Olin™
Environmental Remediation Group

Olin Corporation

3855 North Ocoee Street, Suite 200
Cleveland, TN 37312
(423) 336-4540
FAX (423) 339-5625
dmshare@olin.com

SENT VIA OVERNIGHT COURIER

March 09, 2017

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

Subject: Charles Gibson Site, Niagara Falls, New York
Site No. 932063
Annual Periodic Review Report (revision) – 2017
Post Closure Operation, Maintenance, and Monitoring Activities

Dear Mr. Sadowski,

We received your written request dated March 2, 2017 for the addition of groundwater contour maps to be placed within the Periodic Review Report. We have placed the contour maps within the original Periodic Review Report that was submitted on February 27, 2017. We are submitting a CD containing a PDF of the revised 2016 Annual Period 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.

Please contact me with any questions at 423-336-4540 or by email at cmrichards@olin.com.

Sincerely,
OLIN CORPORATION

David M. Share
Director, Environmental Remediation

Environmental Remediation Group

Olin Corporation

3855 North Ocoee Street, Suite 200
Cleveland, TN 37312
(423) 336-4540
FAX (423) 339-5625
dmshare@olin.com

SENT VIA OVERNIGHT COURIER

February 27, 2017

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

Subject: Charles Gibson Site, Niagara Falls, New York
Site No. 932063
Annual Periodic Review Report – 2017
Post Closure Operation, Maintenance, and Monitoring Activities

Dear Mr. Sadowski,

Olin hereby submits a CD containing a PDF of the 2016 Annual Period 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.

Please contact me with any questions at 423-336-4540 or by email at dmshare@olin.com.

Sincerely,
OLIN CORPORATION

David M. Share
Director, Environmental Remediation

Archived: Tuesday, February 28, 2017 11:11:21 AM
From: UPS Quantum View
Sent: Tuesday, February 28, 2017 9:33:29 AM
To: Baltimore, Beth A CERG
Subject: UPS Delivery Notification, Tracking Number 1Z92F6661398577397
Importance: Normal
Original mail: UPS Delivery Notification, Tracking Number 1Z92F6661398577397.msg;

Your package has been delivered.

Delivery Date: Tuesday, 02/28/2017
Delivery Time: 09:29 AM

At the request of OLIN CORP, this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z92F6661398577397
Ship To:	Brian Sadowski New York State Dept of Env 270 MICHIGAN AVE BUFFALO, NY 14203 US
UPS Service:	UPS NEXT DAY AIR SAVER
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	FRONT DESK
Signed by:	REYOLDS
Reference Number 1:	Charles Gibson PRR 2017

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Charles Gibson Site
Site No. 932063
Periodic Review Report

February 27, 2017

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I. INTRODUCTION

Brief Summary, Nature and Extent, Remedial History:
The Stipulation and Consent Judgment Approving Settlement Agreement was signed in 1985. 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 the Site compounds being monitored. Evaluation of the groundwater indicates that the containment remedy is effective. An evaluation of data from the piezometer pairs at the Site indicates that an inward hydraulic gradient has been established in the containment area of the site. Since 2000, concentrations of site compounds being monitored have been undetected or estimated at concentrations below the detection levels in all monitor wells with the exception of one parameter from MW-4 in 2011. 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:
The Operation and Maintenance program has shown that the conditions at the site are stable and consistent.

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 2015 was reviewed and found to be in accordance with the approved O&M Manual (Revised 2009) 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 2016 monitoring year indicates that the containment remedy is effective. Drawdown in both manholes was effectively maintained at specified levels throughout the year.

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 Site Monitoring Plan:

The operation, maintenance, and monitoring (OM&M) 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 inside the slurry wall.

- Water level elevations will be measured quarterly at the Site. Manholes A and B and piezometers P-1 through P-6 will be measured. 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. Since 2000, concentrations of site compounds being monitored have been undetected or estimated at concentrations below the detection levels in all monitor wells and Manhole B ***(Table 1 & Table 2)*** with the one exception mentioned above. 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. HCB results are undetected (U) for all sampling events since 1993. Sample collection and analysis of creek sediments are performed annually during the second half of the calendar year. The 2016 data show a decrease in all sediment parameters, both upstream and downstream ***(Table 3).***

The water elevation data collected from the piezometers and ground water wells was used to determine whether an inward hydraulic gradient exists was made by comparing water level measurements within the capped area to those measured outside the capped area. The groundwater elevation data indicate that ground water within the capped area is consistent with historical data. An evaluation of data from the piezometer pairs at the Site indicates that in piezometer pairs P3/P4 and P5/P6, slight outward gradients occurred in the third quarter but returned back to even and inward gradients by the fourth quarter. The third piezometer pair P1/P2 had outward gradients during the third and fourth quarters. Drawdown in both manholes was effectively maintained at specified levels throughout the year with exception of Manhole A during the first quarter. ***Table 4*** shows the most recent tables for piezometric data demonstrating that inward gradient.

Deficiencies:

None

Recommendations for Changes:

The Operation and Maintenance program has shown that the conditions at the site are stable and consistent.

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. The O&M Plan safeguards that remedy and provide for monitoring of the Gibson Site in compliance with the Settlement Agreement.

Inspections, on at least a quarterly basis, of the 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 in a manner that will minimize the need for extra maintenance. Additionally, the inspections address the safeguards to control, minimize or eliminate threats to human health and the environment. The potential post-remediation threats include the release of HCB, BHC, or contaminated leachate to the groundwater, and/or the creek.

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

The isolation of ground water within the capped area has been established 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 one previously noted exception. Fluctuations of groundwater elevations indicate that minor outward hydraulic gradients 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. HCB results are undetected (U) for all sampling events since 1993.

Future Submittals:
Future submittals of this report will be done on an annual basis.

Attachment A

Institutional & Engineering Certification Form

Enclosure 2

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

Site Details **Box 1**

Site No. 932063

Site Name Charles Gibson Site

Site Address: N.E. Cnr. of Niagara Falls Blvd. & Tuscarora Rd. Zip Code: 14304
City/Town: Niagara Falls
County: Niagara
Site Acreage: 2.0

Reporting Period: January 31, 2016 to January 31, 2017

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

Box 2

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

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

SITE NO. 932063 Box 3

Description of Institutional Controls

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

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

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

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

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

Box 4

Description of Engineering Controls

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

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

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

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

Box 5

Periodic Review Report (PRR) Certification Statements

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

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

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

YES	NO
☑	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or 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 David M. Share at 3855 N. Ocoee 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.

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

2/27/17
Date

IC/EC CERTIFICATIONS

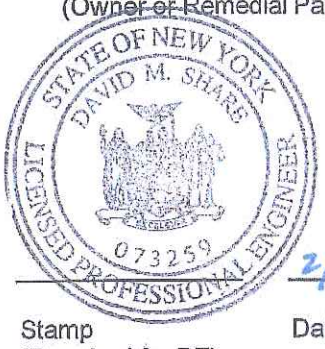
Box 7

Professional Engineer Signature

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

I David M. Share at 3855 N. Ocoee St., Cleveland TN 37312
print name print business address

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



David M. Share 2/27/17

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

Date

Attachment B

Site Features Map
Figure 1

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

Attachment C

Field Sampling Forms

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

DATE: 9/8/16 SEMI-ANNUAL SAMPLING EVENT: 3rd Quarter

PERSON CALIBRATING METERS: Chris Jones

pH METER USED: MANUFACTURER: oakton
MODEL: pH tester 3
IDENTIFICATION/CONTROL NUMBER: 1220148

CALIBRATION STANDARDS USED:

STANDARD 7.00 METER READ: 7.02
STANDARD 4.00 METER READ: 4.00
STANDARD 10.00 METER READ: 10.03

METER CALIBRATION COMMENTS:

SPECIFIC CONDUCTIVITY METER USED: Oakton
MANUFACTURER:
MODEL: 35607-10
IDENTIFICATION/CONTROL NUMBER: WD 35607-10 (E-700)

CALIBRATION STANDARDS USED:

STANDARD 0 READ: 0
(STANDARD 0 USED: ____ AIR, X WATER)
STANDARD ____ 8974 ____
STANDARD X 1413 1414

METER CALIBRATION COMMENTS:

THERMOMETER USED: TYPE: Digital
MANUFACTURER: Fischer
IDENTIFICATION/CONTROL NUMBER: 08791

COMMENTS: (DOES THERMOMETER TEMPERATURE AGREE WITH SPECIFIC CONDUCTIVITY METER TEMPERATURE ?) Y
OTHER:

OTHER INSTRUMENTS USED: TYPE:
MANUFACTURER:
IDENTIFICATION/CONTROL NUMBER:

CALIBRATIONS PERFORMED:

OTHER CALIBRATION COMMENTS:

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

RECORDED BY: C JONES
SAMPLED BY: C JONES
COMPANY: SES

SAMPLE ID: ~~MW-5~~ MW5-090816
SAMPLING EVENT/DATE: 9/8/16
MONITORING WELL: MW-5
CONDITION: GOOD

GROUNDWATER PURGE DATA

PURGE DATE: 9/8/16

DEPTH TO BOTTOM FROM TOP OF RISER: 15.28 (FT.)
DEPTH TO WATER FROM TOP OF RISER: 11.82 (FT.)
WATER COLUMN: 3.46 (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= .55 (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: DEDICATED TUBING
BOTTOM OF WELL/SILT BUILDUP: NONE
PURGE START TIME: 905 STOP TIME: 915
PURGE OBSERVATIONS: CLEAR

FIELD PARAMETER MEASUREMENTS:

WELL VOLUME		pH	SPECIFIC CONDUCTIVITY umhos/cm)	TEMP. (C OR F)	NOTES:
.5	1	7.58	978	15.7	CLEAR
1	2	7.65	987	15.6	↓
1.5	3	7.73	998	15.7	↓
	4				
	5				

TOTAL VOLUME PURGED: 1.5 gallons

GROUNDWATER OR SEDIMENT SAMPLING DATA:

SAMPLE DATE: 9/8/16

MEDIA: GROUNDWATER X
CREEK SEDIMENT

SAMPLE TIME: 920

LOCATION: BEHIND AUTO ZONE
SAMPLE METHOD: PERISTALTIC PUMP / DED TUBING
SAMPLING OBSERVATIONS: CLEAR, NO ODOR
QC SAMPLES TAKEN: MS / MSD
OTHER OBSERVATIONS/COMMENTS: SAMPLED AT 920 ON 9/8/16

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

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

RECORDED BY: C JONES
SAMPLED BY: C JONES
COMPANY: SES

SAMPLE ID: MW-4-090816
SAMPLING EVENT/DATE: 4 9/8/16
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: 8.01 (FT.)
WATER COLUMN: ~~5.74~~ 5.74 (FT.)
2" DIA. WELL CONSTANT: 0.16
ONE WELL VOLUME= .91 (GALS)

PURGE METHOD: DED TUBING
BOTTOM OF WELL/SILT BUILDUP: NONE
PURGE START TIME: 955 STOP TIME: 1010
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	1	7.35	1106	15.3	CLEAR
2	2	7.43	983	15.4	↓
3	3	7.51	799	15.5	↓
	4				
	5				

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/8/16

MEDIA: GROUNDWATER X
CREEK SEDIMENT

SAMPLE TIME: 1025

LOCATION: NEAT TO BIO ZONE

SAMPLE METHOD: PERISTALTIC PUMP / DEDICATED TUBING

SAMPLING OBSERVATIONS: SLIGHTLY TURBID / NO ODOR

QC SAMPLES TAKEN: BLIND DUP TAKEN HERE LABELED 'MW-7-090816' (1110) BLIND DUP TIME

OTHER OBSERVATIONS/COMMENTS: SAMPLED AT 1025 ON 9/8/16

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

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

RECORDED BY: _____ **SAMPLE ID:** MW-7 BLIND DUP

SAMPLED BY: _____ SAMPLING EVENT/DATE: _____

COMPANY: _____ 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'

MW-7 Blind Dup.

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 _____ SAMPLE TIME:

CREEK SEDIMENT _____

LOCATION: _____

SAMPLE METHOD: _____

SAMPLING OBSERVATIONS: _____

QC SAMPLES TAKEN: TAKEN AT MW 4 (LABELED AS MW 7)

OTHER OBSERVATIONS/COMMENTS: _____

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

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

RECORDED BY: C JONES
SAMPLED BY: C JONES
COMPANY: SES

SAMPLE ID: MH-B - 090816
SAMPLING EVENT/DATE:
MONITORING WELL: MANHOLE B
CONDITION: O>D

GROUNDWATER PURGE DATA

PURGE DATE:

DEPTH TO BOTTOM FROM TOP OF RISER: (FT.)

DEPTH TO WATER FROM TOP OF RISER: (FT.)

WATER COLUMN: (FT.)

2" DIA. WELL CONSTANT: 0.16

ONE WELL VOLUME= (GALS)

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

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

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

FIELD PARAMETER MEASUREMENTS:

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

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA:

SAMPLE DATE: 9/8/16

MEDIA: GROUNDWATER ✓
CREEK SEDIMENT

SAMPLE TIME: 1200

LOCATION: MANHOLE B

SAMPLE METHOD: DEDICATED TUBING / PERISTALTIC PUMP

SAMPLING OBSERVATIONS: CLEAR

QC SAMPLES TAKEN: SAMPLE FOR BHC only. (PEST)

OTHER OBSERVATIONS/COMMENTS: SAMPLED AT 1200 ON 9/8/16

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

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

RECORDED BY: C. JONES
SAMPLED BY: C. JONES
COMPANY: SES

SAMPLE ID: FIELD BLANK -090816
SAMPLING EVENT/DATE: 9/8/16
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 BLANK

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: ~~1300~~ 9/8/16

MEDIA: GROUNDWATER ____ SAMPLE TIME: 1300
CREEK SEDIMENT ____

LOCATION: —

SAMPLE METHOD: —

SAMPLING OBSERVATIONS: —

QC SAMPLES TAKEN: —

OTHER OBSERVATIONS/COMMENTS: POURED DI WATER PROVIDED BY LAB INTO JARS

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

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

RECORDED BY: C JONES
SAMPLED BY: C JONES
COMPANY: SEVENSON

SAMPLE ID: US-1-090816
SAMPLING EVENT/DATE: QUARTERLY 9/8/16
MONITORING WELL: —
CONDITION: —

GROUNDWATER PURGE DATA PURGE DATE:

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

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

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

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

FIELD PARAMETER MEASUREMENTS:

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

TOTAL VOLUME PURGED:

GROUNDWATER OR SEDIMENT SAMPLING DATA: SAMPLE DATE: 9/8/16

MEDIA: GROUNDWATER
CREEK SEDIMENT X

SAMPLE TIME: 1330

LOCATION: UPSTREAM OF DAM
SAMPLE METHOD: COMP FROM SED TRAP
SAMPLING OBSERVATIONS: BROWN, BLACK SILT
QC SAMPLES TAKEN: BLIND DUP (MS-1-0916) TAKEN HERE (1345)
OTHER OBSERVATIONS/COMMENTS:

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

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

RECORDED BY: C JONES
SAMPLED BY: C JONES
COMPANY: STEVENSON

SAMPLE ID: DS-1-090818
SAMPLING EVENT/DATE: QUARTERLY
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: 9/8/18

MEDIA: GROUNDWATER
CREEK SEDIMENT X

SAMPLE TIME: 1400

LOCATION: DOWNSTREAM OF DAM
SAMPLE METHOD: SED TRAP
SAMPLING OBSERVATIONS: BROWN, POOR SILT
QC SAMPLES TAKEN:
OTHER OBSERVATIONS/COMMENTS:

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

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

40018

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

Project Name: CHARLES GIBSON-OLIN	Project Number: 114817
Project Manager: DAVID SHARLE	Report CC: DMSHARLE@OLIN.COM
Company/Address: OLIN CORP 3855 NORTH OCOEE ST SUITE 200 CLEVELAND TN 37312	
Phone #: 423 336 4989	Email: DMSHARLE@OLIN.COM
Sampler's Signature:	Sampler's Printed Name: CHRIS JONES

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs • 8260 • 624 • CLP	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
MW5-090816		9/8/16	920	GW	8		4		4				MS/MSD VOLUME
MW4-090816			1025		4		2		2				
MW7-090816			1110		4		2		2				
MW-B-090816			1200		2				2				
FIELDBLANK-090816			1300		4		2		2				
US-1-090816			1330	SED	1				1				
MS-1-090816			1345		1				1				
DS-1-090816			1400		1				1				

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

SPECIAL INSTRUCTIONS/COMMENTS
Metals
3 WEEKS TAT

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
STANDARD
REQUESTED REPORT DATE

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

INVOICE INFORMATION
PO # REIL 0005
BILL TO: OLIN

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: CHRIS JONES	Printed Name: CHRIS JONES	Printed Name: CHRIS JONES	Printed Name	Printed Name	Printed Name
Firm: SES	Firm: JES	Firm: SES	Firm	Firm	Firm
Date/Time: 9/8/16 1600	Date/Time: 9/8/16 1600	Date/Time: 9/9/16 800	Date/Time	Date/Time	Date/Time

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: C JONES
SAMPLED BY: C JONES
COMPANY: STEVENSON

SAMPLE ID: MW-A3-090816
SAMPLING EVENT/DATE: 9/8/16
MONITORING WELL: MW-A3
CONDITION: GOOD

GROUNDWATER PURGE DATA PURGE DATE:

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

PURGE METHOD:
BOTTOM OF WELL/SILT BUILDUP:
PURGE START TIME: STOP TIME:
PURGE OBSERVATIONS: DRY NO WATER

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:

MEDIA: GROUNDWATER ____ SAMPLE TIME:
CREEK SEDIMENT ____

LOCATION:
SAMPLE METHOD:
SAMPLING OBSERVATIONS:
QC SAMPLES TAKEN:
OTHER OBSERVATIONS/COMMENTS: DRY NO SAMPLE

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

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: 3/8/16 TIME: 0800

INSPECTOR: JONES COMPANY: SEVENSON

WEATHER: 50° PARTLY CLOUDY

REASON FOR INSPECTION (QUARTERLY OR OTHER): QUARTERLY

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

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

		COMMENTS
ACCESS ROAD	A	
COVER VEGETATION	A	
TREES	A	
LITTER	A	PICKED UP SOME DEBRIS
EROSION (CAP)	A	
EROSION (BANK)	A	

SECURITY:

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

ADDITIONAL COMMENTS:

EAST SIDE OF CAP VERY MOIST.

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: 4/19/2016 TIME: 1100

INSPECTOR: Walker COMPANY: Sevenson

WEATHER:

REASON FOR INSPECTION (QUARTERLY OR OTHER): Annual NYSDEC Inspection

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

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

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

SECURITY:

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

ADDITIONAL COMMENTS: M. Walker met on site with Brian Sydowski of the NYSDEC for his annual site inspection. We walked the site and he took a few pictures. He commented that the site looked great.

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: 5-27-16 TIME: 10^00 am

INSPECTOR: M. WALKER COMPANY: SEVERSON ENVIRONMENTAL

WEATHER: SUNNY 78° F

REASON FOR INSPECTION (QUARTERLY OR OTHER): 2nd Quarter inspection 2016

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

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

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

ADDITIONAL COMMENTS: Site looks Good, Secure upon arrival

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: 9/8/16 TIME: 0800

INSPECTOR: C. JONES COMPANY: STEVENSON

WEATHER: 70° CLOUDY

REASON FOR INSPECTION (QUARTERLY OR OTHER): QUARTERLY

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

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

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

ADDITIONAL COMMENTS:

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

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

DATE: 11/11/16 TIME: 930

INSPECTOR: C VONEC COMPANY: SEVENSON

WEATHER: 45° SUNNY

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

GENERAL SITE CONDITIONS: U=UNACCEPTABLE A=ACCEPTABLE

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

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

ADDITIONAL COMMENTS:

- PICKED UP MINIMAL TRASH
- TOOK DOWN A COUPLE DEAD TREE LIMBS

TABLE 1
CHARLES GIBSON SITE
NIAGARA FALLS, NEW YORK

ANALYTICAL SUMMARY
GROUND WATER SAMPLING 2010-2016

MONITOR WELL: MW-A3

	2010		2011		2012		2013		2014		2015		2016	
Parameter	April	September	April	September	April	September	May	September	April	September	May	September	May	September
Alpha-BHC	NR	.034J	.053U	NR	NR	0.050U	0.047U	NR	NR	0.047U	0.047U	NR	NR	-
Beta-BHC	NR	.050U	.053U	NR	NR	0.050U	0.047U	NR	NR	0.047U	0.047U	NR	NR	-
Gamma-BHC	NR	.029J	.053U	NR	NR	0.050U	0.047U	NR	NR	0.047U	0.047U	NR	NR	-
Delta-BHC	NR	.050U	.053U	NR	NR	0.050U	0.047U	NR	NR	0.047U	0.047U	NR	NR	-
Hexachlorobenzene	NR	NR	NR	NR	NR	20U	NR	NR	NR	9.4U	NR	NR	NR	-

MONITOR WELL: MW-4

	2010		2011		2012		2013		2014		2015		2016	
Parameter	April	September	April	September	April	September	May	September	April	September	May	September	May	September
Alpha-BHC	NR	.49U	0.076	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.047U	NR	NR	.056U
Beta-BHC	NR	.49U	.048U	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.047U	NR	NR	.056U
Gamma-BHC	NR	.49U	.0247J	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.047U	NR	NR	.056U
Delta-BHC	NR	.49U	.048U	NR	NR	0.047U	0.047U	NR	NR	0.047U	0.047U	NR	NR	.056U
Hexachlorobenzene	NR	4.9U	NR	NR	NR	9.4U	NR	NR	NR	9.4U	NR	NR	NR	10U

MONITOR WELL: MW-5

	2010		2011		2012		2013		2014		2015		2016	
Parameter	April	September	April	September	April	September	May	September	April	September	May	September	May	September
Alpha-BHC	NR	.030J	.047U	NR	NR	0.047U	0.047U	NR	NR	0.050U	0.047U	NR	NR	.056U
Beta-BHC	NR	.049U	.047U	NR	NR	0.047U	0.047U	NR	NR	0.050U	0.047U	NR	NR	.056U
Gamma-BHC	NR	.025J	.017J	NR	NR	0.047U	0.047U	NR	NR	0.050U	0.047U	NR	NR	.056U
Delta-BHC	NR	.049U	.047U	NR	NR	0.047U	0.047U	NR	NR	0.050U	0.047U	NR	NR	.056U
Hexachlorobenzene	NR	4.7U	NR	NR	NR	9.4U	NR	NR	NR	9.4U	NR	NR	NR	10U

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 09, 2016

	MANHOLE B (MHB)
PARAMETER	
alpha-BHC	0.047U
beta-BHC	0.047U
delta-BHC	0.047U
gamma-BHC	0.047U
Hexachlorobenzene	NR

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 2020

TABLE 3
Charles Gibson Site
Niagara Falls, New York

ANALYTICAL SUMMARY

Annual Cayuga Creek Sediment Sampling 2006 - 2016

UPSTREAM

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Parameter	September	September	September	September	September	September	September	September	September	September	September
Alpha- BHC	13	40	77	240	94	200J	17	170J	120	NS	9.7
Beta- BHC	34	4.8	69	260	97	120J	48	190J	280	NS	25
Gamma- BHC	13	4.6	17J	18J	33J	190U	5.5U	28U	49U	NS	5.6U
Delta- BHC	3.9J	3.7	26U	39J	52J	140J	23	28U	49U	NS	19

DOWNSTREAM

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Parameter	September	September	September	September	September	September	September	September	September	September	September
Alpha- BHC	8.3	NS	5200	210	53J	230J	9.8	29U	55	52U	7
Beta- BHC	22	NS	1000	73	62J	130J	37	89	100	76	18
Gamma- BHC	11	NS	66J	60U	63U	220U	5.9U	29U	52U	52U	4.9U
Delta- BHC	3.7J	NS	82J	32	56J	170J	18	29U	52U	52U	15

Notes:
Concentration in microgram per kilogram (ug/kg)
U Not Detected
J Estimated value
NS No sample in trap

Table 4

2016 Quarterly Groundwater Elevations Summary

Piezometer Pair	3/08/2016	Inward gradient	5/27/2016	Inward gradient	9/8/2016	Inward gradient	11/11/2016	Inward gradient
P1 outside **P2 inside**	565.08 565.67	Outward	565.87 565.56	Inward	564.27 565.37	Outward	563.28 565.11	Outward
P3 outside **P4 inside**	570.39 565.46	Inward	567.24 565.60	Inward	563.95 565.33	Outward	565.17 565.17	Even
P5 outside **P6 inside**	569.34 567.67	Inward	568.60 567.88	Inward	566.18 566.53	Outward	565.44 566.13	Inward
		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl		Below 565 ft msl
Manhole A **Manhole B**	563.51 563.59	Yes Yes	563.94 563.48	Yes Yes	563.32 563.49	Yes Yes	563.36 563.39	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 5
Olin Corp. Gibson Site
Discharge Volumes

Summary of Yearly Discharge Volumes

Date	Volume (gallons)
2006	52,891
2007	22,958
2008	40,223
2009	40,187
2010	28,118
2011	40,625
2012	29,623
2013	46,766
2014	33,564
2015	18,537
2016	**28,172**
TOTALS	**381,664**

Monthly Discharge Volumes
2016

Month	Volume (gallons)
Jan	0
Feb	2,895
Mar	8,154
Apr	6,231
May	6,435
Jun	3,134
Jul	0
Aug	0
Sep	0
Oct	1,323
Nov	0
Dec	0
Total	**28,172**

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: 3/8/16 TIME: 0800

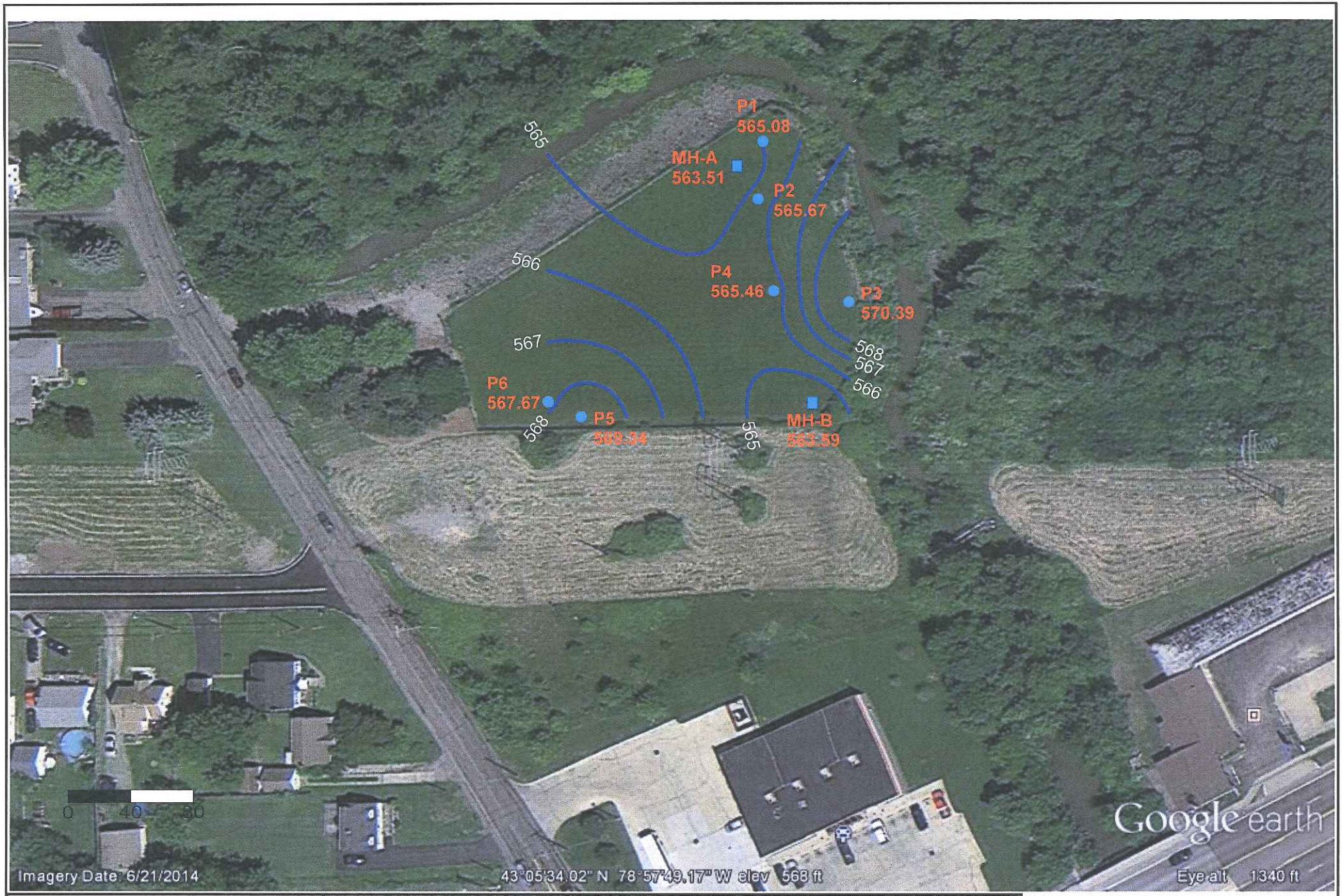
INSPECTOR: JONES COMPANY: SEVENSON

WEATHER: 50° PARTLY CLOUDY

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	7.64	565.08	
P-2	574.89	9.22	565.67	
P-3	574.16	3.77	570.39	
P-4	576.14	10.68	565.46	
P-5	575.05	5.71	569.34	
P-6	578.28	10.61	567.67	
MANHOLE A	575.22	11.71	563.51	
MANHOLE B	577.34	13.75	563.59	

(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

OLIN CORPORATION

OLIN CORPORATION

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

SCALE:	DRAWN BY: JRH	DATE: 4-11-2016
0.5 IN = 40 FT.	CHKD. BY: ABC	DATE: 4-11-2016

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
MARCH 8, 2016

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: 5-27-16 TIME: 10:00 AM

INSPECTOR: M WALKER COMPANY: SEVENSON

WEATHER: SUNNY 78°F

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	6.85	565.87	ok
P-2	574.89	9.33	565.56	ok
P-3	574.16	6.92	567.24	ok
P-4	576.14	10.54	565.60	ok
P-5	575.05	6.45	568.60	ok
P-6	578.28	10.40	567.88	ok
MANHOLE A	575.22	11.82	563.94	ok
MANHOLE B	577.34	13.86	563.48	ok

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

ADDITIONAL COMMENTS/OBSERVATIONS: Site Looked good. All well caps Locked, secure and undamaged.
Grass on cap (cover) is 12"-15" high, fencing looks good.

OLIN CORPORATION

OLIN CORPORATION

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

SCALE:	DRAWN BY: JRH	DATE: 6-10-2016
0.5 IN = 40 FT.	CHKD. BY: ABC	DATE: 6-10-2016

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
MAY 27, 2016

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: 9/8/16 TIME: 0800

INSPECTOR: CHRIS JONES COMPANY: SEVENSON

WEATHER: 70° Cloudy

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	8.45	564.27	
P-2	574.89	9.52	565.37	
P-3	574.16	10.21	563.95	
P-4	576.14	10.81	565.33	
P-5	575.05	8.87	566.18	
P-6	578.28	11.75	566.53	
MANHOLE A	575.22	11.90	563.32	
MANHOLE B	577.34	13.85	563.49	

(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

OLIN CORPORATION

OLIN CORPORATION

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

SCALE:	DRAWN BY: JRH	DATE: 10-7-2016
0.5 IN = 40 FT.	CHKD. BY: ABC	DATE: 10-7-2016

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
SEPTEMBER 8, 2016

FIG. NO.
3

- 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: 11/11/16 TIME: 0930

INSPECTOR: C JONES COMPANY: SEVENSON

WEATHER: 95° SUNNY

PIEZOMETER	RISER ELEVATION (INSIDE CASING)	DEPTH TO WATER (FT.)	WATER ELEVATION	COMMENTS
P-1	572.72	9.44	563.28	
P-2	574.89	9.78	565.11	
P-3	574.16	8.99	565.17	
P-4	576.14	10.97	565.17	
P-5	575.05	9.61	565.44	
P-6	578.28	12.15	566.13	
MANHOLE A	575.22	11.86	563.36	
MANHOLE B	577.34	13.95	563.39	

(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

OLIN CORPORATION

OLIN CORPORATION

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

SCALE:	DRAWN BY: JRH	DATE: 12-15-2016
0.5 IN = 40 FT.	CHKD. BY: ABC	DATE: 12-15-2016

CHARLES GIBSON SITE
NIAGRA FALLS, NY

GROUNDWATER CONTOUR MAP
PIEZOMETER/MANHOLE LEVELS
SAMPLING EVENT
NOVEMBER 11, 2016

FIG. NO.
4

- MANHOLE
- PIEZOMETER

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

February 20, 2017

Service Request No:R1609580

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

Laboratory Results for: Gibson Niagara Falls

Dear Mr.Share,

Enclosed are the results of the sample(s) submitted to our laboratory September 09, 2016
For your reference, these analyses have been assigned our service request number **R1609580.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, 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) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Curt Richards

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

ALS Environmental
ALS Group USA, Corp
1565 Jefferson Road, Building 300, Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

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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

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

ALS Environmental

Client: Olin Corporation
Project: Gibson Niagara Falls/114811
Sample Matrix: Soil

Service Request:R1609580
Date Received:9/9/16

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt

Five water and three soil samples were received for analysis at ALS Environmental on 09/09/2016. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at ≤6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Semi-Volatile Organic Analyses:

Method 8081, 09/26/16: The control limit was exceeded for one or more surrogates in the Continuing Calibration Verification (CCV). The surrogates were within acceptance limits for the associated field samples. The data quality was not significantly affected and no further corrective action was taken.

General Chemistry Analyses:

No significant anomalies were noted with this analysis.

Approved by _____ Date 2/20/2017

SAMPLE DETECTION SUMMARY

CLIENT ID: US-1-090816	Lab ID: R1609580-006					
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Total Solids	30.4				Percent	ALS SOP
alpha-BHC	9.7		2.8	5.6	ug/Kg	8081B
beta-BHC	25		2.8	5.6	ug/Kg	8081B
delta-BHC	19		2.8	5.6	ug/Kg	8081B

CLIENT ID: MS-1-090816	Lab ID: R1609580-007					
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Total Solids	35.0				Percent	ALS SOP
alpha-BHC	8.8		2.4	4.9	ug/Kg	8081B
beta-BHC	21		2.4	4.9	ug/Kg	8081B
delta-BHC	16		2.4	4.9	ug/Kg	8081B

CLIENT ID: DS-1-090816	Lab ID: R1609580-008					
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Total Solids	34.7				Percent	ALS SOP
alpha-BHC	7.0		2.5	4.9	ug/Kg	8081B
beta-BHC	18		2.5	4.9	ug/Kg	8081B
delta-BHC	15		2.5	4.9	ug/Kg	8081B

ALS Environmental

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: Gibson Niagara Falls/114811

Service Request:R1609580

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1609580-001	MW5-090816	9/8/2016	0920
R1609580-002	MW4-090816	9/8/2016	1025
R1609580-003	MW7-090816	9/8/2016	1110
R1609580-004	MH-B-090816	9/8/2016	1200
R1609580-005	FIELDBLANK-090816	9/8/2016	1300
R1609580-006	US-1-090816	9/8/2016	1330
R1609580-007	MS-1-090816	9/8/2016	1345
R1609580-008	DS-1-090816	9/8/2016	1400

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) PA

Project Name: CHARLES GIBSON - OLIN	Project Number: 114817
Project Manager: DAVID SHANE	Report CC: DMSHANE@OLIN.COM
Company/Address: OLIN CORP 3855 NORTH OCOEE ST SUITE 200 CLEVELAND TN 37312	
Phone #: 423 336 4989	Email: DMSHANE@OLIN.COM
Sampler's Signature:	Sampler's Printed Name: CHRIS JONES

ANALYSIS REQUESTED (Include Method Number a

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs • 8260 • 624 • CLP	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)
MW5 - 090816		9/8/16	920	GW	8		4		4			
MW4 - 090816			1025		4		2		2			
MW7 - 090816			1110		4		2		2			
MW-B - 090816			1200		2				2			
FIELDBLANK - 090816			1300		4		2		2			
DS-1 - 090816			1330	SED	1				1			
MS-1 - 090816			1345		1				1			
DS-1 - 090816			1400		1				1			

SPECIAL INSTRUCTIONS/COMMENTS

Metals

3 COOLERS TOT

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS

_____ RUSH (SURCHARGES APPLY)

_____ 1 day _____ 2 day _____ 3 day

_____ 4 day _____ 5 day

STANDARD

REQUESTED REPORT DATE

_____

REPORT REQUIRE

_____ I. Results Only

X II. Results + QC Summa (LCS, DUP, MS/MSD as

_____ III. Results + QC and Ca Summaries

_____ IV. Data Validation Repo

Edata _____ Ye

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED
Signature	Signature	Signature	Signature	Signature
Printed Name: CHRIS JONES	Printed Name: CHRIS JONES	Printed Name: CHRIS JONES	Printed Name: ALS	Printed Name
Firm: SES	Firm: SES	Firm: SES	Firm: ALS	Firm
Date/Time: 9/8/16 1600	Date/Time: 9/8/16 1600	Date/Time: 9/9/16 800	Date/Time: 9/9/16 1400	Date/Time

R16 Olin Co po Gibson Vla

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

Cooler Receipt and Preservation Check Form

R1609580 5
Olin Corporation
Gibson Niagara Falls

Project/Client Severson/OLIN Folder Number R16-9580

Cooler received on 9/9/16 by: DW

COURIER: ALS UPS FEDEX VELOCITY CLIENT

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

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

8. Temperature Readings Date: 9/9/16 Time: 1434 ID: IR#5 IR#6 From: Temp Blank Sample Bottle

Observed Temp (°C)	4.3 c	3.4 c	3.5 c	3.7 c			
Correction Factor (°C)	-2.0	-2.0	-2.0	-2.0			
Corrected Temp (°C)	2.3	1.4	1.5	1.7			
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 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-007 by DW on 9/9/16 at 1434
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown: Date: 9/9/16 Time: 2140 by: DW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO NA
5.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		NA

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 060316-1BT, 060316-1BVS

Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

PC Secondary Review: [signature] 9/12/16

*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: Gibson Niagara Falls/114811

Service Request: R1609580

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1609580-001.01					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-001.02					
		9/9/2016	2142	SMO / GLAFORCE	1/16/2017
		9/12/2016	1259	In Lab / MPEDRO	1/16/2017
R1609580-001.03					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-001.04					
		9/9/2016	2142	SMO / GLAFORCE	1/16/2017
		9/12/2016	1259	In Lab / MPEDRO	1/16/2017
R1609580-001.05					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-001.06					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-001.07	8270D				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-001.08	8081B				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-002.01	8081B				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-002.02					
		9/9/2016	2142	SMO / GLAFORCE	1/16/2017
		9/12/2016	1300	In Lab / MPEDRO	1/16/2017
R1609580-002.03	8270D				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-002.04					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-003.01					

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation
Project: Gibson Niagara Falls/114811

Service Request: R1609580

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-003.02					
		9/9/2016	2142	SMO / GLAFORCE	1/16/2017
		9/12/2016	1300	In Lab / MPEDRO	1/16/2017
R1609580-003.03	8081B				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-003.04	8270D				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-004.01					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-004.02	8081B				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-005.01					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-005.02					
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-005.03	8270D				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-005.04	8081B				
		9/9/2016	2142	SMO / GLAFORCE	
R1609580-006.01	8081B,ALS SOP				
		9/9/2016	2142	SMO / GLAFORCE	1/16/2017
		9/12/2016	1139	In Lab / KWONG	1/16/2017
		9/12/2016	1355	R-002 / KWONG	1/16/2017
		9/22/2016	1239	In Lab / MROGERSON	1/16/2017
R1609580-006.02					
		9/9/2016	2143	SMO / GLAFORCE	
R1609580-007.01					

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation
Project: Gibson Niagara Falls/114811

Service Request: R1609580

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	8081B,ALS SOP				
		9/9/2016	2142	SMO / GLAFORCE	
		9/12/2016	1139	In Lab / KWONG	
		9/12/2016	1355	R-002 / KWONG	
R1609580-007.02					
		9/9/2016	2143	SMO / GLAFORCE	1/16/2017
		9/22/2016	1240	In Lab / MROGERSON	1/16/2017
R1609580-008.01					
	8081B,ALS SOP				
		9/9/2016	2142	SMO / GLAFORCE	
		9/12/2016	1139	In Lab / KWONG	
		9/12/2016	1355	R-002 / KWONG	
R1609580-008.02					
		9/9/2016	2143	SMO / GLAFORCE	1/16/2017
		9/22/2016	1239	In Lab / MROGERSON	1/16/2017

Miscellaneous Forms

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

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

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

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

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

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

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

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

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

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

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

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

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

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

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

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

X See Case Narrative for discussion.

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

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

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

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

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Accredited	Nebraska Accredited	
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047	North Carolina #676	Virginia #460167

[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 http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

Acronyms

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

Client: Olin Corporation
Project: Gibson Niagara Falls/114811

Service Request: R1609580

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
ALS SOP	Soil	Total Solids

Client: Olin Corporation
Project: Gibson Niagara Falls/114811

Service Request: R1609580

Sample Name: MW5-090816
Lab Code: R1609580-001
Sample Matrix: Water

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	DMURPHY	MPEDRO
8270D	DMURPHY	JMISIUREWICZ

Sample Name: MW4-090816
Lab Code: R1609580-002
Sample Matrix: Water

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	DMURPHY	MPEDRO
8270D	DMURPHY	JMISIUREWICZ

Sample Name: MW7-090816
Lab Code: R1609580-003
Sample Matrix: Water

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	DMURPHY	MPEDRO
8270D	DMURPHY	JMISIUREWICZ

Sample Name: MH-B-090816
Lab Code: R1609580-004
Sample Matrix: Water

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	DMURPHY	MPEDRO

Client: Olin Corporation
Project: Gibson Niagara Falls/114811

Service Request: R1609580

Sample Name: FIELDBLANK-090816
Lab Code: R1609580-005
Sample Matrix: Water

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	DMURPHY	MPEDRO
8270D	DMURPHY	JMISIUREWICZ

Sample Name: US-1-090816
Lab Code: R1609580-006
Sample Matrix: Soil

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	MROGERSON	MPEDRO
ALS SOP		KWONG

Sample Name: MS-1-090816
Lab Code: R1609580-007
Sample Matrix: Soil

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	MROGERSON	MPEDRO
ALS SOP		KWONG

Sample Name: DS-1-090816
Lab Code: R1609580-008
Sample Matrix: Soil

Date Collected: 09/8/16
Date Received: 09/9/16

Analysis Method	Extracted/Digested By	Analyzed By
8081B	MROGERSON	MPEDRO
ALS SOP		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
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
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
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
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.

ALS Environmental

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

ALS Environmental

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

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 09:20
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW5-090816	**Units:**	ug/L
Lab Code:	R1609580-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	10	1	09/15/16 08:52	9/12/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	91	35 - 141	09/15/16 08:52	
2-Fluorobiphenyl	67	31 - 118	09/15/16 08:52	
2-Fluorophenol	40	10 - 105	09/15/16 08:52	
Nitrobenzene-d5	68	31 - 110	09/15/16 08:52	
Phenol-d6	30	10 - 107	09/15/16 08:52	
p-Terphenyl-d14	77	30 - 133	09/15/16 08:52	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 10:25
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW4-090816	**Units:**	ug/L
Lab Code:	R1609580-002	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	10	1	09/14/16 18:30	9/12/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	101	35 - 141	09/14/16 18:30	
2-Fluorobiphenyl	73	31 - 118	09/14/16 18:30	
2-Fluorophenol	36	10 - 105	09/14/16 18:30	
Nitrobenzene-d5	70	31 - 110	09/14/16 18:30	
Phenol-d6	27	10 - 107	09/14/16 18:30	
p-Terphenyl-d14	90	30 - 133	09/14/16 18:30	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 11:10
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW7-090816	**Units:**	ug/L
Lab Code:	R1609580-003	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	10	1	09/15/16 10:15	9/12/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	88	35 - 141	09/15/16 10:15	
2-Fluorobiphenyl	68	31 - 118	09/15/16 10:15	
2-Fluorophenol	34	10 - 105	09/15/16 10:15	
Nitrobenzene-d5	67	31 - 110	09/15/16 10:15	
Phenol-d6	25	10 - 107	09/15/16 10:15	
p-Terphenyl-d14	78	30 - 133	09/15/16 10:15	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 13:00
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	FIELDBLANK-090816	**Units:**	ug/L
Lab Code:	R1609580-005	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Hexachlorobenzene	ND U	9.4	1	09/15/16 10:43	9/12/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	84	35 - 141	09/15/16 10:43	
2-Fluorobiphenyl	68	31 - 118	09/15/16 10:43	
2-Fluorophenol	38	10 - 105	09/15/16 10:43	
Nitrobenzene-d5	66	31 - 110	09/15/16 10:43	
Phenol-d6	27	10 - 107	09/15/16 10:43	
p-Terphenyl-d14	98	30 - 133	09/15/16 10:43	

ALS Environmental

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

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 09:20
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW5-090816	**Units:**	ug/L
Lab Code:	R1609580-001	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.056	1	09/16/16 08:53	9/13/16	
beta-BHC	ND U	0.056	1	09/16/16 08:53	9/13/16	
delta-BHC	ND U	0.056	1	09/16/16 08:53	9/13/16	
gamma-BHC (Lindane)	ND U	0.056	1	09/16/16 08:53	9/13/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	30	10 - 164	09/16/16 08:53	
Tetrachloro-m-xylene	67	10 - 147	09/16/16 08:53	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 10:25
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW4-090816	**Units:**	ug/L
Lab Code:	R1609580-002	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.056	1	09/16/16 09:49	9/13/16	
beta-BHC	ND U	0.056	1	09/16/16 09:49	9/13/16	
delta-BHC	ND U	0.056	1	09/16/16 09:49	9/13/16	
gamma-BHC (Lindane)	ND U	0.056	1	09/16/16 09:49	9/13/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	39	10 - 164	09/16/16 09:49	
Tetrachloro-m-xylene	54	10 - 147	09/16/16 09:49	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 11:10
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MW7-090816	**Units:**	ug/L
Lab Code:	R1609580-003	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.056	1	09/16/16 10:07	9/13/16	
beta-BHC	ND U	0.056	1	09/16/16 10:07	9/13/16	
delta-BHC	ND U	0.056	1	09/16/16 10:07	9/13/16	
gamma-BHC (Lindane)	ND U	0.056	1	09/16/16 10:07	9/13/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	41	10 - 164	09/16/16 10:07	
Tetrachloro-m-xylene	61	10 - 147	09/16/16 10:07	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 12:00
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	MH-B-090816	**Units:**	ug/L
Lab Code:	R1609580-004	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.047	1	09/16/16 10:26	9/13/16	
beta-BHC	ND U	0.047	1	09/16/16 10:26	9/13/16	
delta-BHC	ND U	0.047	1	09/16/16 10:26	9/13/16	
gamma-BHC (Lindane)	ND U	0.047	1	09/16/16 10:26	9/13/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 164	09/16/16 10:26	
Tetrachloro-m-xylene	59	10 - 147	09/16/16 10:26	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 13:00
Sample Matrix:	Water	**Date Received:**	09/09/16 14:10
Sample Name:	FIELDBLANK-090816	**Units:**	ug/L
Lab Code:	R1609580-005	**Basis:**	NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
alpha-BHC	ND U	0.047	1	09/16/16 10:45	9/13/16	
beta-BHC	ND U	0.047	1	09/16/16 10:45	9/13/16	
delta-BHC	ND U	0.047	1	09/16/16 10:45	9/13/16	
gamma-BHC (Lindane)	ND U	0.047	1	09/16/16 10:45	9/13/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	36	10 - 164	09/16/16 10:45	
Tetrachloro-m-xylene	62	10 - 147	09/16/16 10:45	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 13:30
Sample Matrix:	Soil	**Date Received:**	09/09/16 14:10
Sample Name:	US-1-090816	**Units:**	ug/Kg
Lab Code:	R1609580-006	**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	9.7	5.6	1	09/26/16 12:16	9/22/16	
beta-BHC	25	5.6	1	09/26/16 12:16	9/22/16	
delta-BHC	19	5.6	1	09/26/16 12:16	9/22/16	
gamma-BHC (Lindane)	ND U	5.6	1	09/26/16 12:16	9/22/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	51	10 - 122	09/26/16 12:16	
Tetrachloro-m-xylene	57	10 - 123	09/26/16 12:16	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 13:45
Sample Matrix:	Soil	**Date Received:**	09/09/16 14:10
Sample Name:	MS-1-090816	**Units:**	ug/Kg
Lab Code:	R1609580-007	**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	8.8	4.9	1	09/26/16 13:12	9/22/16	
beta-BHC	21	4.9	1	09/26/16 13:12	9/22/16	
delta-BHC	16	4.9	1	09/26/16 13:12	9/22/16	
gamma-BHC (Lindane)	ND U	4.9	1	09/26/16 13:12	9/22/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	51	10 - 122	09/26/16 13:12	
Tetrachloro-m-xylene	58	10 - 123	09/26/16 13:12	

Client:	Olin Corporation	**Service Request:**	R1609580
Project:	Gibson Niagara Falls/114811	**Date Collected:**	09/08/16 14:00
Sample Matrix:	Soil	**Date Received:**	09/09/16 14:10
Sample Name:	DS-1-090816	**Units:**	ug/Kg
Lab Code:	R1609580-008	**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	**7.0**	4.9	1	09/26/16 13:30	9/22/16	
beta-BHC	**18**	4.9	1	09/26/16 13:30	9/22/16	
delta-BHC	**15**	4.9	1	09/26/16 13:30	9/22/16	
gamma-BHC (Lindane)	ND U	4.9	1	09/26/16 13:30	9/22/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	50	10 - 122	09/26/16 13:30	
Tetrachloro-m-xylene	61	10 - 123	09/26/16 13:30	