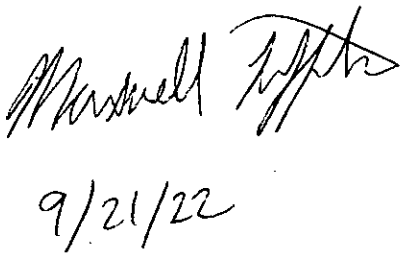
Well MW-A3 was dry upon arrival. No sample taken from this well. Monitoring well MW-4 was pumped dry during purging before sample collection. Well MW-5 was sampled at 1626.

9/21/22

Sevenson returned to site to sample recharge at well MW-4 at 1205. MH-B sampled at 1115, and MS/MSD volumes were taken here. Field Blank sampled were taken at 1131. MW-7 was sampled at 1300.

Creek sediment samples were also taken today, upstream at 0950, midstream at 0845, and downstream at 0900.

This narrative will be sent to ALS along with the sample COCs.



9/21/22

Cooler Receipt and Preserva

R2209021 5
Olin Corporation
Charles Gibson - Olin

Project/Client Severson Folder Numbe

Cooler received on 9/22/22 by: JR

COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: (**Wet Ice**) **Dry Ice Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate?	(ALS/ROC)		CLIENT
7	Soil VOA received as: Bulk Encore 5035set			(NA)

8. Temperature Readings Date: 9/22/22 Time: 09:55 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.3	4.6					
Within 0-6°C?	(Y) N	(Y) N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by JR on 9/22/22 at 10:05
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 09/23/22 Time: 1058 by: AL

9.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
10.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
11.	Were correct containers used for the tests indicated?	(YES)	NO
12.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO
13.	Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized		Tedlar® Bags Inflated (N/A) (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 080822-1SR
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: AL
PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2209021
Project: Charles Gibson - Olin/1283

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2209021-001.01					
	ALS SOP				
		9/23/2022	1056	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
R2209021-001.02					
	8081B,8081B				
		9/23/2022	1059	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
		10/6/2022	0915	In Lab / JVANHEYNINGEN	
		10/6/2022	1626	R-002 / JVANHEYNINGEN	
R2209021-002.01					
	ALS SOP				
		9/23/2022	1056	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
R2209021-002.02					
	8081B,8081B				
		9/23/2022	1059	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
		10/6/2022	0915	In Lab / JVANHEYNINGEN	
		10/6/2022	1627	R-002 / JVANHEYNINGEN	
R2209021-003.01					
	ALS SOP				
		9/23/2022	1056	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
R2209021-003.02					
	8081B,8081B				
		9/23/2022	1059	SMO / ALUGO	
		9/23/2022	1059	R-002 / ALUGO	
		10/6/2022	0915	In Lab / JVANHEYNINGEN	
		10/6/2022	1627	R-002 / JVANHEYNINGEN	

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Accreditations[1]

NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Olin Corporation **Service Request:** R2209021
Project: Charles Gibson - Olin/1283

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
ALS SOP	Soil	Total Solids

Client: Olin Corporation **Service Request:** R2209021
Project: Charles Gibson - Olin/1283

Sample Name: US-1-092122 **Date Collected:** 09/21/22
Lab Code: R2209021-001 **Date Received:** 09/22/22
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
ALS SOP		KAWONG

Sample Name: US-1-092122 **Date Collected:** 09/21/22
Lab Code: R2209021-001.R01 **Date Received:** 09/22/22
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER

Sample Name: MS-1-092122 **Date Collected:** 09/21/22
Lab Code: R2209021-002 **Date Received:** 09/22/22
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
ALS SOP		KAWONG

Sample Name: MS-1-092122 **Date Collected:** 09/21/22
Lab Code: R2209021-002.R01 **Date Received:** 09/22/22
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283		

Sample Name:	DS-1-092122	**Date Collected:**	09/21/22
Lab Code:	R2209021-003	**Date Received:**	09/22/22
Sample Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER
ALS SOP		KAWONG

Sample Name:	DS-1-092122	**Date Collected:**	09/21/22
Lab Code:	R2209021-003.R01	**Date Received:**	09/22/22
Sample Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
8081B	JVANHEYNINGEN	AFELSER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:50
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	US-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-001	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	68	5	10/19/22 20:03	10/6/22	*
beta-BHC	ND U	68	5	10/19/22 20:03	10/6/22	*
delta-BHC	ND U	68	5	10/19/22 20:03	10/6/22	*
gamma-BHC (Lindane)	ND U	68	5	10/19/22 20:03	10/6/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	61	10 - 145	10/19/22 20:03	
Tetrachloro-m-xylene	68	10 - 123	10/19/22 20:03	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:50
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	US-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-001	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	66	5	10/04/22 17:14	9/29/22	
beta-BHC	ND U	66	5	10/04/22 17:14	9/29/22	
delta-BHC	ND U	66	5	10/04/22 17:14	9/29/22	
gamma-BHC (Lindane)	ND U	66	5	10/04/22 17:14	9/29/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	34	10 - 145	10/04/22 17:14	
Tetrachloro-m-xylene	53	10 - 123	10/04/22 17:14	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 08:45
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	MS-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-002	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	84	5	10/19/22 20:22	10/6/22	*
beta-BHC	ND U	84	5	10/19/22 20:22	10/6/22	*
delta-BHC	ND U	84	5	10/19/22 20:22	10/6/22	*
gamma-BHC (Lindane)	ND U	84	5	10/19/22 20:22	10/6/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	79	10 - 145	10/19/22 20:22	
Tetrachloro-m-xylene	92	10 - 123	10/19/22 20:22	

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 08:45
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	MS-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-002	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	81	5	10/04/22 18:12	9/29/22	
beta-BHC	ND U	81	5	10/04/22 18:12	9/29/22	
delta-BHC	ND U	81	5	10/04/22 18:12	9/29/22	
gamma-BHC (Lindane)	ND U	81	5	10/04/22 18:12	9/29/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	43	10 - 145	10/04/22 18:12	
Tetrachloro-m-xylene	73	10 - 123	10/04/22 18:12	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:00
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	DS-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-003	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	79	5	10/19/22 20:41	10/6/22	*
beta-BHC	ND U	79	5	10/19/22 20:41	10/6/22	*
delta-BHC	ND U	79	5	10/19/22 20:41	10/6/22	*
gamma-BHC (Lindane)	ND U	79	5	10/19/22 20:41	10/6/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	68	10 - 145	10/19/22 20:41	
Tetrachloro-m-xylene	64	10 - 123	10/19/22 20:41	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:00
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	DS-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-003	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	81	5	10/04/22 18:31	9/29/22	
beta-BHC	ND U	81	5	10/04/22 18:31	9/29/22	
delta-BHC	ND U	81	5	10/04/22 18:31	9/29/22	
gamma-BHC (Lindane)	ND U	81	5	10/04/22 18:31	9/29/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	41	10 - 145	10/04/22 18:31	
Tetrachloro-m-xylene	70	10 - 123	10/04/22 18:31	

General Chemistry

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Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:50
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	US-1-092122	**Basis:**	As Received
Lab Code:	R2209021-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**37.3**	Percent	-	1	10/03/22 08:15	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 08:45
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	MS-1-092122	**Basis:**	As Received
Lab Code:	R2209021-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**29.7**	Percent	-	1	10/03/22 08:15	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22 09:00
Sample Matrix:	Soil	**Date Received:**	09/22/22 09:45
Sample Name:	DS-1-092122	**Basis:**	As Received
Lab Code:	R2209021-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**31.1**	Percent	-	1	10/03/22 08:15	

QC Summary Forms

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Client: Olin Corporation **Service Request:** R2209021
Project: Charles Gibson - Olin/1283
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10-145	Tetrachloro-m-xylene 10-123
US-1-092122	R2209021-001	34	53
US-1-092122 RE	R2209021-001	61	68
MS-1-092122	R2209021-002	43	73
MS-1-092122 RE	R2209021-002	79	92
DS-1-092122	R2209021-003	41	70
DS-1-092122 RE	R2209021-003	68	64
Method Blank	RQ2211875-01	45	24
Method Blank	RQ2212245-08	107	86
Lab Control Sample	RQ2211875-02	45	26
Duplicate Lab Control Sample	RQ2211875-03	44	27
Lab Control Sample	RQ2212245-09	102	82
Duplicate Lab Control Sample	RQ2212245-10	78	52
US-1-092122 MS	RQ2211875-08	35	82
US-1-092122 DMS	RQ2211875-09	34	77

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	09/21/22
Sample Matrix:	Soil	**Date Received:**	09/22/22
		Date Analyzed:	10/4/22
		Date Extracted:	09/29/22

Duplicate Matrix Spike Summary
Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Sample Name:	US-1-092122	**Units:**	ug/Kg
Lab Code:	R2209021-001	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike			Duplicate Matrix Spike					
		RQ2211875-08			RQ2211875-09					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	ND U	ND U	53.4	0 *	43.3 J	51.8	84	10-149	NC	30
beta-BHC	ND U	75.3	53.4	141	70.5	51.8	136	10-162	7	30
delta-BHC	ND U	ND U	53.4	0 *	ND U	51.8	0 *	10-157	NC	30
gamma-BHC (Lindane)	ND U	ND U	53.4	0 *	37.4 J	51.8	72	10-170	NC	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2211875-01	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	1.7	1	10/03/22 16:50	9/29/22	
beta-BHC	ND U	1.7	1	10/03/22 16:50	9/29/22	
delta-BHC	ND U	1.7	1	10/03/22 16:50	9/29/22	
gamma-BHC (Lindane)	ND U	1.7	1	10/03/22 16:50	9/29/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	45	10 - 145	10/03/22 16:50	
Tetrachloro-m-xylene	24	10 - 123	10/03/22 16:50	

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2209021
Project:	Charles Gibson - Olin/1283	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2212245-08	**Basis:**	Dry

Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	1.7	1	10/19/22 18:26	10/6/22	
beta-BHC	ND U	1.7	1	10/19/22 18:26	10/6/22	
delta-BHC	ND U	1.7	1	10/19/22 18:26	10/6/22	
gamma-BHC (Lindane)	ND U	1.7	1	10/19/22 18:26	10/6/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	107	10 - 145	10/19/22 18:26	
Tetrachloro-m-xylene	86	10 - 123	10/19/22 18:26	

Client: Olin Corporation
Project: Charles Gibson - Olin/1283
Sample Matrix: Soil

Service Request: R2209021
Date Analyzed: 10/03/22

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2211875-02			RQ2211875-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	8081B	1.51 J	6.58	23 *	1.60 J	6.66	24 *	28-145	6	30
beta-BHC	8081B	2.81	6.58	43	2.81	6.66	42	38-144	<1	30
delta-BHC	8081B	3.39	6.58	52	3.03	6.66	46	30-153	11	30
gamma-BHC (Lindane)	8081B	1.87	6.58	28 *	1.98	6.66	30 *	32-145	6	30

Client: Olin Corporation
Project: Charles Gibson - Olin/1283
Sample Matrix: Soil

Service Request: R2209021
Date Analyzed: 10/19/22

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography using Microwave Extraction

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2212245-09			RQ2212245-10					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	8081B	5.11	6.66	77	3.44	6.64	52	28-145	39*	30
beta-BHC	8081B	5.76	6.66	87	4.23	6.64	64	38-144	31*	30
delta-BHC	8081B	2.93	6.66	44	3.91	6.64	59	30-153	29	30
gamma-BHC (Lindane)	8081B	5.06	6.66	76	3.68	6.64	56	32-145	31*	30

Data Evaluation Narrative
Charles Gibson – September 2022 Sediment Sampling Event

SDG: R2209021 – ALS Environmental, Rochester, NY

Deliverables
The data package as submitted to Olin Corporation is complete as stipulated under the Quality Assurance Project Plan (QAPP) for the site. United States Environmental Protection Agency (USEPA) Method 8081B was utilized in laboratory testing of samples. The ALS Standard Operating Procedure (SOP) was utilized to obtain percent solids of sediment samples to report results on a dry weight basis.

Sample Integrity
Samples within this sample delivery group (SDG) were submitted to the ALS Environmental Laboratory in Rochester, NY for site-specific chlorinated pesticides and percent solids analyses. The sample cooler temperature measured within the specified temperature limits upon arrival at the laboratory. The proper containers were used, the Chain of Custody was properly relinquished, and the correct analytical methods were employed.

Sample Identification
This SDG contains the following sediment samples collected September 21, 2022:

SDG R2209021:

Sample ID	Sample ID	Sample ID
US-1-092122	MS-1-092122*	DS-1-092122

* Blind Field Duplicate of DS-1-092122

Chlorinated Pesticides (8081B)
The samples in this SDG were submitted for site-specific chlorinated pesticides analysis by USEPA Method 8081B.

Holding Times:
The extraction and analytical logs indicate that initial applicable holding times were met for samples submitted for chlorinated pesticide analysis. Samples were re-extracted one day behold hold time due to a QC failure in the Laboratory Control Standard (LCS).

Calibration:
The initial calibration data for this SDG indicates that the applicable calibration criteria were met for samples submitted for chlorinated pesticide analysis. Two associated continuing calibration verification (CCV) samples had recoveries slightly above the upper laboratory control limit for 1 of 4 BHC compounds; since no analytes were detected above the method reporting limit (MRL) no data qualification was deemed necessary by professional judgment. The column breakdowns for Endrin and DDT were assessed, and the percent degradation was within QC limits each day that samples were analyzed.

Surrogate Recoveries:
The surrogate recoveries were within laboratory QC guidelines.

Blank Summary:
The analytical results of the laboratory method blanks indicate that chlorinated pesticides were not detected.

Laboratory Control Sample (LCS) and LCS Duplicate (LCSD):
The LCS and LCSD spike recoveries for alpha-BHC and gamma-BHC were slightly below the laboratory control limits in the original LCS/LCSD results. The relative percent differences (RPDs) for three of the four pesticides were slightly above the laboratory control limit of 30 in the reanalysis LCS/LCSD results; the percent recoveries were within control guidelines.

Second Column Confirmation:
The laboratory utilized a second column confirmation for the analysis of chlorinated pesticides. The confirmation results were within QC guidelines for the LCS/LCSD and performance evaluation mixture (PEM) samples.

Duplicate Sample:
According to the sampler, MS-1-092122 was a blind field duplicate of US-1-092122. All site-specific pesticides were non-detect in the parent sample and field duplicate.

Reporting Limits:
The reporting limits were elevated for all pesticide compounds analyzed since the sample extracts were diluted 5X due to elevated levels of non-target background concentrations.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS/MSD analyses were performed on project sample US-1-092122. The recoveries were below the laboratory control limits in three of the four pesticides for either the MS and/or the MSD. However, the analyses required dilutions such that the added spike concentrations were diluted outside of a useable level. No data qualification based on the spike recoveries was thus warranted by professional judgment.

Accepted Results:
Two sets of data were reported by the laboratory—the original results extracted within hold time and the results from the re-extraction performed beyond hold time. Both sets of data were non-detect (ND) for all pesticides. By professional judgment, the original results were accepted with the added qualifier (UJ) signifying an estimated reporting limit for the two compounds with low LCS recoveries.

Sample ID	Compounds	Final Result
US-1-092122	Alpha-BHC, Gamma-BHC	66 (UJ) µg/Kg
MS-1-092122	Alpha-BHC, Gamma-BHC	81 (UJ) µg/Kg
DS-1-092122	Alpha-BHC, Gamma-BHC	81 (UJ) µg/Kg

Percent Total Solids
The three sediment samples were analyzed for Percent Total Solids by the ALS SOP to report the results on a dry weight basis. The relative percent difference (RPD) for the duplicate pair (DS-1/MS-1) was 4.6.

Overall Site Evaluation and Professional Judgment Flagging Changes

The data within this SDG were compared to site data and edits to the DQE flags were required based on professional judgment as detailed above. Monitoring period completeness, which is the percentage of analytical results judged valid, including estimated values, was 100 percent for the September 2022 sampling event. Typically, project objectives are met when completeness is 90 percent or better.

Prepared by: *Randy T. Morris* Date: *December 20, 2022*