



Environmental Remediation Group

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SENT VIA OVERNIGHT COURIER AND FILE TRANSFER PORTAL

June 11, 2021

Mr. Brian Sadowski
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

**Re: Charles Gibson Site, Niagara Falls, New York
Site No. 932063
Annual Periodic Review Report Revision – 2020
Post Closure Operation, Maintenance, and Monitoring Activities**

Dear Mr. Sadowski:

Olin hereby submits a CD containing a PDF of the 2020 Annual Periodic Review Report on the Post-Closure Operation, Maintenance, and Monitoring activities for the Charles Gibson Site. The annual certification is attached as hard copy and as part of the PDF. The full document is also available via Olin's File Transfer Portal.

Please direct any questions or comments to me at 423/336-4057 or by email at abcarringer@olin.com.

Sincerely,
OLIN CORPORATION

A handwritten signature in black ink, appearing to read 'Adam B. Carringer', written in a cursive style.

Adam Carringer
Sr. Environmental Specialist

**Charles Gibson Site
Site No. 932063
Periodic Review Report Revision**

June 11, 2021

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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 2019 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 2020 monitoring year indicates that the containment remedy is effective. Drawdown in both manholes was effectively maintained.

IV. **IC/EC PLAN**

IC/EC Requirements:

Fence is in place around the landfill, effectively restricting access

Clean soil cover is in place on the landfill, restricting infiltration and promoting runoff

A hydraulic control system is in place, effectively controlling groundwater flow direction

Certification:

Attachment A

V. **MONITORING PLAN COMPLIANCE REPORT**

Components of Monitoring Plan:

Operation, maintenance, and monitoring activities to be performed 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 10.27 feet and 12.41 feet, respectively to ensure that the automatic sump pump is functioning.

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**.

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 BHC isomers only. Sample collection and analysis of creek sediments are performed annually during the second half of the calendar year. The fall 2019 data appeared to be an outlier while the downstream collection point did not have any sample, so we resampled in the spring of 2020. Results for the upstream sample dropped by an order of magnitude while the downstream data was within historic ranges. The fall 2020 data showed no detections in either the upstream and downstream locations (**Table 3**).

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 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 2020 shows that the spring elevations have remained consistent with all piezometers (**Table 6**). 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 4 and Table 4B shows the most recent piezometric data and graphs.

Deficiencies:

None

Recommendations for Changes:

Olin lowered the wet well set points on the system controls in the spring of 2020 which resulted in inward gradients being achieved for the spring season. We are exploring options to reset the set point on the controls seasonally so we can more effectively capture the inward gradient in the fall.

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 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.

O&M deficiencies:

None

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. 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 concentrations of BHC that are not typical.

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.

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 No. 932063

Site Details

Box 1

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, 2020 to January 31, 2021

1. Is the information above correct?

YES NO



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

Description of Institutional Controls

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
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.

Description of Engineering Controls

<u>Parcel</u>	<u>Engineering Control</u>
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.

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 complete.

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 3855 N. Oace St. 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.

Adam B. Carringer
Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification

2/25/2021
Date

EC CERTIFICATIONS

Qualified Environmental Professional Signature

Box 7

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 at 3855 N. OGDEN ST. STE 200, CLEVELAND
print name print business address TN 37311

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)

3/1/2021
Date

Attachment B

**Site Features Map
Figure 1**



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

Attachment C

Field Sampling Forms

Horriba Calibration

Horriba u-52

Model number TPJ17T2S

Before Calibration

Temp 18.20 C

pH 4.04

ORP 222

SPEC COND 4.58 mS/cm

After Calibration

Temp 18.49 C

pH 3.97

ORP 267

SPEC COND 4.49 mS/cm

Calibration Solution

Code: UEAC6004-P

Lot # : 0GH063

Expires : Aug21

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

RECORDED BY: CHRIS JONES SAMPLE ID: US-1-051820
SAMPLED BY: CHRIS JONES SAMPLING EVENT/DATE: SEDIMENT
COMPANY: SEVENSON 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: 5/18/20

MEDIA: GROUNDWATER
CREEK SEDIMENT X

SAMPLE TIME: 10:15

LOCATION: UP STREAM

SAMPLE METHOD: SEDIMENT TRAP

SAMPLING OBSERVATIONS:

QC SAMPLES TAKEN: A DUPLICATE WAS TAKEN HERE LABELED MS-1-051820 945

OTHER OBSERVATIONS/COMMENTS: SAMPLE TAKEN AT 10:15 ON 5/18/20

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

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

RECORDED BY: Chris Jones SAMPLE ID: DS-01-051820
SAMPLED BY: Chris Jones SAMPLING EVENT/DATE: SEDIMENT
COMPANY: SEVENSON 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)

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:

BOTTOM OF WELL/SILT BUILDUP:

PURGE START TIME:

STOP TIME:

PURGE OBSERVATIONS:

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: 5/18/20

MEDIA: GROUNDWATER
CREEK SEDIMENT

SAMPLE TIME: 930

LOCATION: Down Stream

SAMPLE METHOD: SEDIMENT TRAP

SAMPLING OBSERVATIONS:

QC SAMPLES TAKEN:

OTHER OBSERVATIONS/COMMENTS: SAMPLED AT 930 ON 5/18/20

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

60754

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

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

RECORDED BY: CHRIS JONES
SAMPLED BY: CHRIS JONES
COMPANY: SEVENSON

SAMPLE ID: US-1-092220
SAMPLING EVENT/DATE: 9/22/20
MONITORING WELL: N/A
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:

PURGE OBSERVATIONS:

STOP TIME:

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: 9/22/20

MEDIA: GROUNDWATER
CREEK SEDIMENT X

SAMPLE TIME: 950

LOCATION: UPSTREAM

SAMPLE METHOD: SEDIMENT TRAP

SAMPLING OBSERVATIONS: LIMITED VOLUME

QC SAMPLES TAKEN: NONE

OTHER OBSERVATIONS/COMMENTS:

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

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

RECORDED BY: CHRIS JONES

SAMPLE ID: DS-1-092220

SAMPLED BY: CHRIS JONES

SAMPLING EVENT/DATE: 9/22/20

COMPANY: SEVENSON

MONITORING WELL: N/A

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)

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:

BOTTOM OF WELL/SILT BUILDUP:

PURGE START TIME:

STOP TIME:

PURGE OBSERVATIONS:

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: 9/22/20

MEDIA: GROUNDWATER
CREEK SEDIMENT X

SAMPLE TIME: 1015

LOCATION: DOWNSTREAM

SAMPLE METHOD: SEDIMENT TRAP

SAMPLING OBSERVATIONS: LIMITED VOLUME

QC SAMPLES TAKEN: A BLIND DUP WAS TAKEN HERE LABELED MS-1-092220

OTHER OBSERVATIONS/COMMENTS:

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

[illegible]

Distribution. White - Lab Copy. Yellow - Return to Originator

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

RECORDED BY: JONES
 SAMPLED BY: JONES
 COMPANY: SEVENSON

SAMPLE ID: MW-5 / 092820
 SAMPLING EVENT/DATE: Annual 9/23/20
 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: 11.63 (FT.)
 WATER COLUMN: 3.65 (FT.)
 2" DIA. WELL CONSTANT: 0.16
 ONE WELL VOLUME= 0.58 (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:
 BOTTOM OF WELL/SILT BUILDUP:
 PURGE START TIME:
 PURGE OBSERVATIONS:

STOP TIME:

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY <u>umhos/cm</u> (25°C)	TEMP. (C OR F)	NOTES:
INT #	6.39	1.95	15.23 C	slightly turbid
1 2	6.43	1.69	15.10	yellow tint
2 3	6.45	1.66	15.15	clear
3 4	6.47	1.66	15.05	clear
5	6.49	1.66	14.87	clear

Dily 1

TOTAL VOLUME PURGED: approx 1.5 galls

RETURNED ~ 9/28/20 TO SAMPLE

GROUNDWATER OR SEDIMENT SAMPLING DATA:

SAMPLE DATE: 9/28/20

MEDIA: GROUNDWATER x
 CREEK SEDIMENT

SAMPLE TIME: 900

LOCATION: MW-5

SAMPLE METHOD: PERISTALTIC PUMP / DEDICATED TUBING

SAMPLING OBSERVATIONS: CLEAR

QC SAMPLES TAKEN: ms / msd taken here

OTHER OBSERVATIONS/COMMENTS:

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

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

RECORDED BY: JONES
 SAMPLED BY: CHRIS JONES
 COMPANY: SEVENSON

SAMPLE ID: MW-4-092820
 SAMPLING EVENT/DATE: Annual 9/28/20
 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: 8.27 (FT.)
 WATER COLUMN: 5.48 (FT.)
 2" DIA. WELL CONSTANT: 0.16
 ONE WELL VOLUME = .87 (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 13.78'
 MW-5 15.28'

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

STOP TIME:

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME	pH	SPECIFIC CONDUCTIVITY <small>(µmhos/cm) m/cm</small>	TEMP. (C OR F)	NOTES:
<u>1.0</u>	<u>6.73</u>	<u>1.77</u>	<u>15.28</u>	<u>TURBID. AUTO IN NS</u>
<u>1.8</u>	<u>6.98</u>	<u>1.42</u>	<u>15.82</u>	<u>CLEAN</u>
<u>2.8</u>	<u>6.95</u>	<u>1.62</u>	<u>15.97</u>	<u>CLEAN</u>
<u>3.4</u>				
<u>4.5</u>	<u>Dry</u>			

TOTAL VOLUME PURGED: WELL WENT DRY. RETURNED ON 9/28/20 TO SAMPLE RECHARGE

GROUNDWATER OR SEDIMENT SAMPLING DATA:

SAMPLE DATE: 9/28/20

MEDIA: GROUNDWATER X
 CREEK SEDIMENT

SAMPLE TIME: 925

LOCATION: MW-4 OR AUTO-2000 PROPERTY

SAMPLE METHOD: PERMEABLE PUMP / DEDICATED TUBING

SAMPLING OBSERVATIONS: SOME BLACK SEDIMENT IN SAMPLE

QC SAMPLES TAKEN: BLIND DUP " MW-1 " TAKEN HERE 940

OTHER OBSERVATIONS/COMMENTS: FIELD ANALOG 092820 TAKEN AT 845

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

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

RECORDED BY: JONES SAMPLE ID: MW-A3
SAMPLED BY: JONES SAMPLING EVENT/DATE: Annual
COMPANY: SEVENSON 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: Dry (FT.)

WATER COLUMN: _____ (FT.)

2" DIA. WELL CONSTANT: 0.16

ONE WELL VOLUME= _____ (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:

BOTTOM OF WELL/SILT BUILDUP:

PURGE START TIME:

STOP TIME:

PURGE OBSERVATIONS:

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: _____

SAMPLE METHOD: _____

SAMPLING OBSERVATIONS: _____

QC SAMPLES TAKEN: _____

OTHER OBSERVATIONS/COMMENTS: No sample Dry

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

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

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

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! OF !

[illegible]

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: 3-16-20 TIME: 12⁰⁰

INSPECTOR: WALKER COMPANY: SEVENSON

WEATHER: SUNNY 38° F

REASON FOR INSPECTION (QUARTERLY OR OTHER): Replace Backup Battery in Auto Dialer

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 occurrences.)

		COMMENTS
ACCESS ROAD	<u>A</u>	
COVER VEGETATION	<u>A</u>	
TREES	<u>A</u>	
LITTER	<u>A</u>	
EROSION (CAP)	<u>A</u>	
EROSION (BANK)	<u>A</u>	
SECURITY:		
FENCE/LOCKS	<u>A</u>	
PIEZOMETERS/LOCKS	<u>A</u>	
MONITORING WELLS/LOCKS	<u>A</u>	
MANHOLES/LIDS/LOCKS	<u>A</u>	
ELECTRICAL PANEL	<u>A</u>	

ADDITIONAL COMMENTS: WALKER ON SITE WITH TEMP-PRESS INC
REPRESENTATIVES TO REPLACE THE BACKUP BATTERY IN THE
AUTO DIALER. I ALSO DID A PERIMETER SITE WALK
INSPECTION TO CHECK OUT THE SITE. ALL LOOKED GOOD.

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: 3/19/20 TIME: 800

INSPECTOR: CARUS JONES COMPANY: SEVENSON

WEATHER: 36° cloudy

REASON FOR INSPECTION (QUARTERLY OR OTHER): 1st QUARTER 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 occurrences.)

COMMENTS

ACCESS ROAD	<u>A</u>	
COVER VEGETATION	<u>A</u>	
TREES	<u>A</u>	
LITTER	<u>A</u>	
EROSION (CAP)	<u>A</u>	
EROSION (BANK)	<u>A</u>	
SECURITY:		
FENCE/LOCKS	<u>A</u>	
PIEZOMETERS/LOCKS	<u>A</u>	
MONITORING WELLS/LOCKS	<u>A</u>	
MANHOLES/LIDS/LOCKS	<u>A</u>	
ELECTRICAL PANEL	<u>A</u>	

ADDITIONAL COMMENTS:

SITE WAS SECURE UPON ARRIVAL. LOCKS WERE USED.

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: 5-18-20 TIME: 9:30 AM

INSPECTOR: M WALKER COMPANY: SEVENSON

WEATHER: Partly Cloudy 53°F

REASON FOR INSPECTION (QUARTERLY OR OTHER): 2nd Quarterly site inspection 2020

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 occurrences.)

COMMENTS

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

SOME BARE SPOTS ON CAP DEVELOPING
SOME BARE SPOTS ON CAP - NO EROSION

SECURITY:

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

Junction Box under flow meter @ WWB CRACKED

ADDITIONAL COMMENTS:

Site look good overall, all locks secured upon
arrival. Perimeter fence in good shape. Plastic junction box under
flow meter at WWB has cracked off of its support studs, but REMAINS
WATER-TIGHT + SECURE. MANHOLES, PIEZOMETERS ARE LOCKED + IN
good repair.

M. Walker

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: 9/22/20 TIME: 900

INSPECTOR: CHRIS JONES COMPANY: SEVENSON

WEATHER: 70° SUNNY

REASON FOR INSPECTION (QUARTERLY OR OTHER): ANNUAL CREEK BED SAMPLING
ANNUAL GW SAMPLING
3rd QUARTER 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 occurrences.)

		COMMENTS
ACCESS ROAD	<u>A</u>	
COVER VEGETATION	<u>A</u>	
TREES	<u>A</u>	
LITTER	<u>A</u>	
EROSION (CAP)	<u>A</u>	
EROSION (BANK)	<u>A</u>	
SECURITY:		
FENCE/LOCKS	<u>A</u>	
PIEZOMETERS/LOCKS	<u>A</u>	
MONITORING WELLS/LOCKS	<u>A</u>	
MANHOLES/LIDS/LOCKS	<u>A</u>	
ELECTRICAL PANEL	<u>A</u>	

ADDITIONAL COMMENTS:

UPON ARRIVAL TWO TENTS AND VARIOUS DEBRIS WERE FOUND ON
SITE PROPERTY. MIKE WALKER FROM SEVENSON ALERTED CRAIG FROM
OWN SECURITY. NIAGARA FALLS PD SHOWED UP FOLLOWED BY THE
TOWN OF NIAGARA PD. THE TOWN STATED THEY KNEW THE PERSON
WHO OWNED THE PROPERTY AND WERE GOING TO ADVISE HIM TO MOVE IT.

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: 11/12/20 TIME: 900

INSPECTOR: CHRIS JONES COMPANY: SEVENSON

WEATHER: 43° cloudy

REASON FOR INSPECTION (QUARTERLY OR OTHER): 4th QUARTER

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 occurrences.)

		COMMENTS
ACCESS ROAD	<u>A</u>	
COVER VEGETATION	<u>A</u>	
TREES	<u>A</u>	
LITTER	<u>A</u>	<u>FILLED UP A GARBAGE BAG OF LITTER</u>
EROSION (CAP)	<u>A</u>	
EROSION (BANK)	<u>A</u>	
SECURITY:		
FENCE/LOCKS	<u>A</u>	<u>REPAIRED 6' SECTION OF STOCKADE FENCE</u>
PIEZOMETERS/LOCKS	<u>A</u>	
MONITORING WELLS/LOCKS	<u>A</u>	
MANHOLES/LIDS/LOCKS	<u>A</u>	
ELECTRICAL PANEL	<u>A</u>	

ADDITIONAL COMMENTS:

UPON ARRIVAL SEVENSON NOTICED A SIX FOOT SECTION OF
THE STOCKADE FENCE DOWN. THE CHAIN-LINK FENCE WAS STILL
IN TACT. REPAIRS WERE MADE TO FENCE. LAST INSPECTION SEVENSON
DOCUMENTED THERE WERE A COUPLE OF TENTS ON PROPERTY, THE
POLICE CAME OUT TO THE SITE AND SAID THEY WOULD TAKE CARE OF IT.
THE TENTS WERE STILL ON PROPERTY.

Tables

TABLE 1
CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

ANALYTICAL SUMMARY
GROUND WATER SAMPLING 2014-2020

MONITOR WELL: MW-A3

	2014		2015		2016		2017		2018		2019		2020	
Parameter	April	September	May	September	May	September	May	September	May	September	May	September	May	September
Alpha-BHC	NR	0.047U	0.047U	NR	NR	-	0.047U	NR	NR	-	-	NR	NR	-
Beta-BHC	NR	0.047U	0.047U	NR	NR	-	0.047U	NR	NR	-	-	NR	NR	-
Gamma-BHC	NR	0.047U	0.047U	NR	NR	-	0.047U	NR	NR	-	-	NR	NR	-
Delta-BHC	NR	0.047U	0.047U	NR	NR	-	0.047U	NR	NR	-	-	NR	NR	-
Hexachlorobenzene	NR	9.4U	NR	NR	NR	-	NR	NR	NR	-	-	NR	NR	-

MONITOR WELL: MW-4

	2014		2015		2016		2017		2018		2019		2020	
Parameter	April	September	May	September	May	September	May	September	May	September	May	September	May	September
Alpha-BHC	NR	0.047U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.13	NR	NR	0.047U
Beta-BHC	NR	0.047U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.047U	NR	NR	0.047U
Gamma-BHC	NR	0.047U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.48	NR	NR	0.047U
Delta-BHC	NR	0.047U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.18	NR	NR	0.047U
Hexachlorobenzene	NR	9.4U	NR	NR	NR	10U	NR	NR	NR	9.4U	NR	NR	NR	9.4U

MONITOR WELL: MW-5

	2014		2015		2016		2017		2018		2019		2020	
Parameter	April	September	May	September	May	September	May	September	May	September	May	September	May	September
Alpha-BHC	NR	0.050U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.1	NR	NR	0.047U
Beta-BHC	NR	0.050U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.047U	NR	NR	0.047U
Gamma-BHC	NR	0.050U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.41	NR	NR	0.047U
Delta-BHC	NR	0.050U	0.047U	NR	NR	0.056U	0.047U	NR	NR	0.047U	0.25	NR	NR	0.047U
Hexachlorobenzene	NR	9.4U	NR	NR	NR	10U	NR	NR	NR	9.4U	NR	NR	NR	9.4U

Notes: Concentration in ug/l

- insufficient sample

U Undetected

J Estimated value

NR Not required

Table 2
Annual Manhole B Sampling

CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

ANALYTICAL RESULTS SUMMARY
ANNUAL LEACHATE SAMPLING

September 28, 2020

	MANHOLE B (MHB)
PARAMETER	
alpha-BHC	0.057U
beta-BHC	0.25
delta-BHC	2.2
gamma-BHC	0.057U
Hexachlorobenzene	10U

Notes:

U Undetected

J Estimated value

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 2022

TABLE 3
Charles Gibson Site
Niagara Falls, New York

ANALYTICAL SUMMARY

Annual Cayuga Creek Sediment Sampling 2010 - 2020

UPSTREAM

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Parameter	September	September	September	September	September	September	September	September	September	September	May	September
Alpha- BHC	94	200J	17	170J	120	NS	9.7	200	57U	3200	270	32U
Beta- BHC	97	120J	48	190J	280	NS	25	190	57U	1100	350	32U
Gamma- BHC	33J	190U	5.5U	28U	49U	NS	5.6U	51U	57U	510U	59U	32U
Delta- BHC	52J	140J	23	28U	49U	NS	19	51U	57U	510U	59U	32U

DOWNSTREAM

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Parameter	September	September	September	September	September	September	September	September	September	September	May	September
Alpha- BHC	53J	230J	9.8	29U	55	52U	7	69U	63U	NS	73U	40U
Beta- BHC	62J	130J	37	89	100	76	18	87	63U	NS	110	40U
Gamma- BHC	63U	220U	5.9U	29U	52U	52U	4.9U	69U	63U	NS	73U	40U
Delta- BHC	56J	170J	18	29U	52U	52U	15	69U	63U	NS	73U	40U

Notes:

Concentration in microgram per kilogram (ug/kg)

U Not Detected

J Estimated value

NS No sample in trap

Table 4
2020 Quarterly Groundwater Elevations Summary

Piezometer Pair	3/19/2020	Inward gradient	5/18/2020	Inward gradient	9/22/2020	Inward gradient	11/12/2020	Inward gradient
P1 outside P2 inside	565.57 566.69	Outward	566.49 565.55	Inward	563.89 565.36	Outward	563.02 565.17	Outward
P3 outside P4 inside	568.44 566.59	Inward	567.55 565.41	Inward	563.63 565.19	Outward	562.54 564.89	Outward
P5 outside P6 inside	569.24 567.78	Inward	568.85 567.58	Inward	566.49 566.62	Outward	565.75 566.16	Outward
		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl
Manhole A Manhole B	566.53 566.62	No No	560.67 560.72	Yes Yes	561.88 561.98	Yes Yes	562.03 562.09	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 4B - Groundwater Elevations Data

PIEZOMETER								
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	565.5	567.55	565.44	569.84	567.99	564.13	564.17
9/11/2008	566.13	565.28	566.31	565.2	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	568.6	567.58	563.67	563.74
11/23/2009	565.31	565.29	566.41	565.24	568.7	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	566.4	565.2	564.91	565.07	567.23	566.93	564.2	563.68
11/11/2010	564.53	565.16	565.57	565.02	567.4	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	565.5	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	563.4
3/15/2012	565.36	565.54	568.25	565.34	569.23	567.75	564.21	567.27
5/22/2012	566.01	565.5	567.4	565.46	569.01	567.75	563.4	563.49
9/17/2012	564.5	565.26	564.37	565.16	566.77	566.8	563.47	563.53
11/9/2012	564.51	565.38	568.28	565.22	568.4	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	567.7	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	565.5	565.5	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	563.5	563.56
3/11/2015	565.15	564.68	567.45	565.15	568.39	567.07	568.8	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	565.4	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	565.5	568.6	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	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	566.6	567.33	563.4	563.49
11/21/2017	565.01	565.51	569.92	565.43	569.24	567.6	563.52	563.6
3/13/2018	565.64	565.54	568.64	565.49	568.26	567.77	563.77	563.79
5/24/2018	565.9	565.53	567.21	565.35	568.7	567.57	563.24	563.31
9/25/2018	564.33	565.34	563.86	569.13	566.2	567.12	563.1	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	563.9	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	567.9	567.17	562.94	563.03
11/6/2019	564.74	565.4	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

NA-Not Available

Table 4B - Groundwater Elevations Data

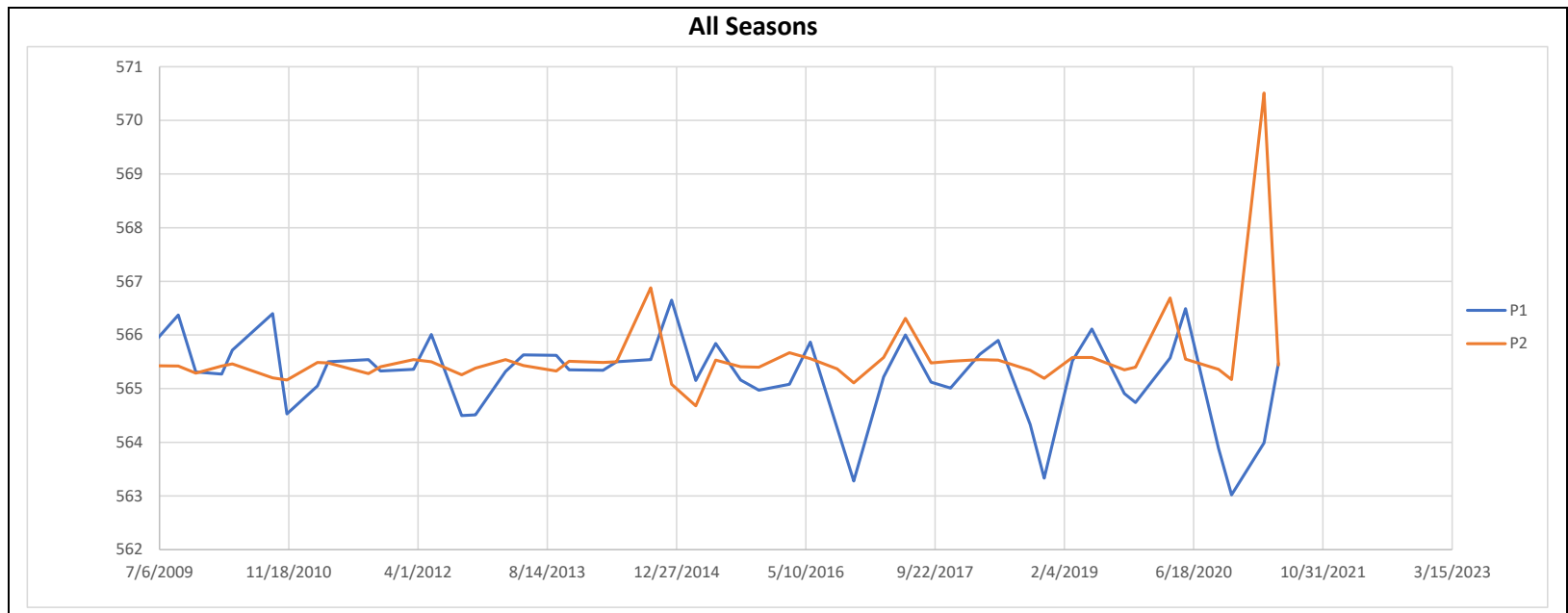


Table 4B - Groundwater Elevations Data

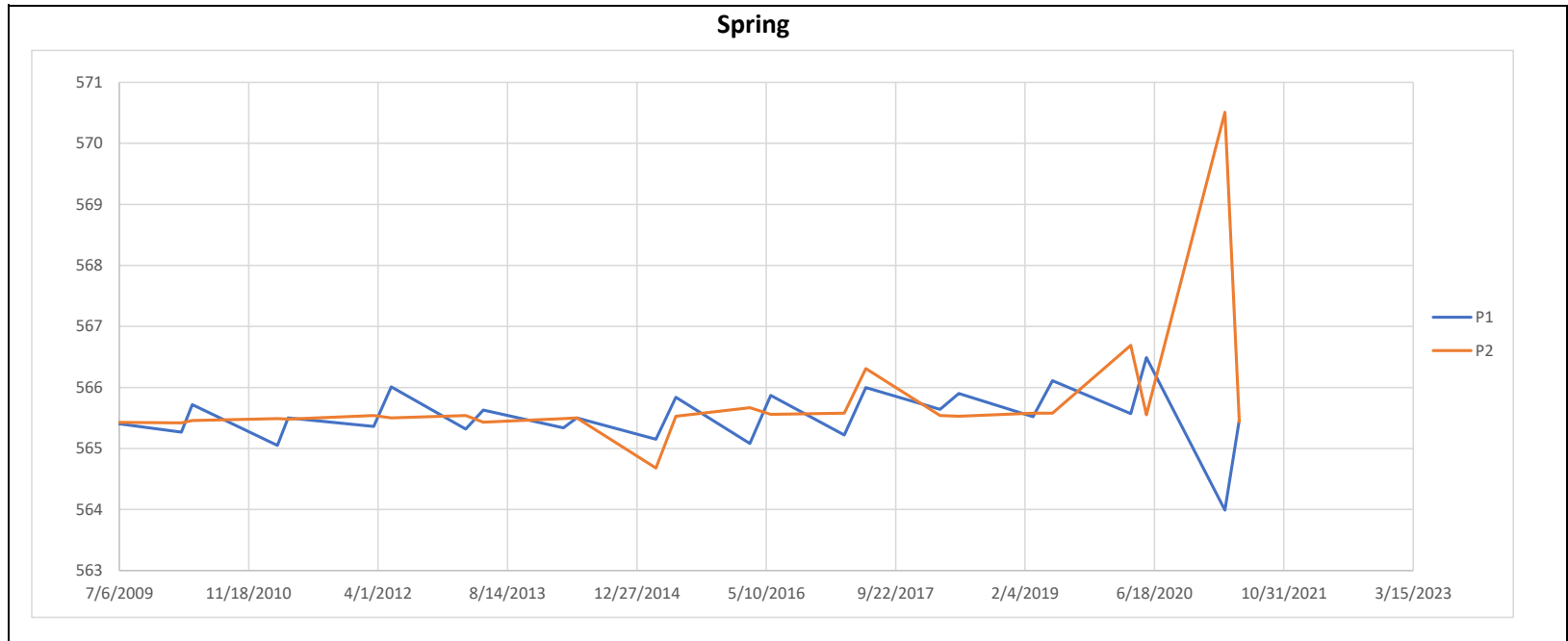


Table 4B - Groundwater Elevations Data

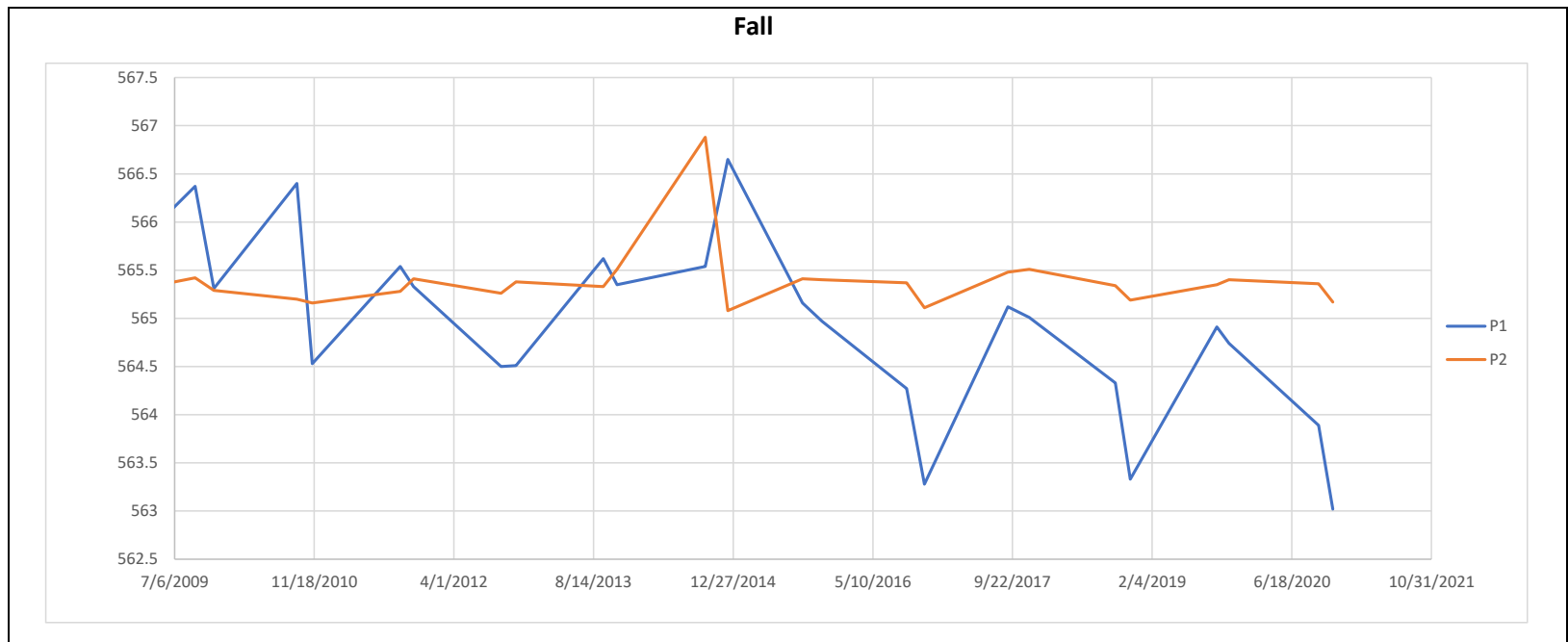


Table 4B - Groundwater Elevations Data

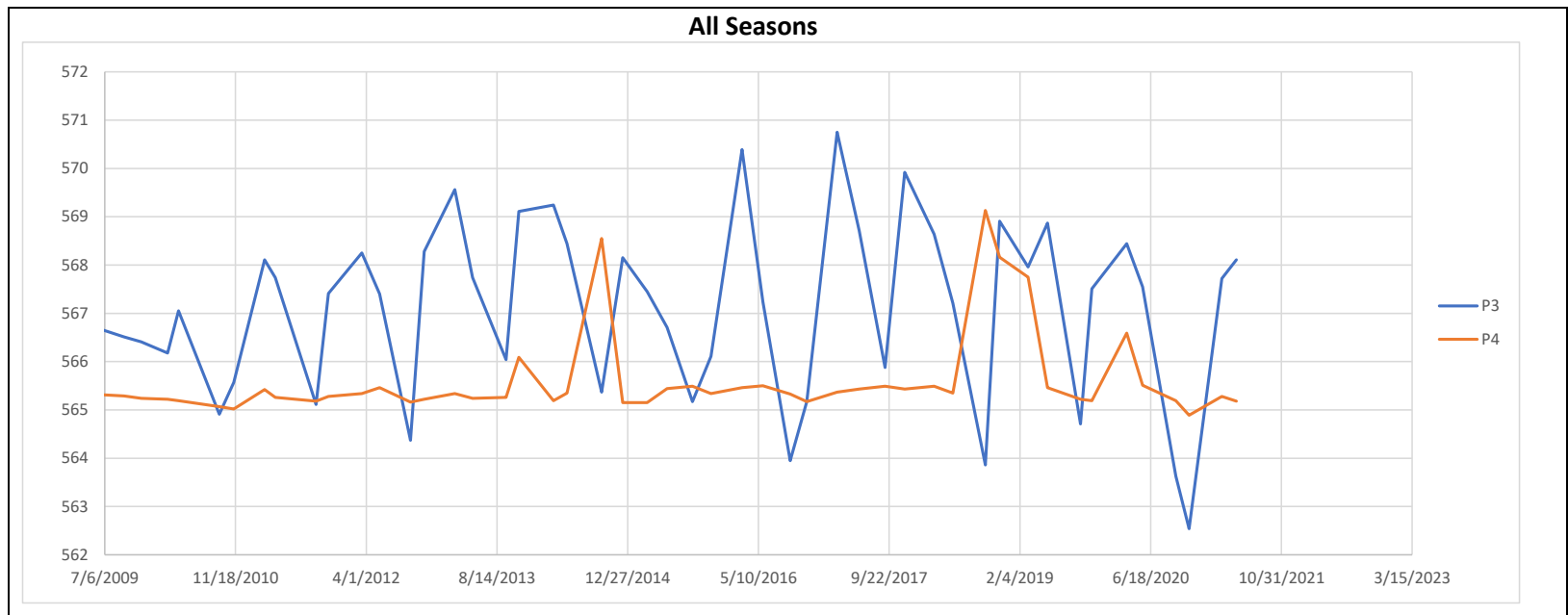


Table 4B - Groundwater Elevations Data

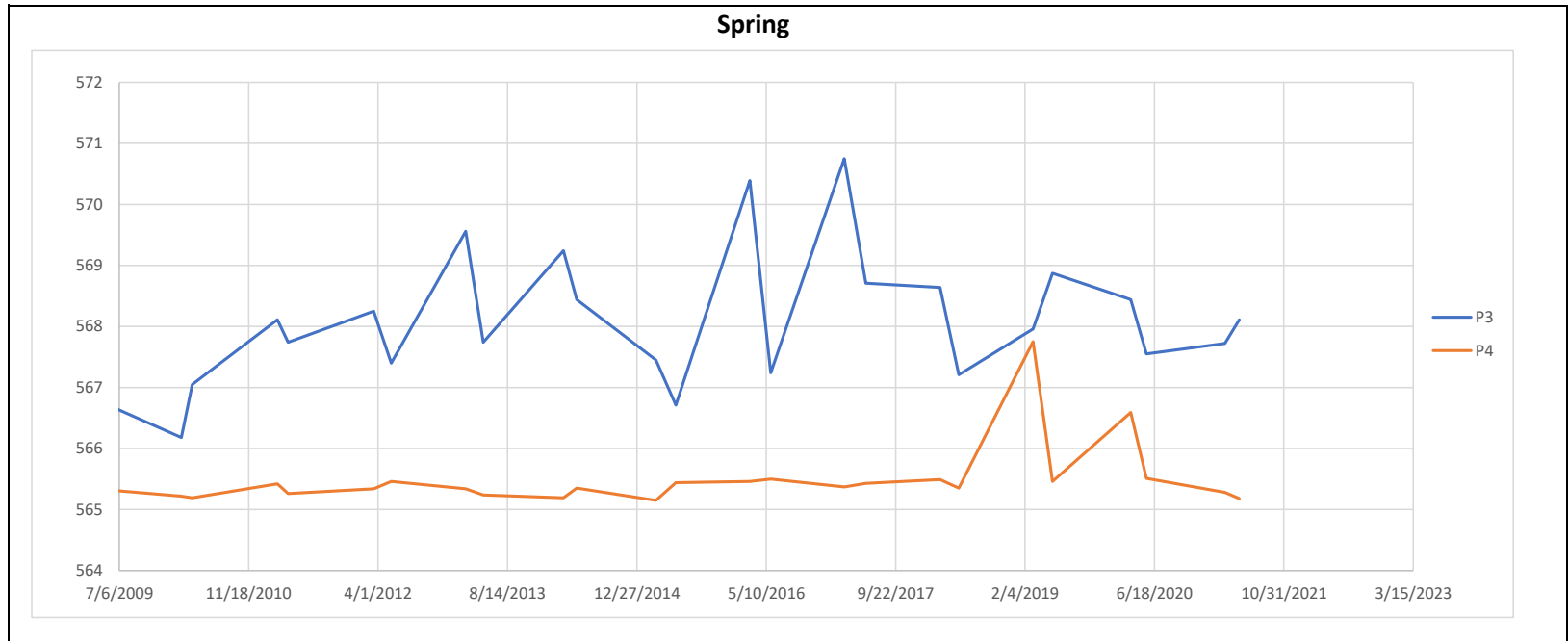


Table 4B - Groundwater Elevations Data

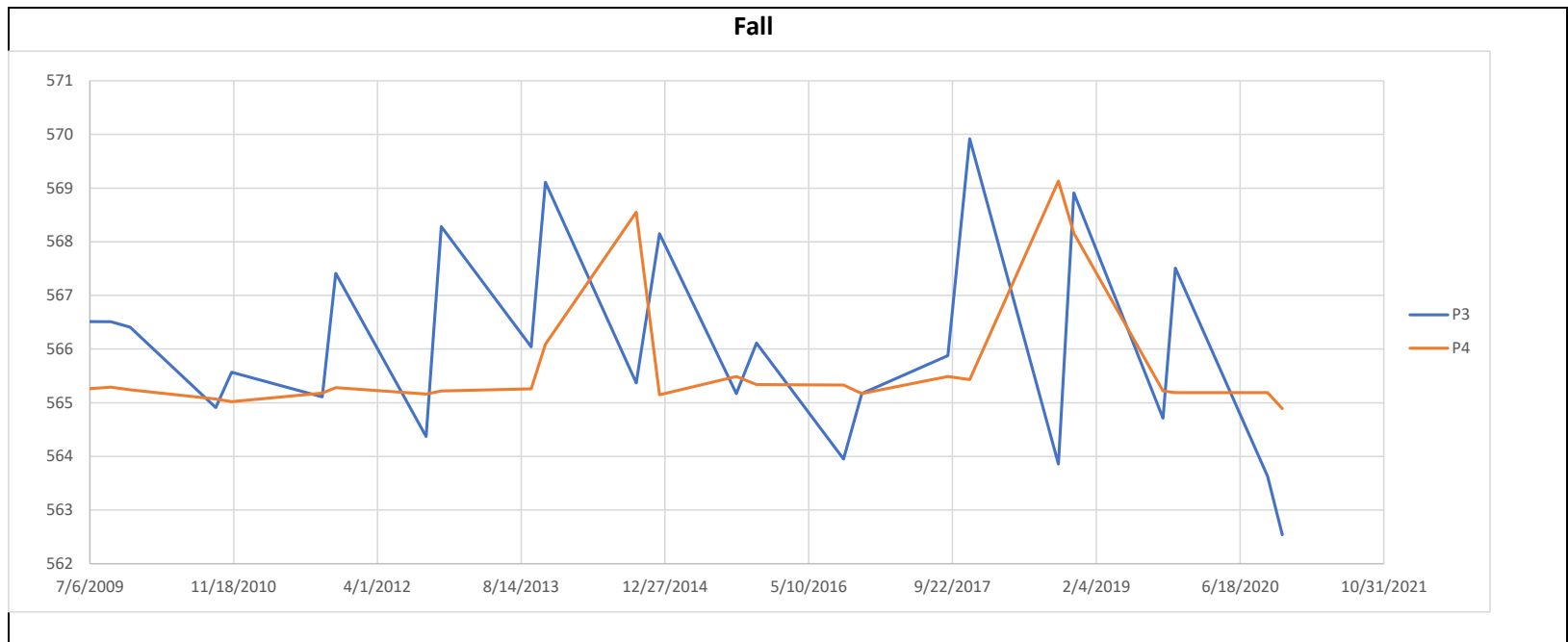


Table 4B - Groundwater Elevations Data

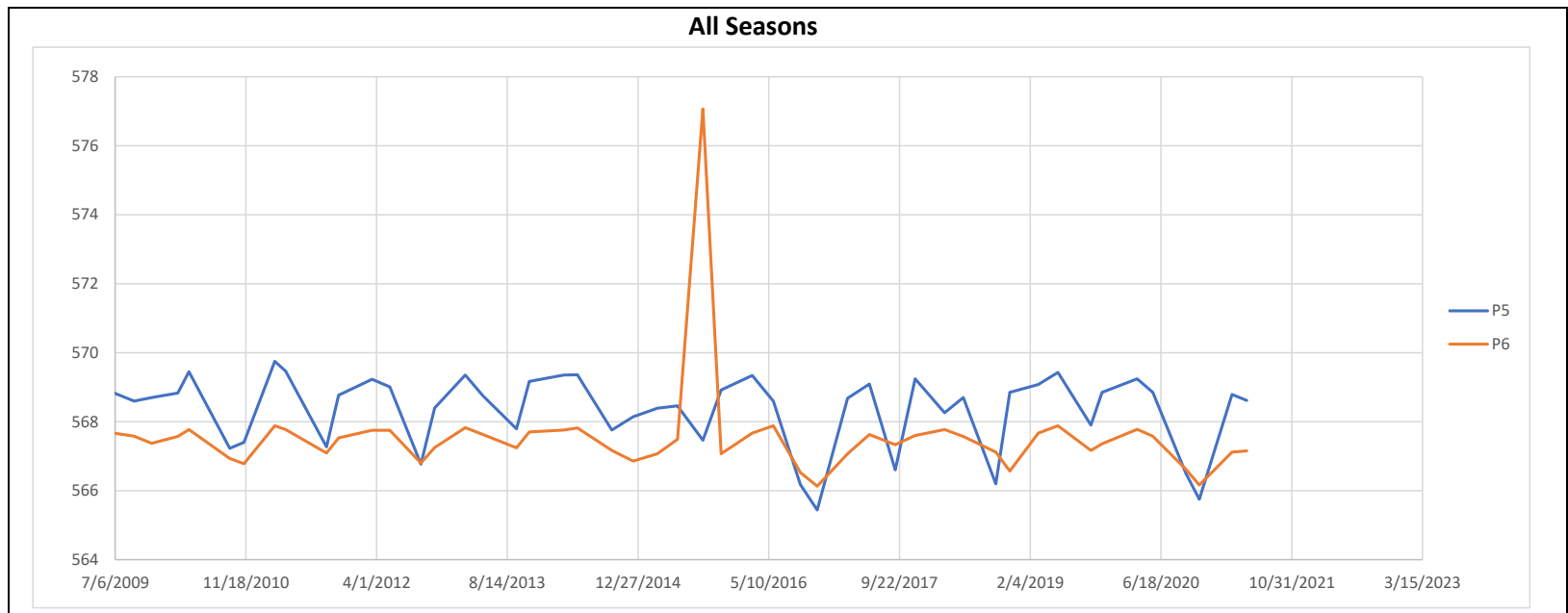


Table 4B - Groundwater Elevations Data

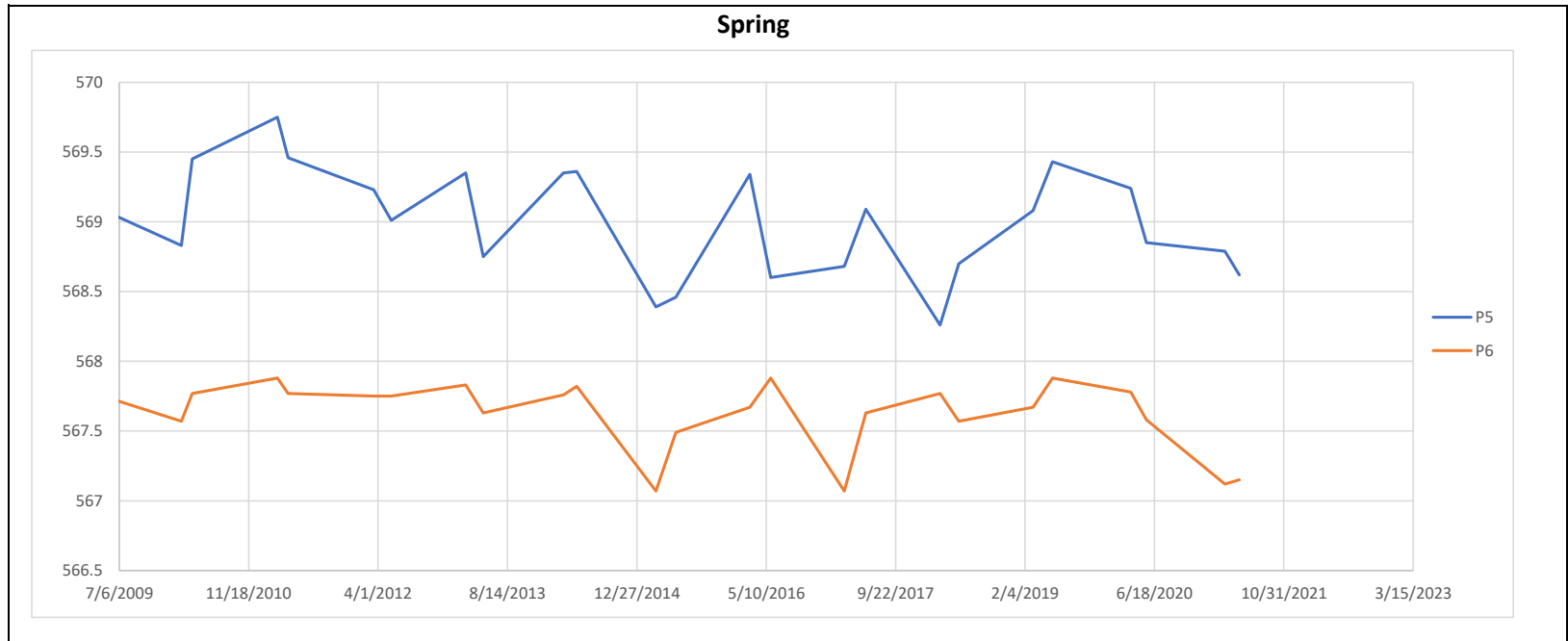


Table 4B - Groundwater Elevations Data

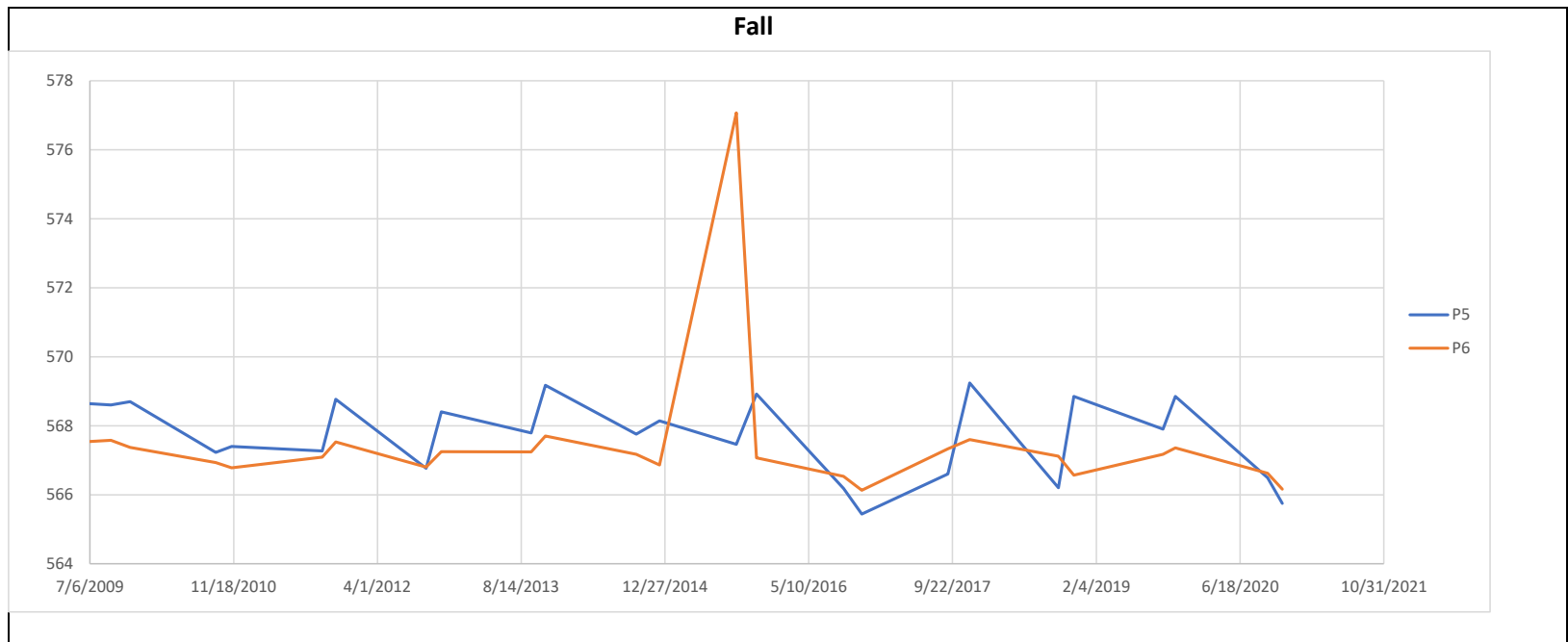


Table 4B - Groundwater Elevations Data

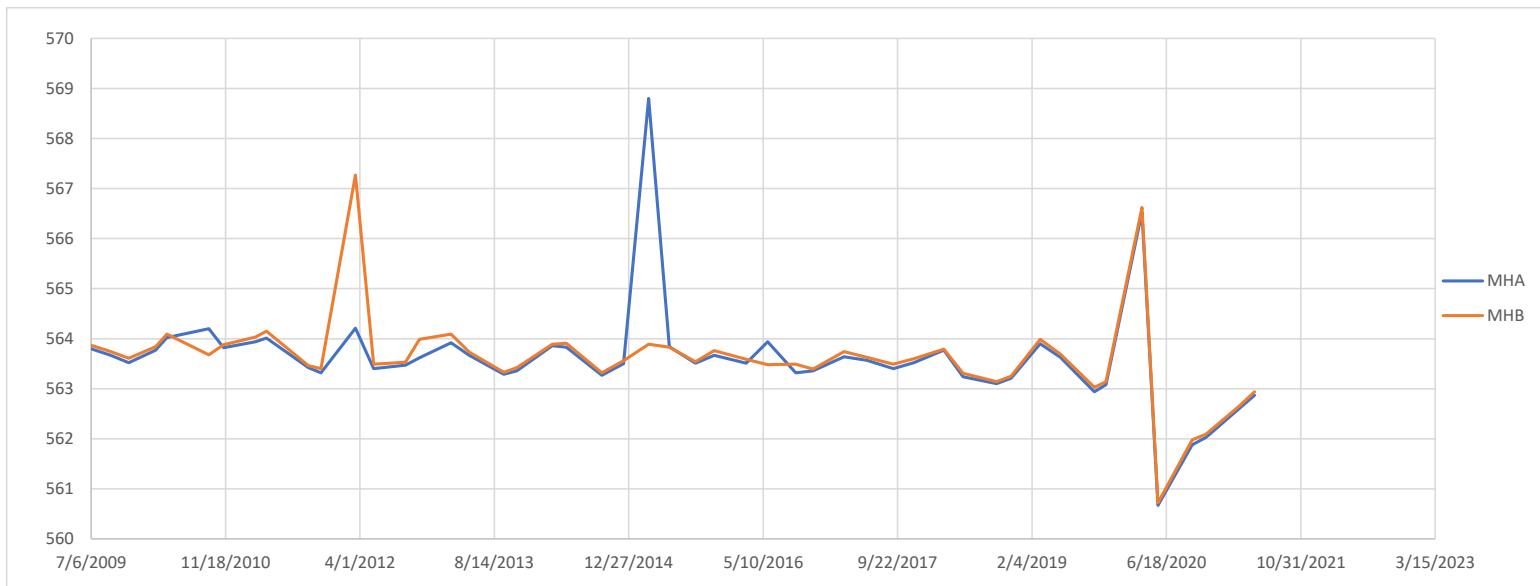


Table 5
Olin Corp. Gibson Site
Discharge Volumes

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
TOTALS	382,103

Monthly Discharge Volumes 2020

Month	Volume (gallons)
Jan	3
Feb	0
Mar	0
*Apr	45,850
*May	251,858
Jun	0
Jul	0
Aug	0
Sep	0
Oct	0
Nov	1
Dec	0
Total	297,712

* Due to inconsistent inward hydraulic gradients, we lowered the setpoints on the system controls. We installed new level sensors and reset the set points to keep wet well level lower. The result of this ended up pumping down the wet well and all the water that was hydraulically backed up throughout the site. Once the water pumped down, further pumping evened out.

Table 6 - 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	565.5	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	565.5	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	565.5	567.4	565.46	569.01	567.75	563.4	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	565.5	565.5	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	568.8	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	565.5	568.6	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	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	565.9	565.53	567.21	565.35	568.7	567.57	563.24	563.31
3/7/2019	565.52	565.58	567.96	567.75	569.08	567.67	563.9	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

NA-Not Available

PIEZOMETER - Fall								
DATE	P1	P2	P3	P4	P5	P6	MHA	MHB
9/11/2008	566.13	565.28	566.31	565.2	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	568.6	567.58	563.67	563.74
11/23/2009	565.31	565.29	566.41	565.24	568.7	567.37	563.52	563.61
9/17/2010	566.4	565.2	564.91	565.07	567.23	566.93	564.2	563.68
11/11/2010	564.53	565.16	565.57	565.02	567.4	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	563.4
9/17/2012	564.5	565.26	564.37	565.16	566.77	566.8	563.47	563.53
11/9/2012	564.51	565.38	568.28	565.22	568.4	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	567.7	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	563.5	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	565.4	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	566.6	567.33	563.4	563.49
11/21/2017	565.01	565.51	569.92	565.43	569.24	567.6	563.52	563.6
9/25/2018	564.33	565.34	563.86	569.13	566.2	567.12	563.1	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	567.9	567.17	562.94	563.03
11/6/2019	564.74	565.4	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

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

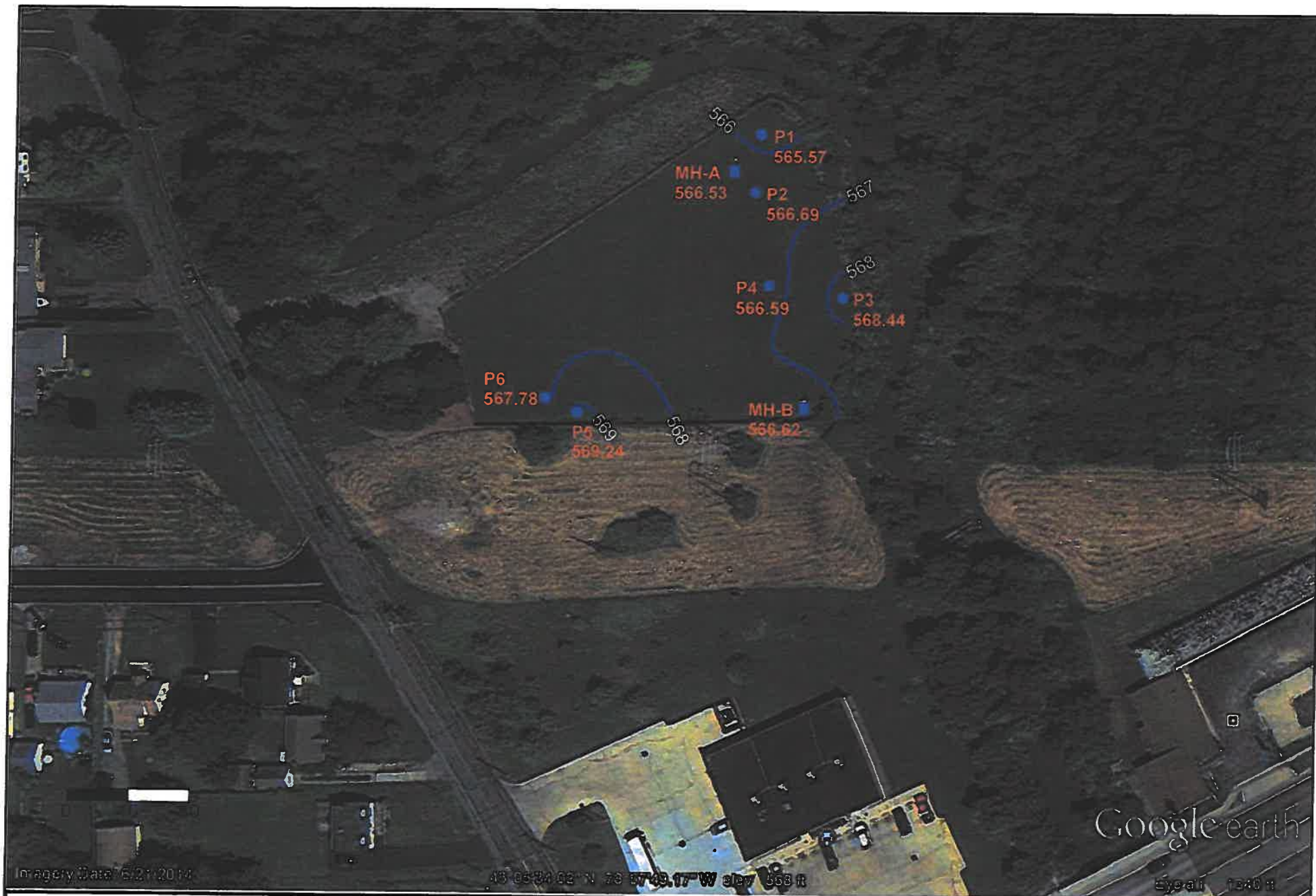
DATE: 3/19/20 TIME: 800
 INSPECTOR: CHAS JONES COMPANY: SEVENSON
 WEATHER: 35° cloudy

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	<u>7.15</u>	<u>565.57</u>	
P-2	574.89	<u>8.20</u>	<u>566.69</u>	
P-3	574.16	<u>5.72</u>	<u>568.44</u>	
P-4	576.14	<u>9.55</u>	<u>566.59</u>	
P-5	575.05	<u>5.81</u>	<u>569.24</u>	
P-6	578.28	<u>10.50</u>	<u>567.78</u>	
MANHOLE A	575.22	<u>8.69</u>	<u>566.53</u>	
MANHOLE B	577.34	<u>10.72</u>	<u>566.62</u>	

(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: SITE WAS SECURED UPON ARRIVAL

CLEARED SOME FALLEN BRUSH AND PICKED UP MINIMAL TRASH



OLIN CORPORATION

Environmental Remediation Group
3866 N. Ocoee St., Ste. 200
Cleveland, Tennessee 37312
423/336-4000

SCALE: 0.5 in = 40 ft.	DRAWN BY: JRH	DATE: 1-20-2021
	CHKD. BY: ABC	DATE: 1-20-2021

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
MARCH 19, 2020

FIG. NO.
1

- MANHOLE
- PIEZOMETER

**MANHOLES ARE TO MAINTAIN A
WATER LEVEL BELOW 565 FT (AMSL)**

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: 5-18-20 TIME: 830^{am} - 1⁰⁰ pm

INSPECTOR: WALKER COMPANY: SEVENSON

WEATHER: CLOUDY 53°F RAIN OVERNIGHT

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	<u>6.23</u>	<u>566.49</u>	
P-2	574.89	<u>9.34</u>	<u>565.55</u>	
P-3	574.16	<u>6.61</u>	<u>567.55</u>	
P-4	576.14	<u>10.73</u>	<u>565.41</u>	
P-5	575.05	<u>6.20</u>	<u>568.85</u>	
P-6	578.28	<u>10.70</u>	<u>567.58</u>	
MANHOLE A	575.22	<u>14.55</u>	<u>560.67</u>	
MANHOLE B	577.34	<u>16.62</u>	<u>560.72</u>	

(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: Performed Site inspection, took
SEDIMENT samples from CREEK BED, UP STREAM + DOWNSTREAM
of the cap. Took a blind duplicate of the upstream sample
and labeled it "MS" for LAB PURPOSES. (A.C.)



OLIN CORPORATION

Environmental Remediation Group
3855 N. Ocoee St., Ste. 200
Cleveland, Tennessee 37312
423/336-4000

SCALE:
0.5 IN = 40 FT.

DRAWN BY: JRH
CHKD. BY: ABC

DATE: 1-21-2021
DATE: 1-21-2021

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
MAY 18, 2020



FIG. NO.
2

- MANHOLE
- PIEZOMETER

**MANHOLES ARE TO MAINTAIN A
WATER LEVEL BELOW 565 FT (AMSL)**

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: 9/22/20 TIME: 900

INSPECTOR: C JONES COMPANY: SEVENSON

WEATHER: 70° SUNNY

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	<u>8.83</u>	<u>563.89</u>	
P-2	574.89	<u>9.53</u>	<u>565.36</u>	
P-3	574.16	<u>10.53</u>	<u>563.63</u>	
P-4	576.14	<u>10.95</u>	<u>565.19</u>	
P-5	575.05	<u>8.56</u>	<u>566.49</u>	
P-6	578.28	<u>11.66</u>	<u>566.62</u>	
MANHOLE A	575.22	<u>13.34</u>	<u>561.88</u>	
MANHOLE B	577.34	<u>15.36</u>	<u>561.98</u>	

(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:



OLIN CORPORATION

Environmental Remediation Group
3855 N. Ocoee St., Ste. 200
Cleveland, Tennessee 37312
423/336-4000

CHARLES GIBSON SITE
NIAGARA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
SEPTEMBER 22, 2020



FIG. NO.

3

- MANHOLE
- PIEZOMETER

MANHOLES ARE TO MAINTAIN A
WATER LEVEL BELOW 565 FT (AMSL)

SCALE:
0.5 IN = 40 FT.

DRAWN BY: JRH
CHKD. BY: ABC

DATE: 1-22-2021
DATE: 1-22-2021

Charles Gibson

Annual Ground Water Monitoring Sampling Narrative

09/23/20

Both monitoring wells MW-4 and MW-5 went dry during purge before sample was collected. Severson contacted Adam Carringer of Olin Corp. Adam told Severson to wait a few days and sample the recharge. Also MW-A3 was completely dry and no sample was taken.

9/28/20

Severson returned to site to sample recharge. The field blank was sampled at 0845. MW-5 was sampled at 0900. MS/MSD volume was also collected. MW-4 was sampled at 0925. A blind duplicate was taken here and labeled MW-7. Man Hole B was sampled at 1000.

This narrative will also be sent to the lab with COC but will not mention the blind duplicate (MW-7) being taken at MW-4.

Charles Gibson

Annual Ground Water Monitoring Sampling Narrative

09/23/20

Both monitoring wells MW-4 and MW-5 went dry during purge before sample was collected. Severson contacted Adam Carringer of Olin Corp. Adam told Severson to wait a few days and sample the recharge. Also MW-A3 was completely dry and no sample was taken.

9/28/20

Severson returned to site to sample recharge. The field blank was sampled at 0845. MW-5 was sampled at 0900. MS/MSD volume was also collected. MW-4 was sampled at 0925. MW-7 was sampled at 0940. Man Hole B was sampled at 1000.

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: 11/12/20 TIME: 900

INSPECTOR: Chris Jones COMPANY: SEVENSON

WEATHER: 43° cloudy

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	<u>9.70</u>	<u>563.02</u>	
P-2	574.89	<u>9.72</u>	<u>565.17</u>	
P-3	574.16	<u>11.62</u>	<u>562.54</u>	
P-4	576.14	<u>11.25</u>	<u>564.89</u>	
P-5	575.05	<u>9.30</u>	<u>565.75</u>	
P-6	578.28	<u>12.12</u>	<u>566.16</u>	
MANHOLE A	575.22	<u>13.19</u>	<u>562.03</u>	
MANHOLE B	577.34	<u>15.25</u>	<u>562.09</u>	

(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: _____



OLIN CORPORATION

Environmental Remediation Group
3866 N. Ocoee St., Ste. 200
Cleveland, Tennessee 37312
423/336-4000

CHARLES GIBSON SITE
NIAGARA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
NOVEMBER 12, 2020



FIG. NO.

4

- MANHOLE
- PIEZOMETER

MANHOLES ARE TO MAINTAIN A
WATER LEVEL BELOW 565 FT (AMSL)

SCALE:
0.5 IN = 40 FT.

DRAWN BY: JRH
CHKD. BY: ABC

DATE: 1-22-2021
DATE: 1-22-2021



May 29, 2020

Service Request No:R2004148

Mr. Dave Share
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312

Laboratory Results for: Charles Gibson - Olin

Dear Mr.Share,

Enclosed are the results of the sample(s) submitted to our laboratory May 19, 2020
For your reference, these analyses have been assigned our service request number **R2004148**.

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: Adam Carringer

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Narrative Documents

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
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Client: Olin Corporation
Project: Charles Gibson - Olin
Sample Matrix: Soil

Service Request: R2004148
Date Received: 05/19/2020

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 05/19/2020. 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.

Semivolatile GC:

Method 8081B, 05/22/2020: 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, 05/22/2020: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). 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, 05/22/2020: 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. Samples were run 2x with the same result both times.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by

Date

05/29/2020



SAMPLE DETECTION SUMMARY

CLIENT ID: DS-1-051820				Lab ID: R2004148-001		
------------------------	--	--	--	----------------------	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	24.3				Percent	ALS SOP
beta-BHC	110			73	ug/Kg	8081B

CLIENT ID: MS-1-051820				Lab ID: R2004148-002		
------------------------	--	--	--	----------------------	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	35.9				Percent	ALS SOP
alpha-BHC	130			47	ug/Kg	8081B
beta-BHC	180			47	ug/Kg	8081B
delta-BHC	54			47	ug/Kg	8081B

CLIENT ID: US-1-051820				Lab ID: R2004148-003		
------------------------	--	--	--	----------------------	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	30.9				Percent	ALS SOP
alpha-BHC	270			59	ug/Kg	8081B
beta-BHC	350			59	ug/Kg	8081B



Sample Receipt Information

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Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request:R2004148

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2004148-001	DS-1-051820	5/18/2020	0930
R2004148-002	MS-1-051820	5/18/2020	0945
R2004148-003	US-1-051820	5/18/2020	1015

60754

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[illegible]



Cooler Receipt and Preservation Check Form



Project/Client _____ Folder Number _____

Cooler received on 5/19/2020 by: HE

COURIER: ALS UPS FEDEX VELOCITY CLIENT

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

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

8. Temperature Readings Date: 5/19/2020 Time: 09:56 ID: IR#7 IR#10 From: Temp Blank Sample Bottle

Observed Temp (°C)	21						
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: R002 by HE on 5/19/20 at 10:00
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 5/19/2020 Time: 1230 by: HE

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 with MS? Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
≤2		HNO ₃								
≤2		H ₂ SO 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 ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		Zn Acetate	-	-						
		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: 11119-1SR
Explain all Discrepancies/ Other Comments: _____

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: HE
PC Secondary Review: HE

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

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Internal Chain of Custody Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request: R2004148

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2004148-001.01	8081B,ALS SOP	5/19/2020	1231	R-002 / GLAFORCE	
		5/19/2020	1231	SMO / GLAFORCE	
		5/20/2020	0804	In Lab / KSERCU	
		5/20/2020	0901	R-002 / KSERCU	
R2004148-002.01	ALS SOP,8081B	5/19/2020	1231	R-002 / GLAFORCE	
		5/19/2020	1231	SMO / GLAFORCE	
		5/20/2020	0804	In Lab / KSERCU	
		5/20/2020	0901	R-002 / KSERCU	
R2004148-003.01	ALS SOP,8081B	5/19/2020	1231	R-002 / GLAFORCE	
		5/19/2020	1231	SMO / GLAFORCE	
		5/20/2020	0804	In Lab / KSERCU	
		5/20/2020	0901	R-002 / KSERCU	



Miscellaneous Forms

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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.	+	Correlation coefficient for MSA is <0.995.
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/Aroclors).	N	Inorganics- Matrix spike recovery was outside laboratory limits.
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.	N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.	S	Concentration has been determined using Method of Standard Additions (MSA).
E	Organics- Concentration has exceeded the calibration range for that specific analysis.	W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
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.	P	Concentration >40% difference between the two GC columns.
*	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.	C	Confirmed by GC/MS
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.	Q	DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).
#	Spike was diluted out.	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 Certifications¹

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

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.

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Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request: R2004148

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
ALS SOP	Soil	Total Solids

ALS Group USA, Corp.

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Analyst Summary report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request: R2004148

Sample Name: DS-1-051820
Lab Code: R2004148-001
Sample Matrix: Soil

Date Collected: 05/18/20**Date Received:** 05/19/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KWONG

Sample Name: MS-1-051820
Lab Code: R2004148-002
Sample Matrix: Soil

Date Collected: 05/18/20**Date Received:** 05/19/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KWONG

Sample Name: US-1-051820
Lab Code: R2004148-003
Sample Matrix: Soil

Date Collected: 05/18/20**Date Received:** 05/19/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KWONG



INORGANIC PREPARATION METHODS

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.	

RIGHT SOLUTIONS | RIGHT PARTNER



Sample Results

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Semivolatile Organic Compounds by GC

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Collected: 05/18/20 09:30
Date Received: 05/19/20 09:45

Sample Name: DS-1-051820
Lab Code: R2004148-001

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	73	10	05/22/20 14:57	5/20/20	
beta-BHC	110	73	10	05/22/20 14:57	5/20/20	
delta-BHC	ND U	73	10	05/22/20 14:57	5/20/20	
gamma-BHC (Lindane)	ND U	73	10	05/22/20 14:57	5/20/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	73	10 - 145	05/22/20 14:57	
Tetrachloro-m-xylene	75	10 - 123	05/22/20 14:57	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Collected: 05/18/20 09:45
Date Received: 05/19/20 09:45

Sample Name: MS-1-051820
Lab Code: R2004148-002

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	130	47	10	05/22/20 15:16	5/20/20	
beta-BHC	180	47	10	05/22/20 15:16	5/20/20	
delta-BHC	54	47	10	05/22/20 15:16	5/20/20	
gamma-BHC (Lindane)	ND U	47	10	05/22/20 15:16	5/20/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	51	10 - 145	05/22/20 15:16	
Tetrachloro-m-xylene	61	10 - 123	05/22/20 15:16	

ALS Group USA, Corp.
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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: US-1-051820
Lab Code: R2004148-003

Service Request: R2004148
Date Collected: 05/18/20 10:15
Date Received: 05/19/20 09:45

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	270	59	10	05/22/20 15:35	5/20/20	
beta-BHC	350	59	10	05/22/20 15:35	5/20/20	
delta-BHC	ND U	59	10	05/22/20 15:35	5/20/20	
gamma-BHC (Lindane)	ND U	59	10	05/22/20 15:35	5/20/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	49	10 - 145	05/22/20 15:35	
Tetrachloro-m-xylene	50	10 - 123	05/22/20 15:35	



General Chemistry

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil
Sample Name: DS-1-051820
Lab Code: R2004148-001

Service Request: R2004148
Date Collected: 05/18/20 09:30
Date Received: 05/19/20 09:45

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	24.3	Percent	-	1	05/27/20 09:45	

ALS Group USA, Corp.
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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: MS-1-051820
Lab Code: R2004148-002

Service Request: R2004148
Date Collected: 05/18/20 09:45
Date Received: 05/19/20 09:45

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	35.9	Percent	-	1	05/27/20 09:45	

ALS Group USA, Corp.
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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil
Sample Name: US-1-051820
Lab Code: R2004148-003

Service Request: R2004148
Date Collected: 05/18/20 10:15
Date Received: 05/19/20 09:45

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	30.9	Percent	-	1	05/27/20 09:45	



QC Summary Forms

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Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory

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QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Extraction Method: EPA 3541

Sample Name	Lab Code	Decachlorobiphenyl	Tetrachloro-m-xylene
		10-145	10-123
DS-1-051820	R2004148-001	73	75
MS-1-051820	R2004148-002	51	61
US-1-051820	R2004148-003	49	50
Method Blank	RQ2005120-01	83	78
Lab Control Sample	RQ2005120-02	77	73
Duplicate Lab Control Sample	RQ2005120-03	86	83

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Analyzed: NA

Method Blank Summary
Organochlorine Pesticides by Gas Chromatography

Sample Name:
Lab Code:
Analysis Method: 8081B

Instrument ID:
File ID:
Analysis Lot:681306

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	RQ2005364-01	I:\ACQUDATA\7890m\DATA\052220\az5144.D	05/22/20 11:55

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Analyzed: 05/22/20 14:00
Date Extracted: 05/20/20

Method Blank Summary
Organochlorine Pesticides by Gas Chromatography

Sample Name: Method Blank **Instrument ID:** R-GC-62
Lab Code: RQ2005120-01 **File ID:** I:\ACQUADATA\7890m\DATA\052220\az5147.D\
Analysis Method: 8081B **Analysis Lot:** 681306
Prep Method: EPA 3541 **Extraction Lot:** 358744

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ2005120-02	I:\ACQUADATA\7890m\DATA\052220\az5148.D\	05/22/20 14:19
Duplicate Lab Control Sample	RQ2005120-03	I:\ACQUADATA\7890m\DATA\052220\az5149.D\	05/22/20 14:38
DS-1-051820	R2004148-001	I:\ACQUADATA\7890m\DATA\052220\az5150.D\	05/22/20 14:57
MS-1-051820	R2004148-002	I:\ACQUADATA\7890m\DATA\052220\az5151.D\	05/22/20 15:16
US-1-051820	R2004148-003	I:\ACQUADATA\7890m\DATA\052220\az5152.D\	05/22/20 15:35

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2005120-01

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	1.7	1	05/22/20 14:00	5/20/20	
beta-BHC	ND U	1.7	1	05/22/20 14:00	5/20/20	
delta-BHC	ND U	1.7	1	05/22/20 14:00	5/20/20	
gamma-BHC (Lindane)	ND U	1.7	1	05/22/20 14:00	5/20/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	83	10 - 145	05/22/20 14:00	
Tetrachloro-m-xylene	78	10 - 123	05/22/20 14:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Analyzed: NA

Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Sample Name:
Lab Code:
Analysis Method: 8081B

Instrument ID:
File ID:
Analysis Lot:681306

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	RQ2005364-01	I:\ACQUDATA\7890m\DATA\052220\az5144.D\	05/22/20 11:55

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Analyzed: 05/22/20 14:19
Date Extracted: 05/20/20

Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Sample Name: Lab Control Sample **Instrument ID:** R-GC-62
Lab Code: RQ2005120-02 **File ID:** I:\ACQU\DATA\7890m\DATA\052220\az5148.D\
Analysis Method: 8081B **Analysis Lot:** 681306
Prep Method: EPA 3541 **Extraction Lot:** 358744

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ2005120-01	I:\ACQU\DATA\7890m\DATA\052220\az5147.D\	05/22/20 14:00
Duplicate Lab Control Sample	RQ2005120-03	I:\ACQU\DATA\7890m\DATA\052220\az5149.D\	05/22/20 14:38
DS-1-051820	R2004148-001	I:\ACQU\DATA\7890m\DATA\052220\az5150.D\	05/22/20 14:57
MS-1-051820	R2004148-002	I:\ACQU\DATA\7890m\DATA\052220\az5151.D\	05/22/20 15:16
US-1-051820	R2004148-003	I:\ACQU\DATA\7890m\DATA\052220\az5152.D\	05/22/20 15:35

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2004148
Date Analyzed: 05/22/20

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Units:ug/Kg

Basis:Dry

Lab Control Sample

RQ2005120-02

Duplicate Lab Control Sample

RQ2005120-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
alpha-BHC	8081B	4.94	6.79	73	5.80	6.70	87	28-145	16	30
beta-BHC	8081B	4.80	6.79	71	5.57	6.70	83	38-144	15	30
delta-BHC	8081B	4.98	6.79	73	5.78	6.70	86	30-153	15	30
gamma-BHC (Lindane)	8081B	4.96	6.79	73	5.74	6.70	86	32-145	15	30

ALS Group USA, Corp.

dba ALS Environmental

Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil
Sample Name: DS-1-051820
Lab Code: R2004148-001

Service Request: R2004148
Date Collected: 05/18/20 09:30
Date Received: 5/19/20

Units: ug/Kg**Basis:** Dry**Percent Solids:** 24.3**Organochlorine Pesticides by Gas Chromatography**

Analytical Method: 8081B
Prep Method: EPA 3541

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
beta-BHC	73	110	140	24		10	05/22/20 14:57

ALS Group USA, Corp.

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Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil

Service Request: R2004148
Date Collected: 05/18/20 09:45
Date Received: 5/19/20

Sample Name: MS-1-051820
Lab Code: R2004148-002

Units: ug/Kg**Basis:** Dry**Percent Solids:** 35.9**Organochlorine Pesticides by Gas Chromatography**

Analytical Method: 8081B
Prep Method: EPA 3541

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
alpha-BHC	47	130	180	32		10	05/22/20 15:16
beta-BHC	47	180	220	20		10	05/22/20 15:16
delta-BHC	47	54	68	23		10	05/22/20 15:16

ALS Group USA, Corp.

dba ALS Environmental

Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil
Sample Name: US-1-051820
Lab Code: R2004148-003

Service Request: R2004148
Date Collected: 05/18/20 10:15
Date Received: 5/19/20

Units: ug/Kg
Basis: Dry
Percent Solids: 30.9

Organochlorine Pesticides by Gas Chromatography

Analytical Method: 8081B
Prep Method: EPA 3541

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
alpha-BHC	59	270	350	26		10	05/22/20 15:35
beta-BHC	59	350	400	13		10	05/22/20 15:35

ALS Group USA, Corp.

dba ALS Environmental

Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil

Service Request: R2004148**Date Collected:** NA**Date Received:****Sample Name:** Lab Control Sample**Lab Code:** RQ2005120-02**Units:** ug/Kg**Basis:** Dry**Organochlorine Pesticides by Gas Chromatography****Analytical Method:** 8081B**Prep Method:** EPA 3541

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
alpha-BHC	1.7	4.94	5.22	6		1	05/22/20 14:19
beta-BHC	1.7	4.80	5.79	19		1	05/22/20 14:19
delta-BHC	1.7	4.98	5.76	15		1	05/22/20 14:19
gamma-BHC (Lindane)	1.7	4.96	5.26	6		1	05/22/20 14:19

ALS Group USA, Corp.

dba ALS Environmental

Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil
Sample Name: Duplicate Lab Control Sample
Lab Code: RQ2005120-03

Service Request: R2004148**Date Collected:** NA**Date Received:****Units:** ug/Kg**Basis:** Dry**Organochlorine Pesticides by Gas Chromatography**

Analytical Method: 8081B
Prep Method: EPA 3541

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
alpha-BHC	1.7	5.80	5.85	<1		1	05/22/20 14:38
beta-BHC	1.7	5.57	6.21	11		1	05/22/20 14:38
delta-BHC	1.7	5.78	6.42	10		1	05/22/20 14:38
gamma-BHC (Lindane)	1.7	5.74	5.98	4		1	05/22/20 14:38

ALS Group USA, Corp.

dba ALS Environmental

Confirmation Results

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
SRM Matrix: Soil
Sample Name: Performance Evaluation
Lab Code: RQ2005364-01

Service Request: R2004148**Date Collected:** NA**Date Received:****Units:** ug/Kg**Basis:** Dry**Organochlorine Pesticides by Gas Chromatography**

8081B

Prep Method:

	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
alpha-BHC	11	12	9		1	05/22/20 11:55
beta-BHC	12	12	<1		1	05/22/20 11:55
delta-BHC	0	0			1	05/22/20 11:55
gamma-BHC (Lindane)	11	12	9		1	05/22/20 11:55



October 13, 2020

Service Request No:R2008776

Adam Carringer
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312

Laboratory Results for: Charles Gibson - Olin

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory September 23, 2020
For your reference, these analyses have been assigned our service request number **R2008776**.

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
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dba ALS Environmental



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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: Soil

Service Request: R2008776
Date Received: 09/23/2020

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 09/23/2020. 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.

Semivolatile GC:

Method 8081B, 10/06/2020: 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. Sample ran 2x with the same result to closing ccv.

Method 8081B, 698449s: The control limits were exceeded for one or more surrogates due to matrix interferences. Due to the presence of non-target background components that prevented adequate resolution of the surrogate, accurate quantitation was not possible. No further corrective action was appropriate.

Method 8081B, 698449: The Method Reporting Limit (MRL) was elevated due to dark color of the extract of sample.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Miguel Pedro

Date 10/13/2020



SAMPLE DETECTION SUMMARY

CLIENT ID: US-1-092220			Lab ID: R2008776-001			
-------------------------------	--	--	-----------------------------	--	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	26.9				Percent	ALS SOP

CLIENT ID: MS-1-092220			Lab ID: R2008776-002			
-------------------------------	--	--	-----------------------------	--	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	24.2				Percent	ALS SOP

CLIENT ID: DS-1-092220			Lab ID: R2008776-003			
-------------------------------	--	--	-----------------------------	--	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Total Solids	20.8				Percent	ALS SOP



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
Project: Charles Gibson - Olin/1229

Service Request:R2008776

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2008776-001	US-1-092220	9/22/2020	0950
R2008776-002	MS-1-092220	9/22/2020	1000
R2008776-003	DS-1-092220	9/22/2020	1015

[illegible]



Cooler Receipt and Preservation Check Form

R2008776

5

Olin Corporation
Charles Gibson - Olin



Project/Client Serversa Folder Number _____

Cooler received on 9/23/2020 by: AD

COURIER: ALS UPS FEDEX VELOCITY CLIENT

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

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

8. Temperature Readings Date: 9/23/2020 Time: 0950 ID: IR#7 IR#10 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>5.4</u>						
Within 0-6°C?	<u>Y</u> 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-02 by AD on 9/23/2020 at 0955
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 9/23/2020 Time: 1658 by: AD

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 with MS? Canisters Pressurized Tedlar® Bags Inflated N/A N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH	Yes	No						
≤2		HNO ₃								
≤2		H ₂ SO 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 ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O 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: 01020-1SR

Explain all Discrepancies/ Other Comments: _____

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: AD

PC Secondary Review: uy

*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
Project: Charles Gibson - Olin/1229

Service Request: R2008776

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2008776-001.01	8081B,ALS SOP	9/23/2020	1701	R-002 / GLAFORCE	
		9/23/2020	1702	SMO / GLAFORCE	
		10/1/2020	0753	In Lab / KAWONG	
		10/1/2020	0843	R-002 / KAWONG	
R2008776-002.01	ALS SOP,8081B	9/23/2020	1701	R-002 / GLAFORCE	
		9/23/2020	1702	SMO / GLAFORCE	
		10/1/2020	0753	In Lab / KAWONG	
		10/1/2020	0843	R-002 / KAWONG	
R2008776-003.01	ALS SOP,8081B	9/23/2020	1701	R-002 / GLAFORCE	
		9/23/2020	1702	SMO / GLAFORCE	
		10/1/2020	0753	In Lab / KAWONG	
		10/1/2020	0842	R-002 / KAWONG	



Miscellaneous Forms

ALS Environmental—Rochester Laboratory
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REPORT QUALIFIERS AND DEFINITIONS

- | | |
|---|--|
| <p>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.</p> <p>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/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>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.</p> <p>* 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.</p> <p>H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.</p> <p># Spike was diluted out.</p> | <p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>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).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p> |
|---|--|



Rochester Lab ID # for State Certifications¹

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

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.

ALS Group USA, Corp.
dba ALS Environmental

Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request: R2008776

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
ALS SOP	Soil	Total Solids

ALS Group USA, Corp.

dba ALS Environmental

Analyst Summary report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229

Service Request: R2008776

Sample Name: US-1-092220
Lab Code: R2008776-001
Sample Matrix: Soil

Date Collected: 09/22/20**Date Received:** 09/23/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KAWONG

Sample Name: MS-1-092220
Lab Code: R2008776-002
Sample Matrix: Soil

Date Collected: 09/22/20**Date Received:** 09/23/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KAWONG

Sample Name: DS-1-092220
Lab Code: R2008776-003
Sample Matrix: Soil

Date Collected: 09/22/20**Date Received:** 09/23/20

Analysis Method
8081B
ALS SOP

Extracted/Digested By
KSERCU

Analyzed By
BALLGEIER
KAWONG



INORGANIC PREPARATION METHODS

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

ALS Environmental—Rochester Laboratory

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Semivolatile Organic Compounds by GC

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 Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: US-1-092220
Lab Code: R2008776-001

Service Request: R2008776
Date Collected: 09/22/20 09:50
Date Received: 09/23/20 09:25

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	32	5	10/06/20 17:21	9/25/20	
beta-BHC	ND U	32	5	10/06/20 17:21	9/25/20	
delta-BHC	ND U	32	5	10/06/20 17:21	9/25/20	
gamma-BHC (Lindane)	ND U	32	5	10/06/20 17:21	9/25/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	162 *	10 - 145	10/06/20 17:21	*
Tetrachloro-m-xylene	69	10 - 123	10/06/20 17:21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: MS-1-092220
Lab Code: R2008776-002

Service Request: R2008776
Date Collected: 09/22/20 10:00
Date Received: 09/23/20 09:25

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	35	5	10/06/20 17:40	9/25/20	
beta-BHC	ND U	35	5	10/06/20 17:40	9/25/20	
delta-BHC	ND U	35	5	10/06/20 17:40	9/25/20	
gamma-BHC (Lindane)	ND U	35	5	10/06/20 17:40	9/25/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	205 *	10 - 145	10/06/20 17:40	*
Tetrachloro-m-xylene	72	10 - 123	10/06/20 17:40	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Service Request: R2008776
Date Collected: 09/22/20 10:15
Date Received: 09/23/20 09:25

Sample Name: DS-1-092220
Lab Code: R2008776-003

Units: ug Kg
Basis: Dry

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	40	5	10/06/20 17:59	9/25/20	
beta-BHC	ND U	40	5	10/06/20 17:59	9/25/20	
delta-BHC	ND U	40	5	10/06/20 17:59	9/25/20	
gamma-BHC (Lindane)	ND U	40	5	10/06/20 17:59	9/25/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	206 *	10 - 145	10/06/20 17:59	*
Tetrachloro-m-xylene	76	10 - 123	10/06/20 17:59	



General Chemistry

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: US-1-092220
Lab Code: R2008776-001

Service Request: R2008776
Date Collected: 09/22/20 09:50
Date Received: 09/23/20 09:25

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	26.9	Percent	-	1	10/01/20 08:10	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil

Sample Name: MS-1-092220
Lab Code: R2008776-002

Service Request: R2008776
Date Collected: 09/22/20 10:00
Date Received: 09/23/20 09:25

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	24.2	Percent	-	1	10/01/20 08:10	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson - Olin/1229
Sample Matrix: Soil
Sample Name: DS-I-092220
Lab Code: R2008776-003

Service Request: R2008776
Date Collected: 09/22/20 10:15
Date Received: 09/23/20 09:25

Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	20.8	Percent	-	I	10/01/20 08:10	



October 15, 2020

Service Request No:R2008989

Adam Carringer
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312

Laboratory Results for: Charles Gibson

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory September 29, 2020
For your reference, these analyses have been assigned our service request number **R2008989**.

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
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dba ALS Environmental



ALS Environmental
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Narrative Documents

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

Service Request: R2008989
Date Received: 09/29/2020

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 09/29/2020. 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.

The sample extract(s) required cleanup with TBA (Tetrabutylammonium sulfate) to reduce analytical interference from sulfur. Endrin aldehyde is degraded by TBA cleanup, resulting in low LCS recoveries, and a likely low bias in the associated samples.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Semivolatile GC:

No significant anomalies were noted with this analysis.

Approved by Miguel Pedro

Date 10/15/2020



SAMPLE DETECTION SUMMARY

CLIENT ID: MH-B - 092820			Lab ID: R2008989-005			
Analyte	Results	Flag	MDL	MRL	Units	Method
beta-BHC	0.25			0.057	ug/L	8081B
delta-BHC	2.2			0.057	ug/L	8081B



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
Project: Charles Gibson/1229

Service Request:R2008989

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2008989-001	Field Blank - 092820	9/28/2020	0845
R2008989-002	MW-5 - 092820	9/28/2020	0900
R2008989-003	MW-4 - 092820	9/28/2020	0925
R2008989-004	MW-7 - 092820	9/28/2020	0940
R2008989-005	MH-B - 092820	9/28/2020	1000

[illegible]

-Charles Gibson

Annual Ground Water Monitoring Sampling Narrative

09/23/20

Both monitoring wells MW-4 and MW-5 went dry during purge before sample was collected. Severson contacted Adam Carringer of Olin Corp. Adam told Severson to wait a few days and sample the recharge. Also MW-A3 was completely dry and no sample was taken.

9/28/20

Severson returned to site to sample recharge. The field blank was sampled at 0845. MW-5 was sampled at 0900. MS/MSD volume was also collected. MW-4 was sampled at 0925. MW-7 was sampled at 0940. Man Hole B was sampled at 1000.



Cooler Receipt and Preservation Check Form

R2008989

5

Olin Corporation
Charles GibsonProject/Client Olin Corp. Folder Number _____Cooler received on 9-29-2020 by KECOURIER: ALS UPS FEDEX VELOCITY CLIENT

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

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

3. Temperature Readings Date: 9-29-2020 Time: 09:53 ID: IR#7 IR#10 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>3.1</u>							
Within 0-6°C?	<u>(Y)</u>	N	Y	N	Y	N	Y	N
If <0°C, were samples frozen?	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 KE on 9-29-20 at 09:55
 5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 9/29/2020 Time: 17:15 by: SW

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 NA
 13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated NA

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO ₃								
≤2		H ₂ SO 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 ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O 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: 08070-11344
 Explain all Discrepancies/ Other Comments: _____

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: W
 PC Secondary Review: _____

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

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Internal Chain of Custody Report

Client: Olin Corporation
Project: Charles Gibson/1229

Service Request: R2008989

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2008989-001.01	8081B				
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		9/30/2020	0745	In Lab / VSTAUFFER	
		9/30/2020	0747	In Lab / VSTAUFFER	
R2008989-001.02					
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
R2008989-001.03	8270D				
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0803	In Lab / VSTAUFFER	
R2008989-001.04					
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
R2008989-002.01					
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
R2008989-002.02	8081B				
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
R2008989-002.03					
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
R2008989-002.04	8270D				
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0803	In Lab / VSTAUFFER	
R2008989-002.05					
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	

ALS Group USA, Corp.
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Internal Chain of Custody Report

Client: Olin Corporation
Project: Charles Gibson/1229

Service Request: R2008989

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2008989-002.06		10/2/2020	0803	In Lab / VSTAUFFER	
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0803	In Lab / VSTAUFFER	
R2008989-002.07		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
R2008989-002.08		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
R2008989-003.01	8081B	9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
		10/2/2020	1403	R-002 / VSTAUFFER	
R2008989-003.02		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
R2008989-003.03	8270D	9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0803	In Lab / VSTAUFFER	
R2008989-003.04		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		9/30/2020	0745	In Lab / VSTAUFFER	
		9/30/2020	0747	In Lab / VSTAUFFER	
R2008989-004.01	8081B	9/29/2020	1714	SMO / GLAFORCE	

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation
Project: Charles Gibson/1229

Service Request: R2008989

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	8081B	9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
		R2008989-004.02			
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		R2008989-004.03			
	8270D	9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		9/30/2020	0745	In Lab / VSTAUFFER	
		9/30/2020	0747	In Lab / VSTAUFFER	
		9/30/2020	1623	R-002 / VSTAUFFER	
		10/2/2020	0803	In Lab / VSTAUFFER	
		R2008989-004.04			
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		R2008989-005.01			
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		R2008989-005.02			
	8081B	9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0804	In Lab / VSTAUFFER	
		R2008989-005.03			
		9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		R2008989-005.04			
	8270D	9/29/2020	1714	SMO / GLAFORCE	
		9/29/2020	1714	R-002 / GLAFORCE	
		10/2/2020	0803	In Lab / VSTAUFFER	



Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

- | | |
|---|--|
| <p>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.</p> <p>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/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>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.</p> <p>* 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.</p> <p>H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.</p> <p># Spike was diluted out.</p> | <p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>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).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p> |
|---|--|



Rochester Lab ID # for State Certifications¹

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

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.

ALS Group USA, Corp.

dba ALS Environmental

Analyst Summary report

Client: Olin Corporation
Project: Charles Gibson/1229

Service Request: R2008989

Sample Name: Field Blank - 092820
Lab Code: R2008989-001
Sample Matrix: Water

Date Collected: 09/28/20**Date Received:** 09/29/20**Analysis Method**

8081B
8270D

Extracted/Digested By

KSERCU
KSERCU

Analyzed By

JMISIUREWICZ
JMISIUREWICZ

Sample Name: MW-5 - 092820
Lab Code: R2008989-002
Sample Matrix: Water

Date Collected: 09/28/20**Date Received:** 09/29/20**Analysis Method**

8081B
8270D

Extracted/Digested By

KSERCU
KSERCU

Analyzed By

JMISIUREWICZ
JMISIUREWICZ

Sample Name: MW-4 - 092820
Lab Code: R2008989-003
Sample Matrix: Water

Date Collected: 09/28/20**Date Received:** 09/29/20**Analysis Method**

8081B
8270D

Extracted/Digested By

KSERCU
KSERCU

Analyzed By

JMISIUREWICZ
JMISIUREWICZ

Sample Name: MW-7 - 092820
Lab Code: R2008989-004
Sample Matrix: Water

Date Collected: 09/28/20**Date Received:** 09/29/20**Analysis Method**

8081B
8270D

Extracted/Digested By

KSERCU
KSERCU

Analyzed By

JMISIUREWICZ
JMISIUREWICZ

ALS Group USA, Corp.

dba ALS Environmental

Analyst Summary report

Client: Olin Corporation
Project: Charles Gibson/1229

Service Request: R2008989

Sample Name: MH-B - 092820
Lab Code: R2008989-005
Sample Matrix: Water

Date Collected: 09/28/20

Date Received: 09/29/20

Analysis Method

8081B
8270D

Extracted/Digested By

KSERCU
KSERCU

Analyzed By

JMISIUREWICZ
JMISIUREWICZ



INORGANIC PREPARATION METHODS

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.	

RIGHT SOLUTIONS | RIGHT PARTNER



Sample Results

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



Semivolatile Organic Compounds by GC/MS

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 Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Olin Corporation
Project: Charles Gibson/1229
Sample Matrix: Water

Service Request: R2008989
Date Collected: 09/28/20 08:45
Date Received: 09/29/20 09:30

Sample Name: Field Blank - 092820
Lab Code: R2008989-001

Units: ug/L
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	11	1	10/06/20 22:48	10/2/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	76	35 - 141	10/06/20 22:48	
2-Fluorobiphenyl	61	31 - 118	10/06/20 22:48	
2-Fluorophenol	43	10 - 105	10/06/20 22:48	
Nitrobenzene-d5	58	31 - 110	10/06/20 22:48	
Phenol-d6	29	10 - 107	10/06/20 22:48	
p-Terphenyl-d14	77	10 - 165	10/06/20 22:48	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson/1229
Sample Matrix: Water

Service Request: R2008989
Date Collected: 09/28/20 09:00
Date Received: 09/29/20 09:30

Sample Name: MW-5 - 092820
Lab Code: R2008989-002

Units: ug/L
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	11	1	10/07/20 20:20	10/2/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	87	35 - 141	10/07/20 20:20	
2-Fluorobiphenyl	64	31 - 118	10/07/20 20:20	
2-Fluorophenol	43	10 - 105	10/07/20 20:20	
Nitrobenzene-d5	63	31 - 110	10/07/20 20:20	
Phenol-d6	30	10 - 107	10/07/20 20:20	
p-Terphenyl-d14	71	10 - 165	10/07/20 20:20	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson/1229
Sample Matrix: Water

Service Request: R2008989
Date Collected: 09/28/20 09:25
Date Received: 09/29/20 09:30

Sample Name: MW-4 - 092820
Lab Code: R2008989-003

Units: ug/L
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	10/06/20 23:17	10/2/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	61	35 - 141	10/06/20 23:17	
2-Fluorobiphenyl	57	31 - 118	10/06/20 23:17	
2-Fluorophenol	39	10 - 105	10/06/20 23:17	
Nitrobenzene-d5	57	31 - 110	10/06/20 23:17	
Phenol-d6	27	10 - 107	10/06/20 23:17	
p-Terphenyl-d14	55	10 - 165	10/06/20 23:17	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson/1229
Sample Matrix: Water

Service Request: R2008989
Date Collected: 09/28/20 09:40
Date Received: 09/29/20 09:30

Sample Name: MW-7 - 092820
Lab Code: R2008989-004

Units: ug/L
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	11	1	10/07/20 21:46	10/2/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	63	35 - 141	10/07/20 21:46	
2-Fluorobiphenyl	52	31 - 118	10/07/20 21:46	
2-Fluorophenol	38	10 - 105	10/07/20 21:46	
Nitrobenzene-d5	49	31 - 110	10/07/20 21:46	
Phenol-d6	25	10 - 107	10/07/20 21:46	
p-Terphenyl-d14	62	10 - 165	10/07/20 21:46	

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Analytical Report

Client: Olin Corporation
Project: Charles Gibson/1229
Sample Matrix: Water

Service Request: R2008989
Date Collected: 09/28/20 10:00
Date Received: 09/29/20 09:30

Sample Name: MH-B - 092820
Lab Code: R2008989-005

Units: ug/L
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	10/07/20 22:14	10/2/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	80	35 - 141	10/07/20 22:14	
2-Fluorobiphenyl	67	31 - 118	10/07/20 22:14	
2-Fluorophenol	39	10 - 105	10/07/20 22:14	
Nitrobenzene-d5	55	31 - 110	10/07/20 22:14	
Phenol-d6	28	10 - 107	10/07/20 22:14	
p-Terphenyl-d14	75	10 - 165	10/07/20 22:14	