Frontier Chemical – Pendleton Site PRP Group
c/o Olin Corporation
490 Stuart Road, NE
Cleveland, TN 37312

SENT VIA OVERNIGHT CARRIER/EMAIL

September 30, 2021

Mr. Glenn May
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Niagara Falls, NY 14203-2999

Subject: Frontier Chemical – Pendleton Site, Pendleton, New York
Order on Consent (#B9-0270-89-05)
Annual Periodic Review Report – 2021
Post Closure Operation, Maintenance, and Monitoring Activities

Dear Mr. May:

On behalf of the Pendleton PRP Group, Olin hereby submits an email link containing a PDF of the 2021 Annual Periodic Review Report on the Post-Closure Operation, Maintenance, and Monitoring activities for the Frontier Chemical-Pendleton Site. The annual certification is attached as hard copy and as part of the PDF.

Please contact me with any questions at 423-508-2768 or by e-mail at abcarringer@olin.com.

Sincerely,

Pendleton PRP Group

Adam B. Carringer
Trustee

PERIODIC REVIEW REPORT
FRONTIER CHEMICAL-PENDLETON SITE

Olin Corporation
Frontier Pendleton PRP Group
Frontier Chemical-Pendleton Site
Pendleton, New York

Table of Contents

LIST OF ATTACHMENTS
(Following Report)

1 Introduction

1.1 Brief Summary, Nature and Extent, Remedial History.

The Frontier Chemical – Pendleton Site PRP Group is responsible for the operation, maintenance and monitoring of the closure components of the Site. The site is being maintained according to the approved O&M Plan. The Site occupies approximately 11 acres of the 75-acres operated by Frontier Chemical Waste Process, Inc. Frontier Chemical operated the site as an industrial waste treatment facility from 1958 to 1974. Plating wastes, pickle liquors and other liquid acid wastes from plating and metal finishing industries were treated at the site, with residuals from the waste treatment process being discharged into Quarry Lake. Much of the former Process Area was filled and graded following termination of waste treatment operations. In March 1994, the PRP Group entered into an Order on Consent (#B9-0270-89-05) with NYSDEC to implement the RD/RA Work Plan. Site remediation consisted of removal of lake sediments and placement in an onsite landfill. The site remediation project was designed in 1993 and 1994, the construction was completed in 1995 and 1996 by Sevenson Environmental Services, Inc., and O&M activities began in 1997.

1.2 Effectiveness of Remedial Program.

The isolation of ground water within the capped area has been established and is being maintained by current operation and maintenance activities. The ground water elevation data indicates that ground water within the capped area is migrating to the west toward the ground water collection trench. Review of the ground water elevation data indicates that inward hydraulic gradients were observed between piezometers within the capped area and piezometers outside of the capped area. The absence of carbon disulfide detected at concentrations above the New York State Class GA standards in the monitoring wells surrounding the capped area provide evidence that contaminants are not migrating from beneath the cap. The remedial program is achieving the objectives of containing groundwater flow and maintaining groundwater quality standards.

1.3 Compliance.

There are no areas of non-compliance.

1.4 Recommendations.

The Operation and Maintenance program data show conditions are stable, and the remedy remains effective. There are no recommendations at this time.

2 Site Overview

2.1 Site Description and Nature/Extent Prior to Remediation.

A map showing the site features is included in **Attachment A**. The Site occupies approximately 11 acres. The site consists of the capped landfill, with the adjacent quarry lake having been remediated. Plating wastes, pickle liquors and other liquid acid wastes from plating and metal finishing industries were treated at the site, with residuals from the waste treatment process being discharged into Quarry Lake which occupies approximately 15 acres of the Site. Much of the former Process Area was filled and graded following termination of waste treatment operations. Site remediation consisted of removal of lake sediments and placement in an onsite landfill.

2.2 Remediation Chronology.

In March 1994, the PRP Group entered into an Order on Consent (#B9-0270-89-05) with NYSDEC to implement the RD/RA Work Plan. Site remediation consisted of removal of lake sediments and placement in an onsite landfill. The site remediation project was designed in 1993 and 1994, the construction was completed in 1995 and 1996 by Sevenson Environmental Services, Inc., and O&M activities began in 1997.

Constructed features for the Site include the capped area, ground water collection and conveyance system, surface water runoff facilities, constructed wetlands, perimeter and containment berms, and outlet weir, ground water monitoring system, access road, and site security. Each of the construction features is described briefly in the following paragraphs.

The low-permeability capped system at the Site is a multi-component system designed to isolate the contaminants in the landfill. The 60-mil thick textured high-density polyethylene (HDPE) geomembrane is the component that covers and isolates the contaminants in the landfill. A 2-foot thick soil barrier layer was installed to protect the HPDE geomembrane cover. An 18-inch thick layer of soil barrier protection layer was placed over the HDPE geomembrane to protect the HDPE geomembrane from external forces. A 6-inch thick layer of topsoil was added to bring the soil barrier protection layer to a thickness of 2-feet. The soil barrier protection layer supports the vegetative cover that minimizes erosion.

The ground water collection system installed along the southern perimeter of the capped area and eastern edge of Quarry Lake is approximately 1,594 feet in length. The southern perimeter collection system is a perforated 6-inch diameter HDPE pipe approximately 420 feet in length sloped to discharge to manhole MH-1 of the eastern edge of Quarry Lake collection system. The collection system along the eastern edge of the Quarry Lake is a perforated 6-inch pipe approximately 1,174 feet in length.

The groundwater pre-treatment system consists of wet/dry well pump station designed for a maximum flow rate of 10 gallon per minute (gpm). A modified lead/lag sand/granular activated carbon (GAC) dual media system was installed in the dry well to treat water collected by the groundwater collection system.

The surface water runoff control facilities at the Site are designed to protect the toe of the capped area from run on and to convey runoff away from the capped area during a 25-year, 24-hour storm or a seasonal thaw event. Wetlands are constructed in Quarry Lake between the lake and the reconstructed perimeter berm, north of the capped area, and south of the capped area. The perimeter berm was constructed at a top elevation of approximately 580.5 feet and with a slope of 1V:3H provides containment for 25-year, 24-hour event while maintaining two feet of freeboard.

The access road from Townline Road allows access to the perimeter of the capped area and ground water collection, conveyance and pre-treatment system for inspection and maintenance purposes. Site access is controlled by a vehicle access gate at Town Line Road.

3 Remedial Performance, Effectiveness, and Protectiveness

3.1 Effectiveness of Remedial Goals.

The isolation of groundwater within the capped area has been established and is being maintained by current operation and maintenance activities. The ground water elevation data indicates that ground water within the capped area is migrating to the west toward the ground water collection trench. Review of the ground water elevation data indicate that acceptable hydraulic gradients were observed between piezometers within the capped area and piezometers outside of the capped area. **Attachment B** shows the most recent graphs and tables for piezometric data demonstrating inward gradient. **Attachment C** includes the analytical data from pre-treated water prior to discharge during this reporting period. The performance of the pre-treatment system has met the discharge criteria of the permit since startup in 1997.

4 IC/EC Plan (not applicable)

4.1 IC/EC Requirements.

A 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 water treatment system is in place, treating and discharging groundwater in accordance with a local discharge permit.

A vapor mitigation system is in place on the landfill, the exhaust fan from the treatment system vault effectively vents vapors.

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

4.2 Certification.

The certification is attached.

5 Monitoring Plan Compliance Report

5.1 Components of Monitoring Plan.

Operation, maintenance, and monitoring activities to be performed by the Group include:

In accordance with the Operation and Maintenance Manual NYSDEC approval dated March 17, 1997, during the first year of monitoring, groundwater samples were to be collected semi-annually for target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs)/pesticides, and target analyte list (TAL) metals during the second through fifth years of monitoring. After five years the sampling frequency was reduced to an annual basis while the SVOCs and PCBs were no longer required.

From 2003-2013 sampling was conducted on an annual basis. On January 9, 2014, NYSDEC approved a reduction in the sampling frequency from annually to biennially.
In addition to the 2014 approved reduction in frequency, a reduction in parameters was also granted.

The TCL for VOCs went from the 34-parameter full suite to carbon disulfide.

The twenty-four compounds listed in the TAL for metals was reduced to arsenic, chromium, and potassium.

In 2019, NYSDEC requested we reinstate the chlorinated VOC sampling to the 34-parameter full suite as was originally done prior to the 2014 reduction. In addition to this change, carbon disulfide would no longer be sampled.

In accordance with the NYSDEC approval dated January 9, 2014, groundwater analytical sampling is conducted on a bi-ennial basis. In 2021, groundwater sampling was not required to be performed. Groundwater sampling will occur again in 2022 in accordance with the approved schedule. Groundwater level measurements will continue to be obtained on a semi-annual basis.

The ground water monitoring system includes ten ground water monitoring wells (URS-14I, URS-14D, URS-9I, URS-9D, 85-5R, URS-5D, 85-7R, URS-7D, 88-12C, and 88-12D), eight piezometers (P-1 through P-8), and one standpipe (SP-1). The ground water monitoring wells are located outside the limits of the capped area and serve to monitor the elevation of the ground water table as well as to collect samples of ground water to be analyzed. Five piezometers are located within the capped area, and three piezometers are located outside the capped area. The standpipe is located within the ground water collection trench. The surface water elevation in Quarry Lake is measured along with water elevations from the eight piezometers, and the standpipe in the collection trench to monitor the establishment of an inward hydraulic gradient at the perimeter of the capped area.

5.2 Summary and Comparison to Remedial Objectives.

The isolation of ground water within the capped area has been established and is being maintained by current operation and maintenance activities. The ground water elevation data indicates that ground water within the capped area is migrating to the west toward the ground water collection trench. Review of the ground water elevation data indicate that acceptable hydraulic gradients were observed between piezometers within the capped area and piezometers outside of the capped area.

The performance of the pre-treatment system has met the discharge criteria of the permit since startup in 1997.

The water level in the wetlands to the north of Quarry Lake is higher than the Quarry Lake outlet weir, at 578.31 ft-msl. The spill level at the outlet weir for Quarry Lake is approximately 578 feet. The weir was constructed to maintain a design water level in Quarry Lake and to provide a discharge point for rainfall runoff from the capped area. The perimeter berm for Quarry Lake is approximately 580.50 feet. This elevated water level has not adversely impacted any components of the site. The surface control features function as designed and comply with the O&M Plan.

The water elevation data collected from the piezometers and ground water wells was used to determine whether an inward hydraulic gradient exists and was made by comparing water level measurements within the capped area to those measured outside the capped area.

An inward hydraulic gradient was established when water levels in piezometers outside of the capped area (P-1, P-5, P-8) and Quarry Lake are higher than water levels in piezometers within the capped area (P-2, P-3, P-4, P-6, P-7). There are four pairs of piezometer placed around the perimeter of the capped landfill to determine attainment of an inward gradient.

The Hydrographs showing groundwater elevation trends are shown in **Attachment B**. Levels for piezometer pair, P-1 and P-2, located in the eastern portion of the capped area that borders the abandoned ROW, indicate that an inward gradient has been maintained for this pair of piezometers. The ground water levels were checked for piezometer pair, P-5 and P-6, located in the southern portion of the capped area. An inward gradient has historically been maintained for this pair of piezometers, although the latest round of measurement indicate a slightly outward gradient of 0.07 ft. We anticipate this slight outward gradient to fall back within typical range during the next event. The ground water levels were checked for the piezometer pair, P-7 and P-8, located in the northern portion of the capped area. An inward gradient has been maintained for this pair of piezometers.

The ground water elevation in the standpipe (SP-1) in the ground water collection trench is dry, i.e. indicating that it is lower than the surface water elevation of Quarry Lake. This indicates that Quarry Lake is isolated from the capped area.

The ground water elevation data indicate that ground water within the capped area is migrating to the west toward the ground water collection trench. **Attachment D** contains a well location map and tabulated groundwater elevations for the April 2021 and September 2021 monitoring episodes.

5.3 Deficiencies.

There are no deficiencies.

5.4 Recommendations for Change.

There are no recommendations at this time.

6 Operation and Maintenance (OM&M) Plan Compliance Report

6.1 Components of the O&M Plan.

Routine inspection and maintenance of constructed features, including the capped area, groundwater collection and conveyance system, surface water runoff facilities, constructed wetlands, access road, perimeter and containment berms, and outlet weir.

Operation and maintenance of the ground water pre-treatment system.

Evaluation of operation, maintenance, and monitoring activities and identification of proposed changes to the O&M Manual or site procedures and policies which would provide a safer and/or more cost-effective operation.

6.2 OM&M Summary.

The ground water 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. The dry vault and wet well components are visually inspected monthly for leakage or corrosion of valves, pipes and appurtenances, and for proper operation. A leak is repaired when found. If a component of the ground water collection, conveyance, or pre-treatment system is found to be damaged or malfunctioning, it is repaired or replaced. The semi-annual and monthly inspection checklist is contained in **Attachment E**.

Water from the pre-treatment system is discharged from the dry vault via a dual contained force main to the Niagara County Sewer District #1 interceptor system at manhole MH-16. The flow rate and volume of ground water pumped from the wet well is measured using a magnetic-type flowmeter. The flowmeter is the measurement device used in reporting discharge flow from the Site to MH-16. A sump is installed within the dry vault to recycle spills and leaks inside the dry vault back into the wet well. A sump pump with a float switch pumps spills and leaks from the floor of the dry vault back into the wet well for treatment.

The capped area was 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.

The pre-treatment system was designed for continuous operation capable of treating approximately 15,000 gallons per day at a rate of 10 gallons per minute. The water level sensor in the wet well can be set at various levels but is currently set to activate the pumping system when the wet well sump begins to back up water in the ground water collection piping.

PRE-TREATMENT PROCESSING, AVERAGE FLOW RATE		
PROCESS FLOW RATES	**DESIGN**	**ACTUAL**
Gallons Per Day	15,000	365
Gallons Per Minute	10	0.25

Under current conditions, the pumping system is always on-line but normally operates six to eight times per 24-hour period. Each time a pump is activated by the level sensor, approximately 60 gallons of water is pumped into the pre-treatment system. Based upon the volume of the pre-treatment system, it takes at least a day for the ground water to pass through the pre-treatment system and be discharged to Manhole #16. A ten-year summary of the pre-treatment flow volume by year is shown in the table below.

PRE-TREATMENT FLOW SUMMARY BY OPERATING YEAR		
DATE	**GALLONS PER YEAR**	**GALLONS PER DAY**
2009	140,867	385
2010	74,506	204
2011	40,653	111
2012	35,830	98
2013	37,125	102
2014	61,744	169
2015	41,568	114
2016	41,046	112
2017	124,159	341
2018	149,642	410
2019	133,578	366
2020	28,111	77
2021 through August	29,685	153

Calendar-year flows by day for October 2020 through August 2021 are presented in **Attachment F**.

The permit to discharge from the pre-treatment system to Manhole #16 of the Niagara County Sewer District #1 is currently granted by District Permit # 18-11. The permit was effective August 28, 2018 and expired August 28, 2021. A new Discharge Permit # 21-11

was issued for August 30, 2021 and expires August 30, 2024. Both permits are included in **Attachment G*.*** Semi-annual reporting to Niagara County Sewer District #1 includes the volume and chemical characteristics of the water being discharge from the Site.

Maintenance for the pre-treatment system is recorded in the Pre-Treatment System Operator Log. Information on the Pre-Treatment System Operator Log includes the purpose of the visit, local time and conditions, status of the process, details of the visit, planned action, and recommendations to prevent future problems. A log sheet is filled out during each visit to record site conditions and actions taken by the technician. Site visits are normally monthly unless alarm conditions, call by neighbors, data request, etc., require additional visits.

Regular inspections are currently conducted monthly. These inspections are a part of the pre-treatment systems operating log. The Pre-Treatment Operator's Logs for this reporting period are included in **Attachment H*.***

Solids resulting from ground water collection system cleaning and equipment decontamination activities are stored, handled, and disposed of in accordance with the New York State Hazardous Waste Manifest System Regulations 6NYCRR Part 372 and any other applicable local, state, and federal regulations. No waste was disposed of during this reporting period.

The access road was inspected at the same frequency as inspection of the final cover for rutting, potholes or settlement. No repairs were needed. The access road functions as designed and complies with the O&M Plan.

6.3 Evaluation of Remedial Systems.

All components are performing as designed.

6.4 OM&M Deficiencies.

There are no deficiencies.

6.5 Conclusions.

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

7 Overall PRR Conclusions and Recommendations

7.1 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.

7.2 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.

The ground water elevation data indicates that ground water within the capped area is migrating to the west toward the ground water collection trench.

Review of the ground water elevation data indicate that inward hydraulic gradients were observed between piezometers within the capped area and piezometers outside of the capped area.

7.3 Future Submittals.

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

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. 932043

Site Name Frontier Chemical - Pendleton

Site Address: Townline Road Zip Code: 14120
City/Town: North Tonawanda
County: Niagara
Site Acreage: 11.000

Reporting Period: September 01, 2020 to September 01, 2021

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

Box 2

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

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

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

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 932043

Box 3

Description of Institutional Controls

Parcel	Owner	Institutional Control
164.00-3-36	Frontier Chem PRP Group, c/o Olin Co	
		Monitoring Plan
		O&M Plan

Record of Decision (ROD); March 2, 1992.

Order on Consent (#B9-0270-89-05); March 1994.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
164.00-3-36	Groundwater Treatment System
	Cover System
	Groundwater Containment
	Leachate Collection
	Fencing/Access Control
	Monitoring Wells

1. Waste consolidation and stabilization including contaminated sediments dredged from Quarry Lake.

2. Capping of waste under a low-permeability cap system.

3. Installation of surface water system.

4. Installation of a 60-mil. HDPE geomembrane over the western side of the collection trench as a water barrier from Quarry Lake.

5. Installation of a groundwater collection system within the contained area to maintain inward gradients.

6. Onsite treatment of groundwater collected with subsequent discharge to Municipal POTW.

7. Creation of new wetlands.

8. Installation of a perimeter berm, containment berm, and outlet weir.

9. Installation of a monitoring system to monitor the effectiveness of the remedy.

10. Installation of a chain link fence around the capped area and pump station to limit access.

Box 5

Periodic Review Report (PRR) Certification Statements

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

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

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

YES	NO
☑	☐

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

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

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

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

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

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

YES	NO
☑	☐

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 932043

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 (print name) at 490 Stuart Rd NE Cleveland, TN 37312 (print business address),

am certifying as Frontier Chemical Group Trustee (Owner or Remedial Party)

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

Adam B [signature]
Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

9/27/2021
Date

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 CARRIE HUNT at 490 STUART RD NE, CLEVELAND, TN, 37312
print name print business address

am certifying as a Professional Engineer for the OWNER'S REPRESENTIVE
(Owner or Remedial Party)

Carrie Hunt, CHMM 11148 9/29/2021
Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification — Stamp (Required for PE) — Date

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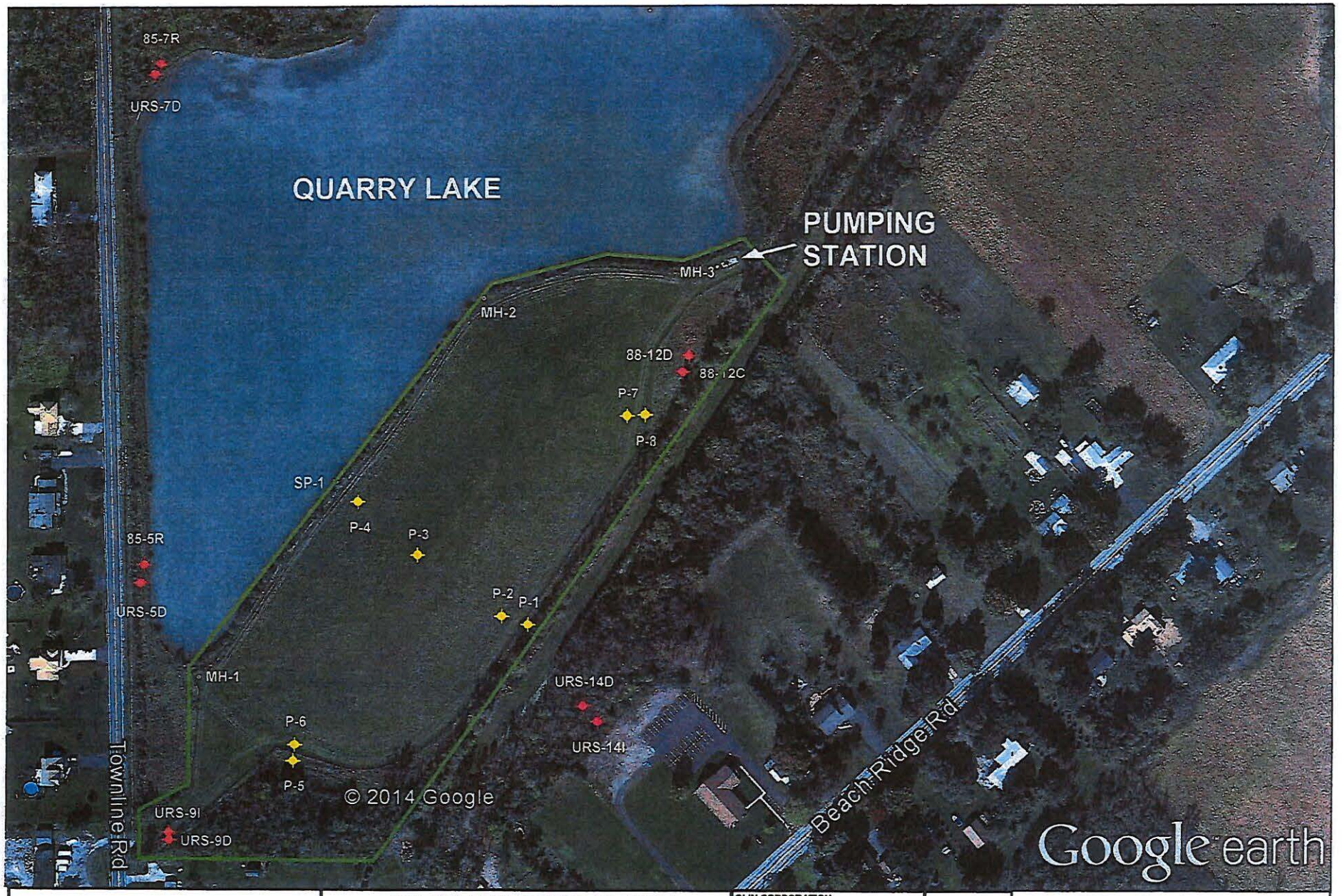
ATTACHMENT A

Site Features Map



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

SCALE: NOTED	DRAWN BY: JRH	DATE: 8-29-2019
	CHKD. BY: ABC	DATE: 9-5-2019

OLIN CORPORATION
FRONTIER CHEMICAL PENDLETON SITE
PENDLETON, NY

SITE MAP
MONITORING WELL/PEIZOMETER LOCATIONS
APRIL 2019

FIG. NO. 1

SCALE: 1 INCH = 200 FEET

- PIEZOMETER WELL
- MONITORING WELL
- SITE BOUNDRY
- MH = MANHOLE
- SP = STAND PIPE

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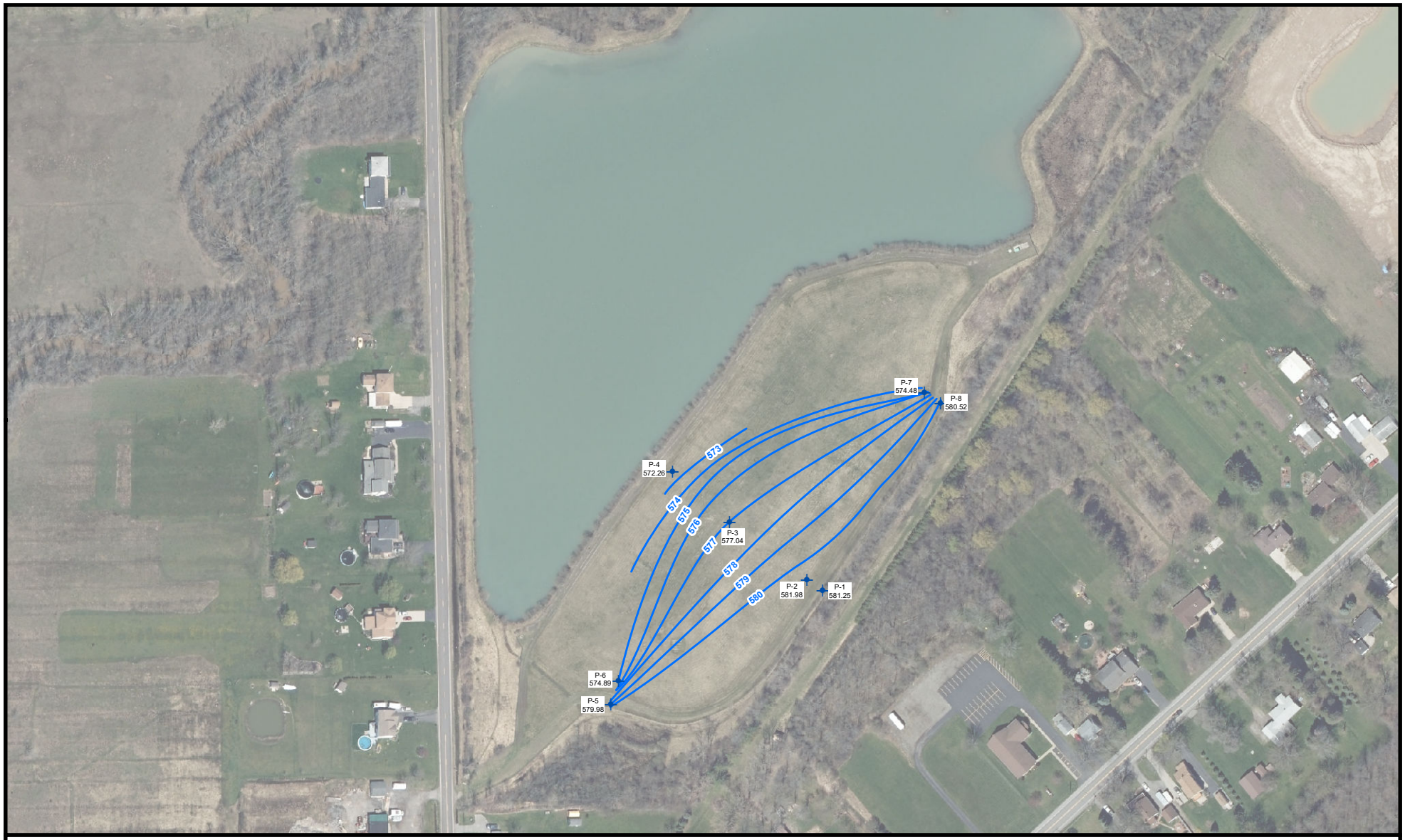
ATTACHMENT B

Piezometer Tables, Graphs, and Potentiometric Surface Maps



wood.

Legend

- Piezometer Well
- Potentiometric Surface - Piezometer Well

N

0 75 150 Feet

Prepared/Date: LCB 09-28-21 | Checked/Date: RB 09-28-21

Figure 2
Potentiometric Surface Map
Peizometer Wells April 12, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

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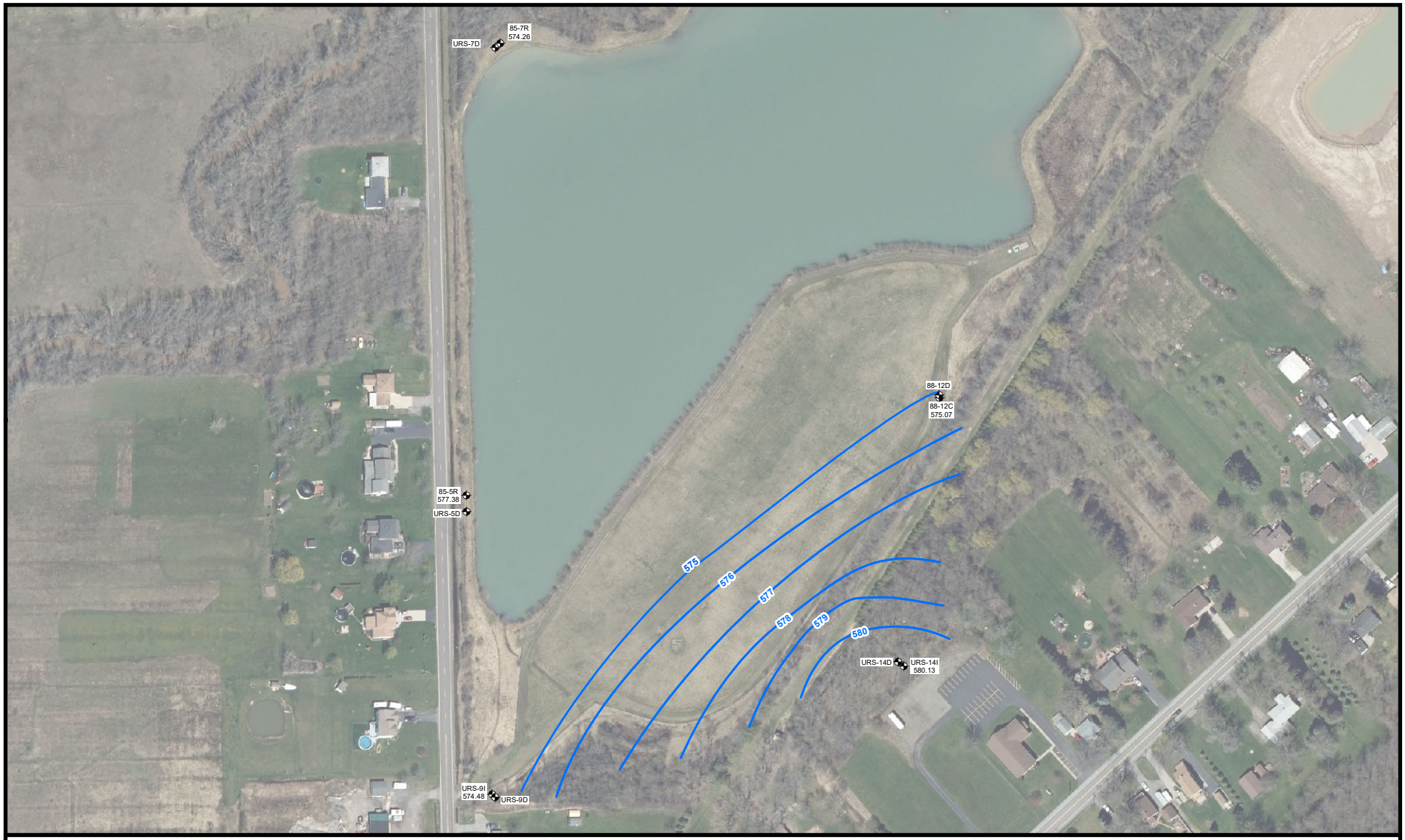

wood.

Legend

- Monitoring Well
- Potentiometric Surface - Sandy Silt Monitoring Wells

N

0 75 150 Feet

Prepared/Date: LCB 09-28-21 | Checked/Date: RB 09-28-21

Figure 3
Potentiometric Surface Map
Sandy Silt Wells April 12, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

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09-28-21 2:15 PM lindsey.belliveau

wood.

N

0 75 150 Feet

Legend

Monitoring Well

Potentiometric Surface - Deep Monitoring Wells

Figure 4
Potentiometric Surface Map
Deep Wells April 12, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

Prepared/Date: LCB 09-28-21	Checked/Date: RB 09-28-21

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wood.

Legend

- Piezometer Well
- Potentiometric Surface - Piezometer Well

N

0 75 150 Feet

Prepared/Date: LCB 09-28-21 | Checked/Date: RB 09-28-21

Figure 5
Potentiometric Surface Map
Piezometer Wells September 15, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

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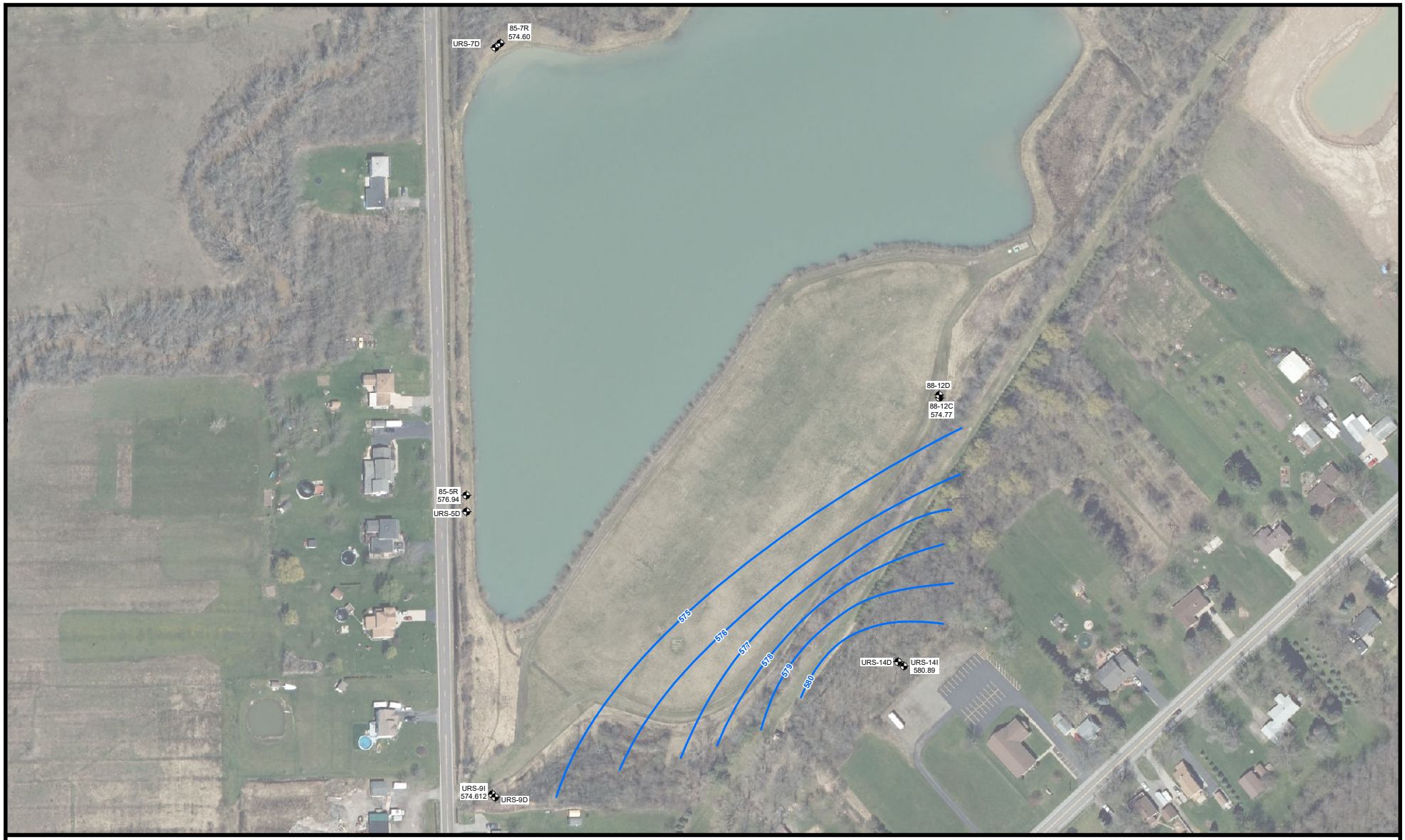


wood.

Legend

- Monitoring Well
- Potentiometric Surface - Sandy Silt Monitoring Wells

N

0 75 150 Feet

Figure 6
Potentiometric Surface Map
Sandy Silt Wells September 12, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

Prepared/Date: LCB 09-28-21	Checked/Date: RB 09-28-21

Document: P:\Projects\Olin Frontier Chemical - Pendleton\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\GW_2020\OLIN_PNDLTN_GW_CONT_09292020.mxd PDF: \\PLD2-FS1\Project\Projects\Olin Frontier Chemical - Pendleton\4.0_Deliverables\4.5_Databases\GIS\PDFS\GW_2021\v1_09292020\Figure 6_SandySilt.pdf
09-28-21 2:15 PM lindsey.belliveau

Legend

- Monitoring Well
- Potentiometric Surface - Deep Monitoring Wells

N

0 75 150 Feet

Figure 7
Potentiometric Surface Map
Deep Wells September 15, 2021

Frontier Chemical
The Olin Corporation
Pendleton, New York

Prepared/Date: LCB 09-28-21	Checked/Date: RB 09-28-21

Document: P:\Projects\Olin Frontier Chemical - Pendleton\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\GW_2020\OLIN_PNDLTN_GW_CONT_09292020.mxd PDF: \\PLD2-FS1\Project\Projects\Olin Frontier Chemical - Pendleton\4.0_Deliverables\4.5_Databases\GIS\PDFS\GW_2021\v1_09292020\Figure 7_Deep.pdf
09-28-21 6:15 PM lindsey.belliveau

ATTACHMENT B
FRONTIER CHEMICAL - PENDLETON SITE
PIEZOMETER GROUND WATER ELEVATION SUMMARY 2019-2020

PIEZOMETER	POSITION	LOCATION	TOP OF RISER ELEVATION, FEET	DEPTH TO WATER	SCREENED ELEVATION, FEET
P-1	(O)	EASTERN PORTION OF CAPPED AREA	583.21	1.95	576.8 - 566.8
P-2	(I)		582.90	6.11	577.2 - 567.2
P-3	(I)	CENTER OF CAPPED AREA	606.33	29.50	586.6 - 566.6
P-4	(I)	ADJACENT TO QUARRY LAKE	582.31	8.53	576.7 - 566.7
SP-1	(T)		579.86		BOP = 564.9
P-5	(O)	SOUTHERN PORTION OF CAPPED AREA	583.05	3.15	577.6 - 567.6
P-6	(I)		584.45	9.48	578.3 - 568.3
P-7	(I)	NORTHERN PORTION OF CAPPED AREA	580.97	5.35	575.0 - 565.0
P-8	(O)		582.83	2.70	575.5 - 565.5

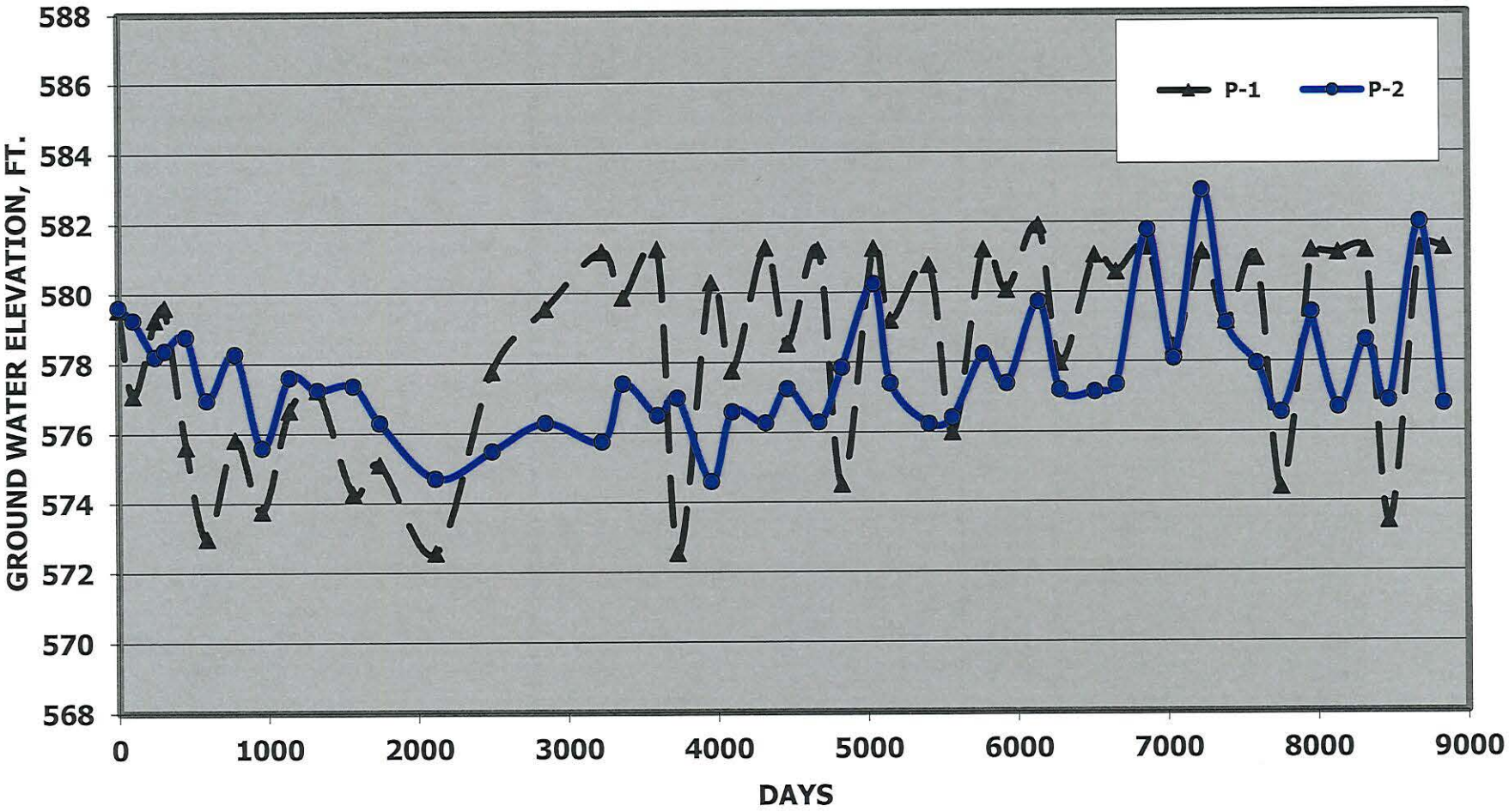
Notes:
Elevation based on USGS Datum.
O = piezometer located outside of capped area.
I = piezometer located inside capped area.
T = standpipe located within the ground water collection trench.
BOP= bottom of pipe

ATTACHMENT B
FRONTIER CHEMICAL - PENDLETON SITE
PIEZOMETER GROUND WATER ELEVATION SUMMARY 2019-2020

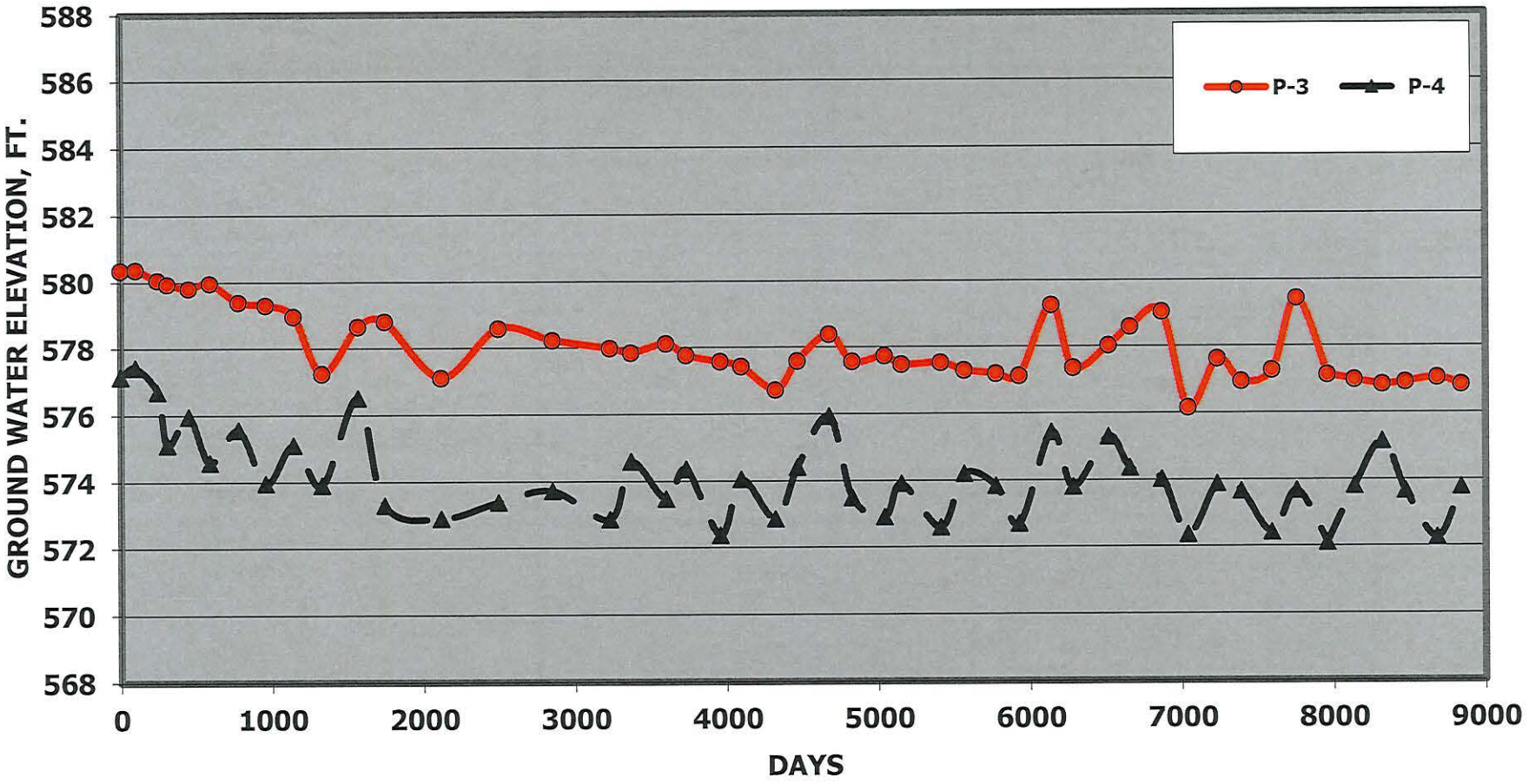
PIEZOMETER	POSITION	LOCATION	TOP OF RISER ELEVATION, FEET	DEPTH TO WATER	SCREENED ELEVATION, FEET	8681 4/12/21	8839 9/17/21
P-1	(O)	EASTERN PORTION OF CAPPED AREA	583.21	1.95	576.8 - 566.8	581.25	581.26
P-2	(I)		582.90	6.11	577.2 - 567.2	581.98	576.79
P-3	(I)	CENTER OF CAPPED AREA	606.33	29.50	586.6 - 566.6	577.04	576.83
P-4	(I)	ADJACENT TO QUARRY LAKE	582.31	8.53	576.7 - 566.7	572.26	573.78
SP-1	(T)		579.86		BOP = 564.9		
P-5	(O)	SOUTHERN PORTION OF CAPPED AREA	583.05	3.15	577.6 - 567.6	579.98	579.90
P-6	(I)		584.45	9.48	578.3 - 568.3	574.89	574.97
P-7	(I)	NORTHERN PORTION OF CAPPED AREA	580.97	5.35	575.0 - 565.0	574.48	575.62
P-8	(O)		582.83	2.70	575.5 - 565.5	580.52	580.13

Notes:
Elevation based on USGS Datum.
O = piezometer located outside of capped area.
I = piezometer located inside capped area.
T = standpipe located within the ground water collection trench.
BOP= bottom of pipe

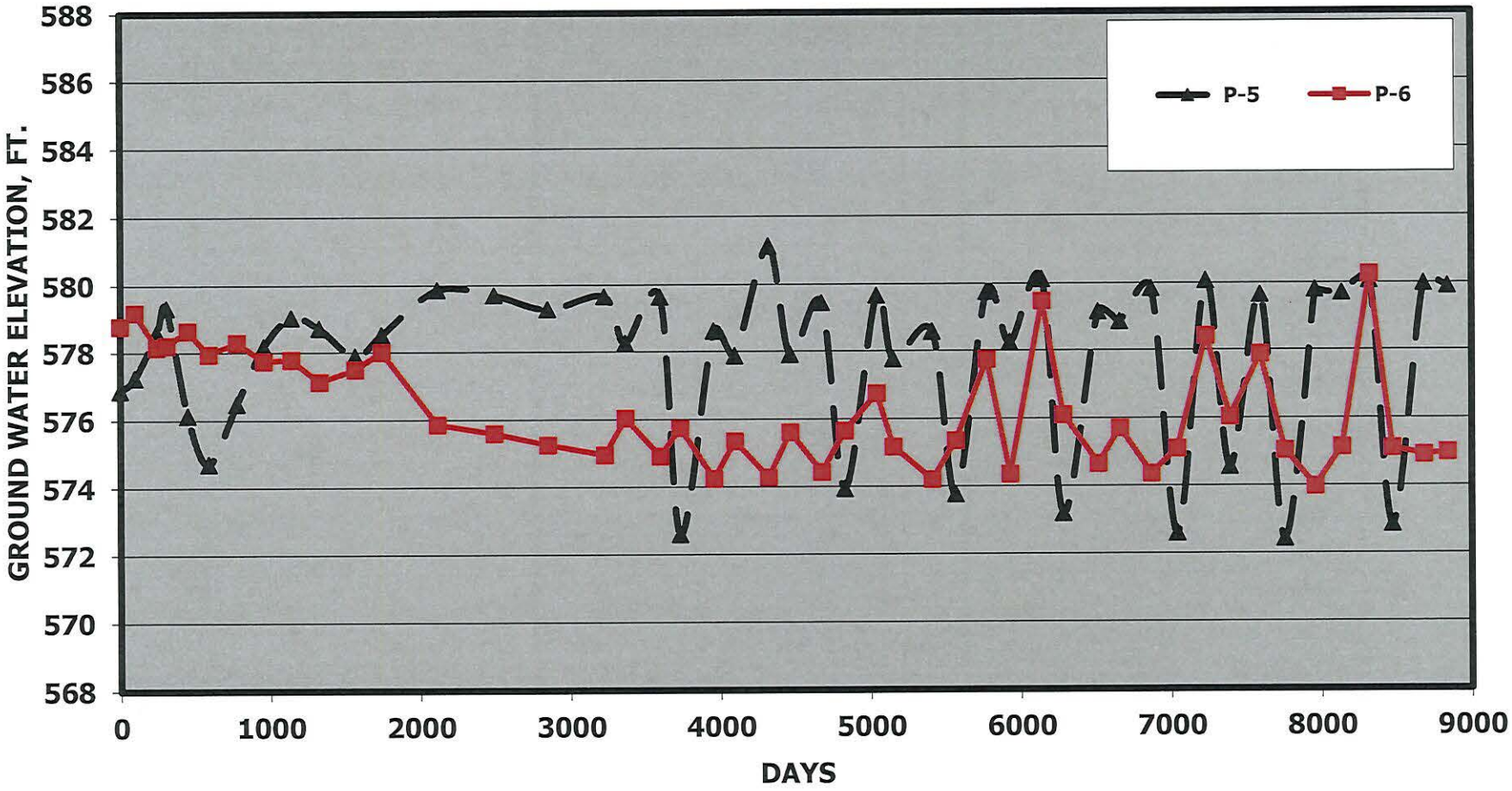
FRONTIER CHEMICAL - PENDLETON SITE
EASTERN PORTION OF CAPPED AREA



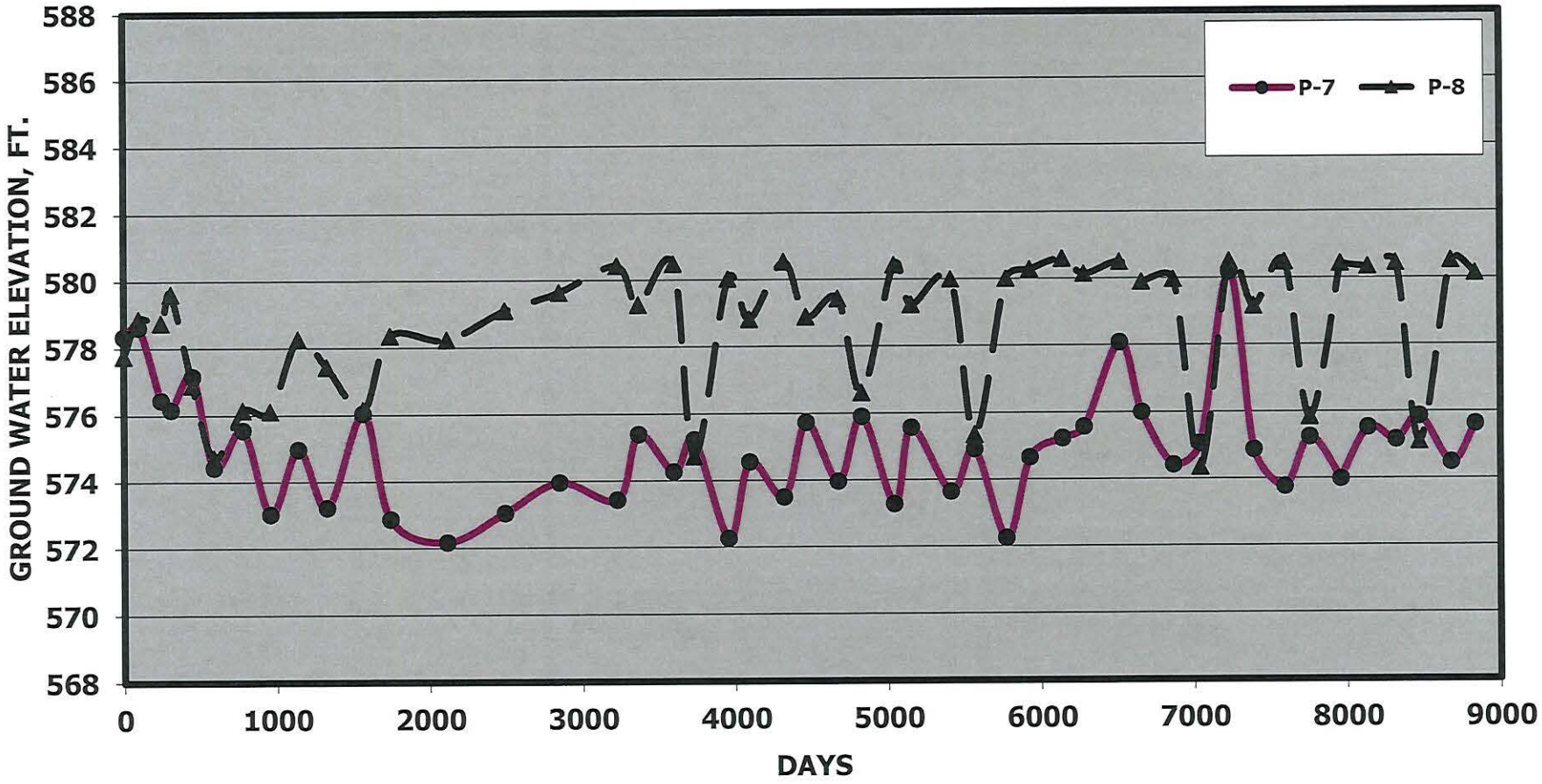
FRONTIER CHEMICAL - PENDLETON SITE
CENTER OF CAPPED AREA AND ADJACENT TO QUARRY LAKE



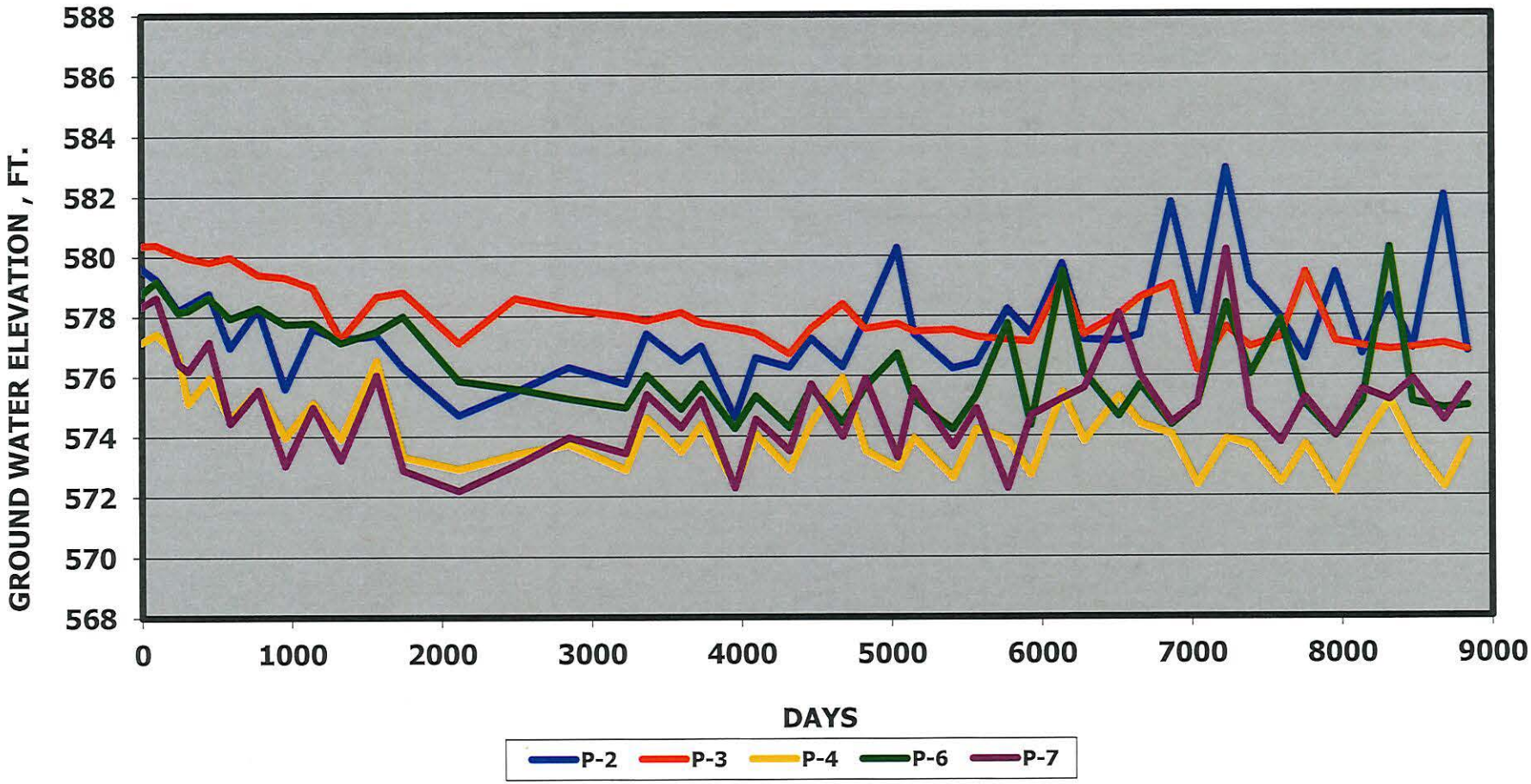
FRONTIER CHEMICAL - PENDLETON SITE
SOUTHERN PORTION OF CAPPED AREA



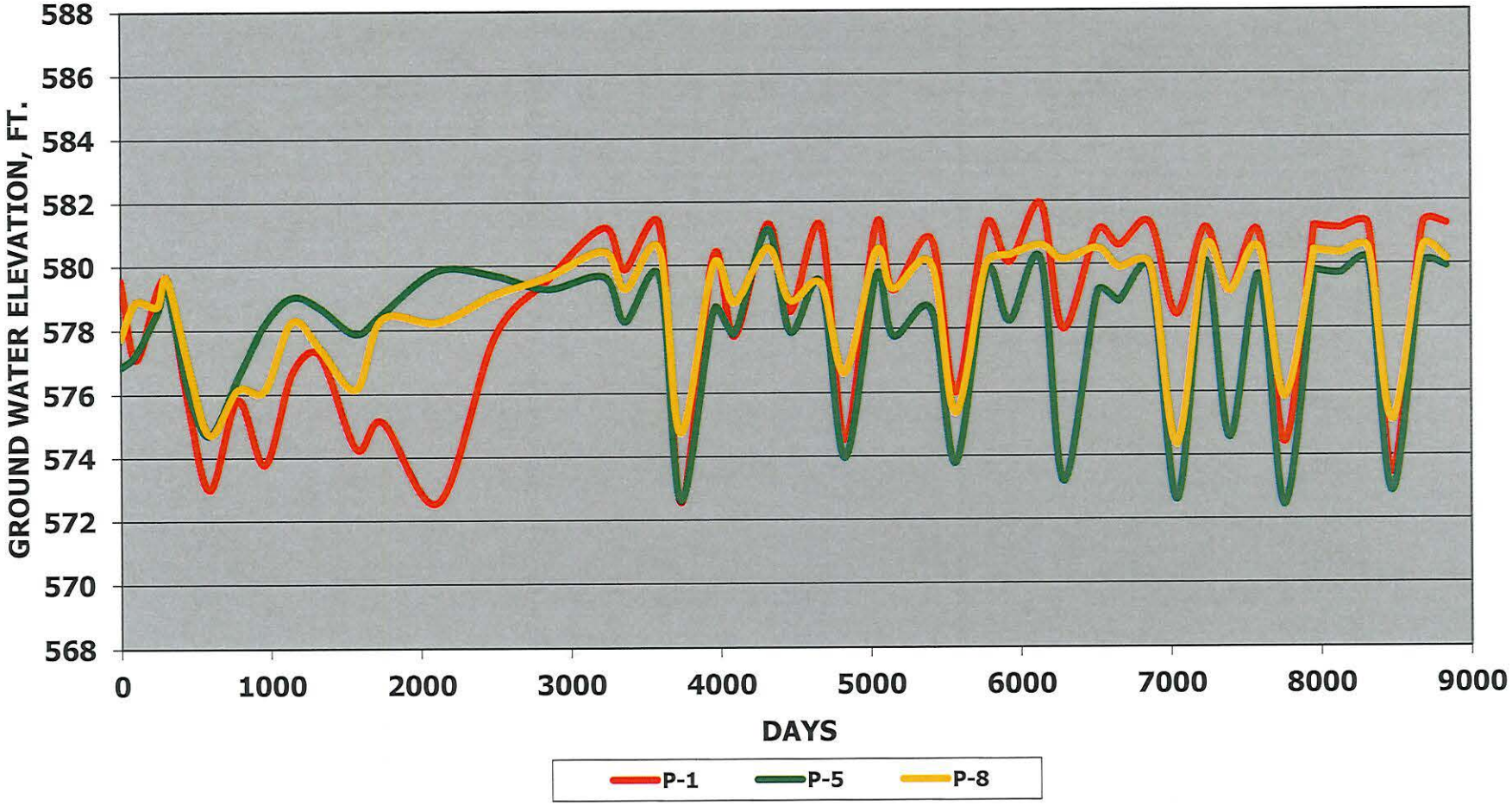
FRONTIER CHEMICAL - PENDLETON SITE
NORTHERN PORTION OF CAPPED AREA



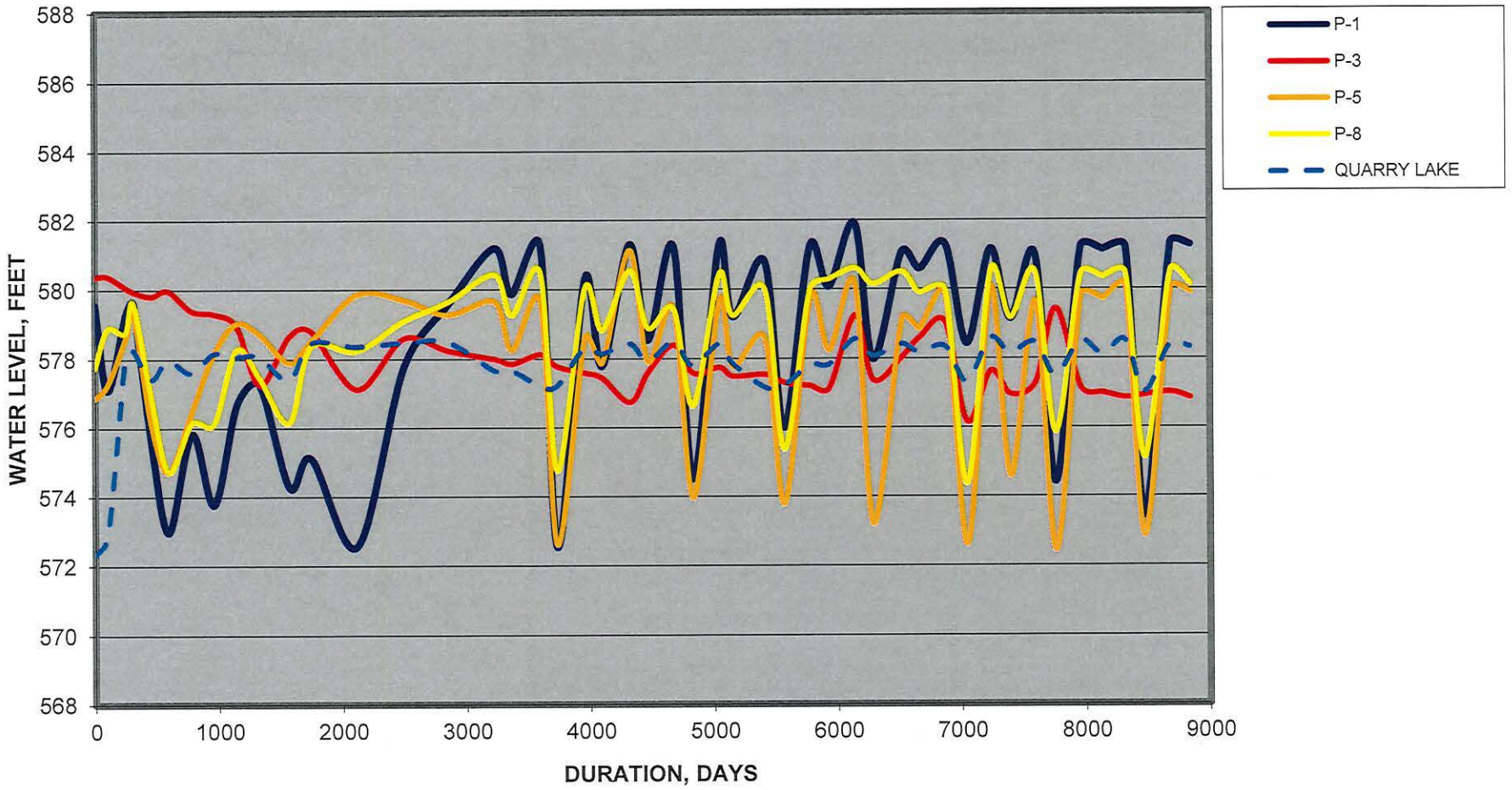
FRONTIER CHEMICAL - PENDLETON SITE
PIEZOMETERS - INSIDE CAPPED AREA



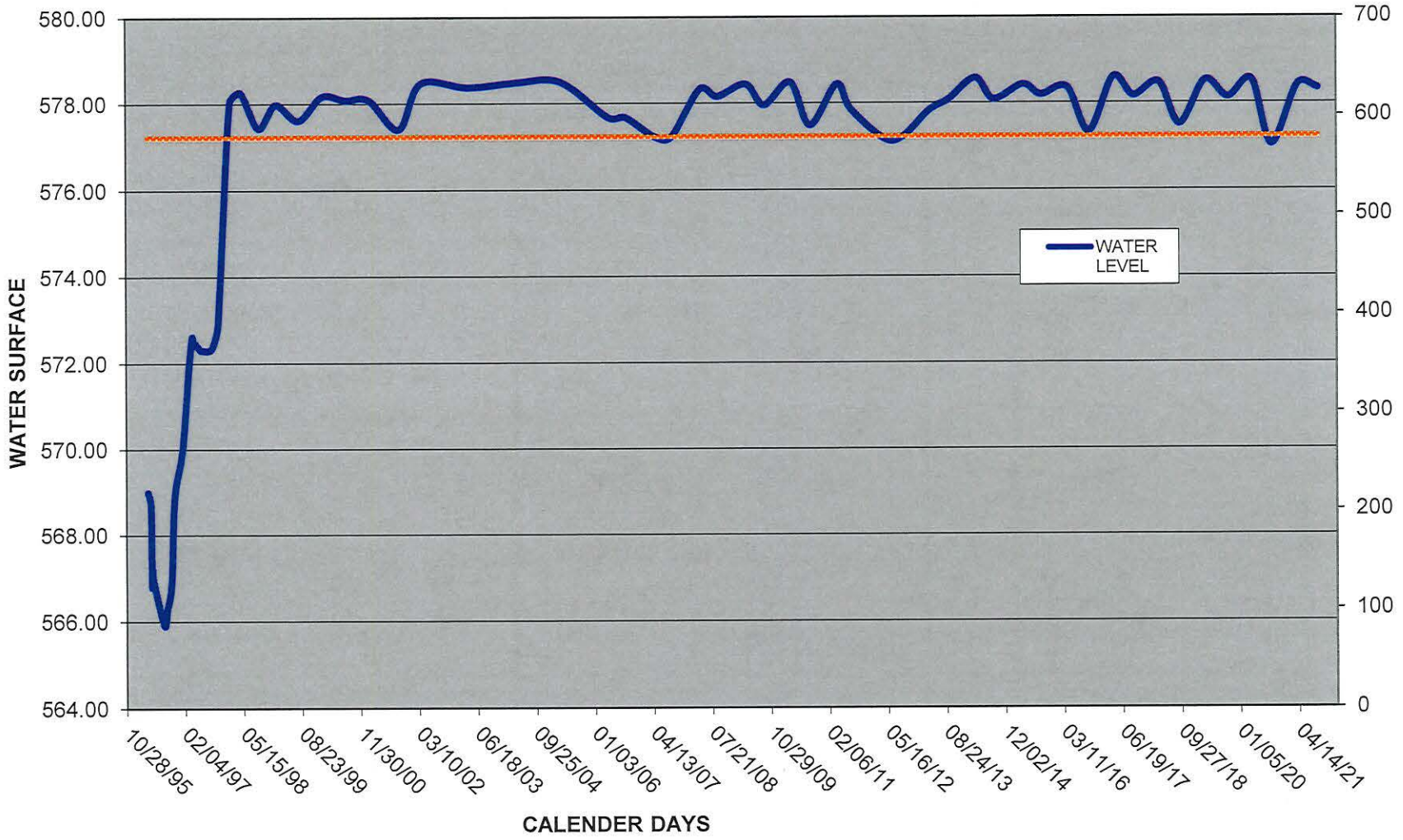
FRONTIER CHEMICAL - PENDLETON SITE
PIEZOMETERS - OUTSIDE CAPPED AREA



FRONTIER CHEMICAL - PENDLETON SITE
GROUND WATER GRADIENT



QUARRY LAKE
WATER LEVEL VS. TIME



Olin™

ATTACHMENT C

Analytical Data

April 30, 2021

Service Request No:R2103678

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

Laboratory Results for: Olin - Pendleton Site

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory April 16, 2021
For your reference, these analyses have been assigned our service request number **R2103678.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

CC: Randy Morris

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

Narrative Documents

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

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

ALS Environmental

Client: Olin Corporation
Project: Olin - Pendleton Site
Sample Matrix: Water

Service Request: R2103678
Date Received: 04/16/2021

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 water samples were received for analysis at ALS Environmental on 04/16/2021. 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.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 624: One or more samples were received with insufficient hold time remaining to complete the analysis within the recommended limit. The analysis was performed as soon as possible after receipt by the laboratory. The data is flagged to indicate the holding time exceedance. *the only compound that is out of hold is Acrolein; all other targets are compliant as samples were analyzed within 7 days of sampling.

SMO:

No significant anomalies were noted with this analysis.

Approved by _____ Date 04/30/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: PS-TW-041421	Lab ID: R2103678-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1,1,1-Trichloroethane (TCA)	0.303	J	0.200	1.00	ug/L	624.1
1,1-Dichloroethane (1,1-DCA)	1.20		0.200	1.00	ug/L	624.1

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: Olin - Pendleton Site/1229

Service Request:R2103678

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2103678-001	PS-TW-041421	4/14/2021	1043
R2103678-002	PS-TW-041421 Dup	4/14/2021	0955
R2103678-003	Trip Blank	4/14/2021	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

004812

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: Olin-Pendleton Site	Project Number: 1229
Project Manager: Adam Carringer	Report CC: Adam Carringer-Olin
Company/Address: Olin Corp 3855 North Ocoee Road Cleveland TN 37312	
Phone #: 423-336-4057	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffiton	Sampler's Printed Name: Maxwell Liffiton

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

PRESERVATIVE: 0 — 2 — 3 — 0 — 4 — 1

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)	Phenol	TSS	Cyanide	Low Level Mercury				REMARKS/ ALTERNATE DESCRIPTION
PS-TW-041421		4/14/21	0952	GW	1											1				LL Hg
PS-TW-041421 DUP		4/14/21	0955	GW	1											1				LL Hg duplicate
PS-TW-041421		4/14/21	1057	GW	1								1							composited in field
PS-TW-041421		4/14/21	1056	GW	1									1						composited in field
PS-TW-041421		4/14/21	1058	GW	1						1									composited in field
PS-TW-041421		4/14/21	1000	GW	3	3														grab in field
PS-TW-041421		4/14/21	1015	GW	3	3														grab in field
PS-TW-041421		4/14/21	1031	GW	3	3														grab in field
PS-TW-041421		4/14/21	1046	GW	3	3														grab in field
PS-TW-041421		4/14/21	0958	GW	1										1					* composite in lab
PS-TW-041421		4/14/21	1013	GW	1										1					* composite in lab

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

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Antimony, Boron, Chromium

* CN samples to be composited in lab

See attached form for sampling timeline

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: NY

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

REPORT REQUIREMENTS
____ I. Results Only
☒ 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 # REIN 003
BILL TO: Olin Corp

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Maxwell Liffiton	Signature: UPS	Signature	Signature	Signature	Signature
Printed Name: Maxwell Liffiton	Printed Name: Gregory D. Esmerian	Printed Name	Printed Name	Printed Name	
Firm: SES	Firm: ALS	Firm	Firm	Firm	
Date/Time: 4/15/21 0840	Date/Time: 4/16/21 0930	Date/Time	Date/Time	Date/Time	

R2103678 : 5
Olin Corporation
Olin - Pendleton Site

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

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

004812

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 2 OF 2

Project Name: Olin-Pendleton Site	Project Number: 1229
Project Manager: Adam Carringer	Report CC: Adam Carringer-Olin
Company/Address: Olin Corp 3855 North Ocoee Road Cleveland TN 37312	
Phone #: 423 336 4057	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Lifflton	Sampler's Printed Name: Maxwell Lifflton

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 8 | 4

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)	Phenol	TSS	Cyanide	Low Level Mercury				REMARKS/ ALTERNATE DESCRIPTION
PS-TW-041421		4/14/21	1028	GW	1										1					*composite in lab
PS-TW-041421		4/14/21	1043	GW	1										1					*composite in lab
Trip Blank		—	—	—	3	3														provided by lab

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

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Antimony, Boron, Chromium

*cN samples are to be composited in lab

See attached form for sample timeline

See QAPP ☐

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

REQUESTED REPORT DATE
Standard

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 # REIN 003
BILL TO: Olin Corp

STATE WHERE SAMPLES WERE COLLECTED NY

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Maxwell Lifflton	Signature: UPS	Signature	Signature	Signature	Signature
Printed Name: Maxwell Lifflton	Printed Name: Gregory Q. Emerson	Printed Name	Printed Name	Printed Name	
Firm: SES	Firm: AIS	Firm	Firm	Firm	
Date/Time: 4/15/21 0840	Date/Time: 4/16/21 0930	Date/Time	Date/Time	Date/Time	

R2103678 5
Olin Corporation
Olin - Pendleton Site

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

Cooler Receipt and Preservation Check Form

R2103678 5
Olin Corporation
Olin - Pendleton Blt#

Project/Client Olin Corp. Folder Number

Cooler received on 4/16/21 by: ME

COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 4/16/21 Time: 1034 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.1						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

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

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

All samples held in storage location: R-002 by ME on 4/16/21 at 1047
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 4/16/21 Time: 1735 by: DH

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 N/A
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	223419	NaOH	✓		212537					
≤2	↓	HNO_3	✓		1120092					
≤2		H_2SO_4	✓		KTZT-25-211297 4/16/21					
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 0-283-070, 111354a, 80221-07, 90121-04
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	~~MGFB~~
ALS	LL3541

Labels secondary reviewed by: DH
PC Secondary Review: _____

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

Client: Olin Corporation **Service Request:** R2103678
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2103678-001.01					
	SM 2540 D-1997(2011)				
		4/16/2021	1730	SMO / DWARD	
		4/22/2021	0509	R-Dumpster / KAWONG	
R2103678-001.02					
	420.4				
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1753	RT000039 / DWARD	
		4/16/2021	1758	R-015 / DWARD	
R2103678-001.03					
	Kelada-01				
		4/16/2021	1730	SMO / DWARD	
		4/20/2021	2101	R-015 / GLAFORCE	
		4/20/2021	2103	RT000767 / GLAFORCE	
R2103678-001.04					
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.05					
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.06					
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.07					
	1631E				
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1734	R-A01 / DWARD	
R2103678-001.08					
	200.7,200.7,200.7				
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1734	R-A01 / DWARD	
		4/19/2021	0913	In Lab / AKONZEL	
		4/21/2021	1625	R-A01 / AKONZEL	
R2103678-001.09					
		4/16/2021	1730	SMO / DWARD	
R2103678-001.10					

Client: Olin Corporation **Service Request:** R2103678
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.11					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.12					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.13					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.14					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.15					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.16					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.17					
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-001.18					
	624				
		4/16/2021	1733	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
		4/18/2021	1153	In Lab / KRUEST	
		4/18/2021	1214	R-001-S12 / KRUEST	
R2103678-002.01					
	1631E				
		4/16/2021	1730	SMO / DWARD	

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Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2103678
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	1631E				
		4/16/2021	1734	R-A01 / DWARD	
R2103678-003.01					
	624				
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
		4/18/2021	1153	In Lab / KRUEST	
		4/18/2021	1213	R-001-S12 / KRUEST	
R2103678-003.02					
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	
R2103678-003.03					
		4/16/2021	1730	SMO / DWARD	
		4/16/2021	1733	R-001 / DWARD	

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.

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

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

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

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

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

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

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

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

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

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

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

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

C Confirmed by GC/MS

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

X See Case Narrative for discussion.

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

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

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

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

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

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

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: Olin - Pendleton Site/1229
Service Request: R2103678

Sample Name: PS-TW-041421
Lab Code: R2103678-001
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
1631E		KMCLAEN
200.7	AKONZEL	KMCLAEN
420.4		CWOODS
624		KRUEST
Kelada-01		CWOODS
SM 2540 D-1997(2011)		KAWONG

Sample Name: PS-TW-041421 Dup
Lab Code: R2103678-002
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
1631E		KMCLAEN

Sample Name: Trip Blank
Lab Code: R2103678-003
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
624		KRUEST

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

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Volatile Organic Compounds by GC/MS

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Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:43
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-TW-041421	**Units:**	ug/L
Lab Code:	R2103678-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	**0.303 J**	1.00	0.200	1	04/18/21 13:50	*
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 13:50	*
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 13:50	*
1,1-Dichloroethane (1,1-DCA)	**1.20**	1.00	0.200	1	04/18/21 13:50	*
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 13:50	*
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 13:50	*
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 13:50	*
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 13:50	*
2-Hexanone	ND U	5.00	0.200	1	04/18/21 13:50	*
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 13:50	*
Acetone	ND U	5.00	2.10	1	04/18/21 13:50	*
Acrolein	ND U	10.0	0.900	1	04/18/21 13:50	*
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 13:50	*
Benzene	ND U	1.00	0.200	1	04/18/21 13:50	*
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 13:50	*
Bromoform	ND U	1.00	0.250	1	04/18/21 13:50	*
Bromomethane	ND U	1.00	0.700	1	04/18/21 13:50	*
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 13:50	*
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 13:50	*
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 13:50	*
Chloroethane	ND U	1.00	0.230	1	04/18/21 13:50	*
Chloroform	ND U	1.00	0.240	1	04/18/21 13:50	*
Chloromethane	ND U	1.00	0.280	1	04/18/21 13:50	*
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 13:50	*
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 13:50	*
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 13:50	*
Styrene	ND U	1.00	0.200	1	04/18/21 13:50	*
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 13:50	*
Toluene	ND U	1.00	0.200	1	04/18/21 13:50	*
Trichloroethene (TCE)	ND U	1.00	0.200	1	04/18/21 13:50	*
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 13:50	*
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 13:50	*
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 13:50	*
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 13:50	*
o-Xylene	ND U	1.00	0.200	1	04/18/21 13:50	*
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 13:50	*
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 13:50	*

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:43
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-TW-041421	**Units:**	ug/L
Lab Code:	R2103678-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	92	73 - 125	04/18/21 13:50	
4-Bromofluorobenzene	89	85 - 122	04/18/21 13:50	
Toluene-d8	94	87 - 121	04/18/21 13:50	

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Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R2103678-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	ND U	1.00	0.200	1	04/18/21 13:28	*
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 13:28	*
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 13:28	*
1,1-Dichloroethane (1,1-DCA)	ND U	1.00	0.200	1	04/18/21 13:28	*
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 13:28	*
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 13:28	*
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 13:28	*
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 13:28	*
2-Hexanone	ND U	5.00	0.200	1	04/18/21 13:28	*
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 13:28	*
Acetone	ND U	5.00	2.10	1	04/18/21 13:28	*
Acrolein	ND U	10.0	0.900	1	04/18/21 13:28	*
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 13:28	*
Benzene	ND U	1.00	0.200	1	04/18/21 13:28	*
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 13:28	*
Bromoform	ND U	1.00	0.250	1	04/18/21 13:28	*
Bromomethane	ND U	1.00	0.700	1	04/18/21 13:28	*
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 13:28	*
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 13:28	*
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 13:28	*
Chloroethane	ND U	1.00	0.230	1	04/18/21 13:28	*
Chloroform	ND U	1.00	0.240	1	04/18/21 13:28	*
Chloromethane	ND U	1.00	0.280	1	04/18/21 13:28	*
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 13:28	*
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 13:28	*
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 13:28	*
Styrene	ND U	1.00	0.200	1	04/18/21 13:28	*
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 13:28	*
Toluene	ND U	1.00	0.200	1	04/18/21 13:28	*
Trichloroethene (TCE)	ND U	1.00	0.200	1	04/18/21 13:28	*
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 13:28	*
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 13:28	*
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 13:28	*
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 13:28	*
o-Xylene	ND U	1.00	0.200	1	04/18/21 13:28	*
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 13:28	*
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 13:28	*

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R2103678-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	94	73 - 125	04/18/21 13:28	
4-Bromofluorobenzene	92	85 - 122	04/18/21 13:28	
Toluene-d8	97	87 - 121	04/18/21 13:28	

Metals

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METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Olin Corporation
Project No.: R2103678
Project Name:
Matrix: WATER

Service Request: PS-TW-041421
Date Collected: 4/14/2021
Date Received: 4/16/2021
Units: ug/L
Basis:

Sample Name: PS-TW-041421 **Lab Code:** R2103678-001

Analyte	Analysis Method	PQL	MDL	Dil. Factor	Result	C	Q
Antimony	200.7	10.0	5.4	1.0	10.0	U	
Boron	200.7	200	5.8	1.0	76.1	J	
Chromium	200.7	10.0	0.910	1.0	10.0	U	

% Solids: 0.0

Comments:

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:43
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-TW-041421	**Basis:**	NA
Lab Code:	R2103678-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 13:19	

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 09:55
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-TW-041421 Dup	**Basis:**	NA
Lab Code:	R2103678-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 13:27	

General Chemistry

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Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:43
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-TW-041421	**Basis:**	NA
Lab Code:	R2103678-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	ND U	mg/L	0.0050	1	04/24/21 14:11	
Phenolics, Total Recoverable	420.4	ND U	mg/L	0.0050	1	04/22/21 18:50	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	ND U	mg/L	1.0	1	04/21/21 17:25	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Olin Corporation **Service Request:** R2103678

Project: Olin - Pendleton Site/1229

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Sample Name	Lab Code	1,2-Dichloroethane-d4 73-125	4-Bromofluorobenzene 85-122	Toluene-d8 87-121
PS-TW-041421	R2103678-001	92	89	94
Trip Blank	R2103678-003	94	92	97
Method Blank	RQ2104140-04	94	92	96
Lab Control Sample	RQ2104140-03	93	95	98
PS-TW-041421 MS	RQ2104140-06	95	96	98
PS-TW-041421 DMS	RQ2104140-07	96	96	98

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QA/QC Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21
		Date Analyzed:	04/18/21

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Sample Name:	PS-TW-041421	**Units:**	ug/L
Lab Code:	R2103678-001	**Basis:**	NA
Analysis Method:	624.1		

		Matrix Spike RQ2104140-06			Duplicate Matrix Spike RQ2104140-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	0.303 J	49.2	50.0	98	49.6	50.0	99	52-162	<1	36
1,1,2,2-Tetrachloroethane	ND U	46.3	50.0	93	48.0	50.0	96	46-157	4	61
1,1,2-Trichloroethane	ND U	46.7	50.0	93	47.1	50.0	94	52-150	1	45
1,1-Dichloroethane (1,1-DCA)	1.20	51.3	50.0	100	50.7	50.0	99	59-155	1	40
1,1-Dichloroethene (1,1-DCE)	ND U	61.6	50.0	123	61.3	50.0	123	1-234	<1	32
1,2-Dichloroethane	ND U	47.7	50.0	95	48.8	50.0	98	49-155	2	49
1,2-Dichloropropane	ND U	50.0	50.0	100	50.5	50.0	101	1-210	<1	55
2-Butanone (MEK)	ND U	46.3	50.0	93	50.3	50.0	101	61-137	8	30
2-Hexanone	ND U	46.7	50.0	93	51.5	50.0	103	56-132	10	30
4-Methyl-2-pentanone (MIBK)	ND U	48.6	50.0	97	51.2	50.0	102	60-141	5	30
Acetone	ND U	48.6	50.0	97	50.0	50.0	100	35-183	3	30
Acrolein	ND U	81.0	100	81	85.9	100	86	40-160	6	60
Acrylonitrile	ND U	259	250	104	261	250	105	40-160	<1	60
Benzene	ND U	50.4	50.0	101	50.8	50.0	102	37-151	<1	61
Bromodichloromethane	ND U	48.5	50.0	97	48.8	50.0	98	35-155	<1	56
Bromoform	ND U	46.7	50.0	93	47.9	50.0	96	45-169	3	42
Bromomethane	ND U	40.6	50.0	81	41.8	50.0	84	1-242	3	61
Carbon Disulfide	ND U	47.8	50.0	96	50.4	50.0	101	59-140	5	30
Carbon Tetrachloride	ND U	48.4	50.0	97	49.5	50.0	99	70-140	2	41
Chlorobenzene	ND U	46.6	50.0	93	47.6	50.0	95	37-160	2	53
Chloroethane	ND U	52.8	50.0	106	52.7	50.0	105	14-230	<1	78
Chloroform	ND U	45.3	50.0	91	45.0	50.0	90	51-138	<1	54
Chloromethane	ND U	58.5	50.0	117	57.3	50.0	115	1-273	2	60
Dibromochloromethane	ND U	44.5	50.0	89	47.0	50.0	94	53-149	5	50
Methylene Chloride	ND U	48.5	50.0	97	49.1	50.0	98	1-221	1	28
Ethylbenzene	ND U	49.2	50.0	98	49.4	50.0	99	37-162	<1	63
Styrene	ND U	49.6	50.0	99	50.9	50.0	102	74-136	3	30
Tetrachloroethene (PCE)	ND U	47.2	50.0	94	49.3	50.0	99	64-148	4	39
Toluene	ND U	50.0	50.0	100	50.4	50.0	101	47-150	<1	41
Trichloroethene (TCE)	ND U	47.5	50.0	95	47.8	50.0	96	70-157	<1	48
Vinyl Chloride	ND U	50.0	50.0	100	48.9	50.0	98	1-251	2	60
cis-1,2-Dichloroethene	ND U	50.7	50.0	101	51.2	50.0	102	77-127	<1	30
cis-1,3-Dichloropropene	ND U	49.8	50.0	100	50.7	50.0	101	1-227	2	58

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

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21
		Date Analyzed:	04/18/21

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Sample Name:	PS-TW-041421	**Units:**	ug/L
Lab Code:	R2103678-001	**Basis:**	NA
Analysis Method:	624.1		

		Matrix Spike RQ2104140-06			Duplicate Matrix Spike RQ2104140-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	ND U	101	100	101	101	100	101	80-126	<1	30
o-Xylene	ND U	48.4	50.0	97	49.9	50.0	100	79-123	3	30
trans-1,2-Dichloroethene	ND U	55.9	50.0	112	54.9	50.0	110	54-156	2	45
trans-1,3-Dichloropropene	ND U	48.6	50.0	97	48.4	50.0	97	17-183	<1	86

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

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2104140-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	ND U	1.00	0.200	1	04/18/21 12:22	
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,1-Dichloroethane (1,1-DCA)	ND U	1.00	0.200	1	04/18/21 12:22	
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 12:22	
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 12:22	
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 12:22	
2-Hexanone	ND U	5.00	0.200	1	04/18/21 12:22	
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 12:22	
Acetone	ND U	5.00	2.10	1	04/18/21 12:22	
Acrolein	ND U	10.0	0.900	1	04/18/21 12:22	
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 12:22	
Benzene	ND U	1.00	0.200	1	04/18/21 12:22	
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 12:22	
Bromoform	ND U	1.00	0.250	1	04/18/21 12:22	
Bromomethane	ND U	1.00	0.700	1	04/18/21 12:22	
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 12:22	
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 12:22	
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 12:22	
Chloroethane	ND U	1.00	0.230	1	04/18/21 12:22	
Chloroform	ND U	1.00	0.240	1	04/18/21 12:22	
Chloromethane	ND U	1.00	0.280	1	04/18/21 12:22	
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 12:22	
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 12:22	
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 12:22	
Styrene	ND U	1.00	0.200	1	04/18/21 12:22	
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 12:22	
Toluene	ND U	1.00	0.200	1	04/18/21 12:22	
Trichloroethene (TCE)	ND U	1.00	0.200	1	04/18/21 12:22	
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 12:22	
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 12:22	
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 12:22	
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 12:22	
o-Xylene	ND U	1.00	0.200	1	04/18/21 12:22	
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 12:22	
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 12:22	

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2104140-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	94	73 - 125	04/18/21 12:22	
4-Bromofluorobenzene	92	85 - 122	04/18/21 12:22	
Toluene-d8	96	87 - 121	04/18/21 12:22	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103678
Date Analyzed: 04/18/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2104140-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	624.1	18.7	20.0	93	70-130
1,1,2,2-Tetrachloroethane	624.1	17.8	20.0	89	60-140
1,1,2-Trichloroethane	624.1	19.3	20.0	97	70-130
1,1-Dichloroethane (1,1-DCA)	624.1	18.9	20.0	95	70-130
1,1-Dichloroethene (1,1-DCE)	624.1	23.1	20.0	115	50-150
1,2-Dichloroethane	624.1	19.7	20.0	98	70-130
1,2-Dichloropropane	624.1	19.5	20.0	98	35-165
2-Butanone (MEK)	624.1	20.0	20.0	100	61-137
2-Hexanone	624.1	19.1	20.0	95	63-124
4-Methyl-2-pentanone (MIBK)	624.1	20.1	20.0	101	66-124
Acetone	624.1	19.5	20.0	97	40-161
Acrolein	624.1	38.5	40.0	96	60-140
Acrylonitrile	624.1	105	100	105	60-140
Benzene	624.1	19.5	20.0	97	65-135
Bromodichloromethane	624.1	18.9	20.0	95	65-135
Bromoform	624.1	17.1	20.0	86	70-130
Bromomethane	624.1	13.2	20.0	66	15-185
Carbon Disulfide	624.1	20.1	20.0	100	66-128
Carbon Tetrachloride	624.1	17.9	20.0	89	70-130
Chlorobenzene	624.1	18.0	20.0	90	65-135
Chloroethane	624.1	19.6	20.0	98	40-160
Chloroform	624.1	17.6	20.0	88	70-135
Chloromethane	624.1	22.0	20.0	110	1-205
Dibromochloromethane	624.1	18.4	20.0	92	70-135
Methylene Chloride	624.1	19.1	20.0	95	60-140
Ethylbenzene	624.1	17.9	20.0	89	60-140
Styrene	624.1	19.0	20.0	95	80-124
Tetrachloroethene (PCE)	624.1	18.1	20.0	91	70-130
Toluene	624.1	19.3	20.0	96	70-130
Trichloroethene (TCE)	624.1	18.7	20.0	94	65-135
Vinyl Chloride	624.1	18.3	20.0	92	5-195
cis-1,2-Dichloroethene	624.1	19.7	20.0	99	80-117
cis-1,3-Dichloropropene	624.1	19.8	20.0	99	25-175

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103678
Date Analyzed: 04/18/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2104140-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	624.1	37.5	40.0	94	80-126
o-Xylene	624.1	18.5	20.0	93	79-123
trans-1,2-Dichloroethene	624.1	21.2	20.0	106	70-130
trans-1,3-Dichloropropene	624.1	19.2	20.0	96	50-150

Metals

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

METALS

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BLANKS

Contract: R2103678

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-TW-041421

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	C	Continuing Calibration Blank ug/L 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	5.40	U	5.40	U	5.40	U	5.40	U	5.400	U	P
Boron	33.60	J	27.00	J	34.40	J	31.70	J	5.800	U	P
Chromium	0.91	U	0.91	U	0.91	U	0.91	U	0.910	U	P

Comments:

METALS

-3-

BLANKS

Contract: R2103678

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-TW-041421

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	C	Continuing Calibration Blank ug/L 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			5.40	U	5.40	U	5.40	U			P
Boron			35.20	J	23.80	J	44.40	J			P
Chromium			0.91	U	0.91	U	0.91	U			P

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R2103678

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-TW-041421

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	500	472	94					
Boron	1000	948	95					
Chromium	200	203	102					

Comments: _____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2103678-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 11:36	

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103678
Date Analyzed: 04/20/21

Lab Control Sample Summary
Inorganic Parameters

Units:ng/L
Basis:NA

Lab Control Sample
R2103678-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury, Total	1631E	5.02	5.0	100	77-128

General Chemistry

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1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103678
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2103678-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	ND U	mg/L	0.0050	1	04/24/21 12:43	
Phenolics, Total Recoverable	420.4	ND U	mg/L	0.0050	1	04/22/21 17:30	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	ND U	mg/L	1.0	1	04/21/21 17:25	

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103678
Date Analyzed: 04/21/21 - 04/24/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2103678-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	Kelada-01	0.0955	0.100	95	90-110
Phenolics, Total Recoverable	420.4	0.0377	0.0400	94	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	184	214	86	80-120

April 30, 2021

Service Request No:R2103679

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

Laboratory Results for: Olin - Pendleton Site

Dear Adam,

Enclosed are the results of the sample(s) submitted to our laboratory April 16, 2021
For your reference, these analyses have been assigned our service request number **R2103679.**

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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ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
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ALS Environmental

Client: Olin Corporation
Project: Olin - Pendleton Site
Sample Matrix: Water

Service Request: R2103679
Date Received: 04/16/2021

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:

Four water samples were received for analysis at ALS Environmental on 04/16/2021. 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.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

No significant anomalies were noted with this analysis.

SMO:

No significant anomalies were noted with this analysis.

Approved by _____ Date 04/30/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: PS-INF-041421	Lab ID: R2103679-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1,1-Dichloroethane (1,1-DCA)	0.291	J	0.200	1.00	ug/L	624.1
Trichloroethene (TCE)	0.246	J	0.200	1.00	ug/L	624.1

CLIENT ID: PS-INF-041421 Dup	Lab ID: R2103679-002					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Mercury, Total	0.3	J	0.3	1.0	ng/L	1631E

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: Olin - Pendleton Site/1229

Service Request:R2103679

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2103679-001	PS-INF-041421	4/14/2021	1045
R2103679-002	PS-INF-041421 Dup	4/14/2021	0948
R2103679-003	Field Blank	4/14/2021	0935
R2103679-004	Trip Blank	4/14/2021	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

004812

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: Olin-Pendleton Site
Project Number: 1229
Project Manager: Adam Carringer
Report CC: Adam Carringer - Olin
Company/Address: Olin Corp
3855 North Ocoee Road
Cleveland TN 37312
Phone #: 423-336-4057
Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffiton
Sampler's Printed Name: Maxwell Liffiton

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 0 | | | | | 2 | | 3 | 0 | 4 | 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 _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GCMS VOAs • 8260 • 624 • CLP	GCMS 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)	Phenol	TSS	Cyanide	Low Level Mercury				REMARKS/ ALTERNATE DESCRIPTION
PS-INF-041421		04/14/21	0946	GW	1										1					LL Hg
PS-INF-041421 DUP		04/14/21	0948	GW	1										1					LL Hg duplicate
PS-INF-041421		4/14/21	1053	GW	1								1							composited in field
PS-INF-041421		4/14/21	1052	GW	1									1						composited in field
PS-INF-041421		4/14/21	1055	GW	1						1									composited in field
PS-INF-041421		4/14/21	1000	GW	3	3														grab in field
PS-INF-041421		4/14/21	1016	GW	3	3														grab in field
PS-INF-041421		4/14/21	1033	GW	3	3														grab in field
PS-INF-041421		4/14/21	1048	GW	3	3														grab in field
PS-INF-041421		4/14/21	0958	GW	1										1					*composite in lab
PS-INF-041421		4/14/21	1015	GW	1										1					*composite in lab

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Antimony, Boron, Chromium

*CN samples are to be composited in lab

See attached form for sample timeline

See QAPP ☐

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

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 # REIN 003
BILL TO: Olin Corp

STATE WHERE SAMPLES WERE COLLECTED: NY

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Maxwell Liffiton	Signature: UPS	Signature	Signature	Signature	Signature
Printed Name: Maxwell Liffiton	Printed Name: Gregory O. Emerton	Printed Name	Printed Name	Printed Name	
Firm: SES	Firm: AI3	Firm	Firm	Firm	
Date/Time: 4/15/21 0840	Date/Time: 4/16/21 0930	Date/Time	Date/Time	Date/Time	

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

R2103679 5
Olin Corporation
Olin - Pendleton Site

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

004812

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 2 OF 2

Project Name: Olin-Pendleton Site	Project Number: 1229
Project Manager: Adam Carringer	Report CC: Adam Carringer - Olin
Company/Address: Olin Corp 3855 North Ocoee Road Cleveland TN 37312	
Phone #: 423-336-4057	Email: ABCarringer@Olin.com
Sampler's Signature: Maxwell Liffiton	Sampler's Printed Name: Maxwell Liffiton

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 8 | 4 | 0

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	Phenol	TSS	Cyanide	Low Level Mercury				REMARKS/ ALTERNATE DESCRIPTION
PS-INF-041421		4/14/21	1030	GW	1										/					*composite in lab
PS-INF-041421		4/14/21	1045	GW	1										/					*composite in lab
LL Hg Field Blank		4/14/21	0935	GW	1											/				provided by lab
Trip Blank		—	—	—	3	3														provided by lab
Temp Blank		—	—	—	1															provided by lab

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

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Antimony, Boron, Chromium

*CN samples are to be composited in lab

See attached form for sample timeline

See QAPP ☐

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

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 # REIN 003
BILL TO: Olin Corp

STATE WHERE SAMPLES WERE COLLECTED: NY

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Maxwell Liffiton	Signature:	Signature	Signature	Signature	
Printed Name: Maxwell Liffiton	Printed Name: Gregory D. Forrester	Printed Name	Printed Name	Printed Name	
Firm: SES	Firm: ALS	Firm	Firm	Firm	
Date/Time: 4/15/21 0840	Date/Time: 4/16/21 0930	Date/Time	Date/Time	Date/Time	

R2103679 | 5
Olin Corporation
Olin - Pendleton Site

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

Cooler Receipt and Preservation Check Form

R2103679 5
Olin Corporation
Olin - Pendleton Site

Project/Client Olin Corp. Folder Number

Cooler received on 4/16/21 by: ME

COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	Y N (NA)
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set (NA)	

8. Temperature Readings Date: 4/16/21 Time: 1034 ID: IR#7 (IR#17) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.1						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

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

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

All samples held in storage location: R-002 by ME on 4/16/21 at 1014.0
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 4/16/21 Time: 1735 by: DH

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 (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	223419	NaOH	✓		217537					
≤2	↓	HNO_3	✓		1120092					
≤2		H_2SO_4	✓		KIT1-25-211297					
<4		$NaHSO_4$			4/16/21					
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 0-283-070, 111354a, 80221-07, 90121-04
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: DH
PC Secondary Review: _____

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

Client: Olin Corporation **Service Request:** R2103679
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2103679-001.01					
	SM 2540 D-1997(2011)				
		4/16/2021	1732	SMO / DWARD	
		4/22/2021	0507	R-Dumpster / KAWONG	
R2103679-001.02					
	420.4				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1755	RT000039 / DWARD	
		4/16/2021	1758	R-015 / DWARD	
R2103679-001.03					
	Kelada-01				
		4/16/2021	1732	SMO / DWARD	
		4/20/2021	2101	R-015 / GLAFORCE	
		4/20/2021	2103	RT000767 / GLAFORCE	
R2103679-001.04					
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	
R2103679-001.05					
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	
R2103679-001.06					
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	
R2103679-001.07					
	1631E				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-A01 / DWARD	
R2103679-001.08					
	200.7,200.7,200.7				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-A01 / DWARD	
		4/19/2021	0913	In Lab / AKONZEL	
		4/21/2021	1625	R-A01 / AKONZEL	
R2103679-001.09					
		4/16/2021	1732	SMO / DWARD	
R2103679-001.10					

Client: Olin Corporation **Service Request:** R2103679
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
		4/16/2021	1735	SMO / DWARD	
R2103679-001.11					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.12					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.13					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.14					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.15					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.16					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.17					
		4/16/2021	1735	SMO / DWARD	
R2103679-001.18					
	624				
		4/16/2021	1735	SMO / DWARD	
		4/18/2021	1153	In Lab / KRUEST	
		4/18/2021	1214	R-001-S12 / KRUEST	
R2103679-002.01					
	1631E				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-A01 / DWARD	
R2103679-003.01					
	1631E				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-A01 / DWARD	
R2103679-004.01					
	624				
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Olin Corporation **Service Request:** R2103679
Project: Olin - Pendleton Site/1229

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	624				
		4/18/2021	1153	In Lab / KRUEST	
		4/18/2021	1214	R-001-S12 / KRUEST	
R2103679-004.02					
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	
R2103679-004.03					
		4/16/2021	1732	SMO / DWARD	
		4/16/2021	1735	R-001 / DWARD	

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% 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	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

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: Olin - Pendleton Site/1229
Service Request: R2103679

Sample Name: PS-INF-041421
Lab Code: R2103679-001
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
1631E		KMCLAEN
200.7	AKONZEL	KMCLAEN
420.4		CWOODS
624		KRUEST
Kelada-01		CWOODS
SM 2540 D-1997(2011)		KAWONG

Sample Name: PS-INF-041421 Dup
Lab Code: R2103679-002
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
1631E		KMCLAEN

Sample Name: Field Blank
Lab Code: R2103679-003
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
1631E		KMCLAEN

Sample Name: Trip Blank
Lab Code: R2103679-004
Sample Matrix: Water
Date Collected: 04/14/21
Date Received: 04/16/21

Analysis Method	Extracted/Digested By	Analyzed By
624		KRUEST

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

Volatile 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:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:45
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-INF-041421	**Units:**	ug/L
Lab Code:	R2103679-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	ND U	1.00	0.200	1	04/18/21 14:34	*
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 14:34	*
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 14:34	*
1,1-Dichloroethane (1,1-DCA)	**0.291 J**	1.00	0.200	1	04/18/21 14:34	*
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 14:34	*
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 14:34	*
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 14:34	*
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 14:34	*
2-Hexanone	ND U	5.00	0.200	1	04/18/21 14:34	*
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 14:34	*
Acetone	ND U	5.00	2.10	1	04/18/21 14:34	*
Acrolein	ND U	10.0	0.900	1	04/18/21 14:34	*
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 14:34	*
Benzene	ND U	1.00	0.200	1	04/18/21 14:34	*
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 14:34	*
Bromoform	ND U	1.00	0.250	1	04/18/21 14:34	*
Bromomethane	ND U	1.00	0.700	1	04/18/21 14:34	*
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 14:34	*
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 14:34	*
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 14:34	*
Chloroethane	ND U	1.00	0.230	1	04/18/21 14:34	*
Chloroform	ND U	1.00	0.240	1	04/18/21 14:34	*
Chloromethane	ND U	1.00	0.280	1	04/18/21 14:34	*
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 14:34	*
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 14:34	*
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 14:34	*
Styrene	ND U	1.00	0.200	1	04/18/21 14:34	*
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 14:34	*
Toluene	ND U	1.00	0.200	1	04/18/21 14:34	*
Trichloroethene (TCE)	**0.246 J**	1.00	0.200	1	04/18/21 14:34	*
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 14:34	*
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 14:34	*
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 14:34	*
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 14:34	*
o-Xylene	ND U	1.00	0.200	1	04/18/21 14:34	*
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 14:34	*
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 14:34	*

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:45
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-INF-041421	**Units:**	ug/L
Lab Code:	R2103679-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	96	73 - 125	04/18/21 14:34	
4-Bromofluorobenzene	93	85 - 122	04/18/21 14:34	
Toluene-d8	97	87 - 121	04/18/21 14:34	

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R2103679-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	ND U	1.00	0.200	1	04/18/21 14:12	*
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 14:12	*
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 14:12	*
1,1-Dichloroethane (1,1-DCA)	ND U	1.00	0.200	1	04/18/21 14:12	*
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 14:12	*
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 14:12	*
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 14:12	*
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 14:12	*
2-Hexanone	ND U	5.00	0.200	1	04/18/21 14:12	*
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 14:12	*
Acetone	ND U	5.00	2.10	1	04/18/21 14:12	*
Acrolein	ND U	10.0	0.900	1	04/18/21 14:12	*
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 14:12	*
Benzene	ND U	1.00	0.200	1	04/18/21 14:12	*
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 14:12	*
Bromoform	ND U	1.00	0.250	1	04/18/21 14:12	*
Bromomethane	ND U	1.00	0.700	1	04/18/21 14:12	*
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 14:12	*
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 14:12	*
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 14:12	*
Chloroethane	ND U	1.00	0.230	1	04/18/21 14:12	*
Chloroform	ND U	1.00	0.240	1	04/18/21 14:12	*
Chloromethane	ND U	1.00	0.280	1	04/18/21 14:12	*
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 14:12	*
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 14:12	*
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 14:12	*
Styrene	ND U	1.00	0.200	1	04/18/21 14:12	*
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 14:12	*
Toluene	ND U	1.00	0.200	1	04/18/21 14:12	*
Trichloroethene (TCE)	ND U	1.00	0.200	1	04/18/21 14:12	*
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 14:12	*
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 14:12	*
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 14:12	*
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 14:12	*
o-Xylene	ND U	1.00	0.200	1	04/18/21 14:12	*
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 14:12	*
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 14:12	*

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R2103679-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	96	73 - 125	04/18/21 14:12	
4-Bromofluorobenzene	94	85 - 122	04/18/21 14:12	
Toluene-d8	98	87 - 121	04/18/21 14:12	

Metals

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METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Olin Corporation
Project No.: R2103679
Project Name:
Matrix: WATER

Service Request: PS-INF-041421
Date Collected: 4/14/2021
Date Received: 4/16/2021
Units: ug/L
Basis:

Sample Name: PS-INF-041421 **Lab Code:** R2103679-001

Analyte	Analysis Method	PQL	MDL	Dil. Factor	Result	C	Q
Antimony	200.7	10.0	5.4	1.0	10.0	U	
Boron	200.7	200	5.8	1.0	42.0	J	
Chromium	200.7	10.0	0.910	1.0	10.0	U	

% Solids: 0.0

Comments:

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:45
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-INF-041421	**Basis:**	NA
Lab Code:	R2103679-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 13:59	

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 09:48
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-INF-041421 Dup	**Basis:**	NA
Lab Code:	R2103679-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	**0.3 J**	ng/L	1.0	0.3	1	04/20/21 14:07	

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 09:35
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	Field Blank	**Basis:**	NA
Lab Code:	R2103679-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 14:15	

General Chemistry

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Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	04/14/21 10:45
Sample Matrix:	Water	**Date Received:**	04/16/21 09:30
Sample Name:	PS-INF-041421	**Basis:**	NA
Lab Code:	R2103679-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	ND U	mg/L	0.0050	1	04/24/21 14:15	
Phenolics, Total Recoverable	420.4	ND U	mg/L	0.0050	1	04/22/21 18:38	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	ND U	mg/L	1.0	1	04/21/21 17:25	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Olin Corporation **Service Request:** R2103679

Project: Olin - Pendleton Site/1229

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Sample Name	Lab Code	1,2-Dichloroethane-d4 73-125	4-Bromofluorobenzene 85-122	Toluene-d8 87-121
PS-INF-041421	R2103679-001	96	93	97
Trip Blank	R2103679-004	96	94	98
Method Blank	RQ2104140-04	94	92	96
Lab Control Sample	RQ2104140-03	93	95	98

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2104140-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	ND U	1.00	0.200	1	04/18/21 12:22	
1,1,2,2-Tetrachloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,1,2-Trichloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,1-Dichloroethane (1,1-DCA)	ND U	1.00	0.200	1	04/18/21 12:22	
1,1-Dichloroethene (1,1-DCE)	ND U	1.00	0.200	1	04/18/21 12:22	
1,2-Dichloroethane	ND U	1.00	0.200	1	04/18/21 12:22	
1,2-Dichloropropane	ND U	1.00	0.200	1	04/18/21 12:22	
2-Butanone (MEK)	ND U	5.00	0.780	1	04/18/21 12:22	
2-Hexanone	ND U	5.00	0.200	1	04/18/21 12:22	
4-Methyl-2-pentanone (MIBK)	ND U	5.00	0.200	1	04/18/21 12:22	
Acetone	ND U	5.00	2.10	1	04/18/21 12:22	
Acrolein	ND U	10.0	0.900	1	04/18/21 12:22	
Acrylonitrile	ND U	10.0	0.900	1	04/18/21 12:22	
Benzene	ND U	1.00	0.200	1	04/18/21 12:22	
Bromodichloromethane	ND U	1.00	0.200	1	04/18/21 12:22	
Bromoform	ND U	1.00	0.250	1	04/18/21 12:22	
Bromomethane	ND U	1.00	0.700	1	04/18/21 12:22	
Carbon Disulfide	ND U	10.0	0.420	1	04/18/21 12:22	
Carbon Tetrachloride	ND U	1.00	0.340	1	04/18/21 12:22	
Chlorobenzene	ND U	1.00	0.200	1	04/18/21 12:22	
Chloroethane	ND U	1.00	0.230	1	04/18/21 12:22	
Chloroform	ND U	1.00	0.240	1	04/18/21 12:22	
Chloromethane	ND U	1.00	0.280	1	04/18/21 12:22	
Dibromochloromethane	ND U	1.00	0.200	1	04/18/21 12:22	
Methylene Chloride	ND U	1.00	0.650	1	04/18/21 12:22	
Ethylbenzene	ND U	1.00	0.200	1	04/18/21 12:22	
Styrene	ND U	1.00	0.200	1	04/18/21 12:22	
Tetrachloroethene (PCE)	ND U	1.00	0.210	1	04/18/21 12:22	
Toluene	ND U	1.00	0.200	1	04/18/21 12:22	
Trichloroethene (TCE)	ND U	1.00	0.200	1	04/18/21 12:22	
Vinyl Chloride	ND U	1.00	0.200	1	04/18/21 12:22	
cis-1,2-Dichloroethene	ND U	1.00	0.230	1	04/18/21 12:22	
cis-1,3-Dichloropropene	ND U	1.00	0.200	1	04/18/21 12:22	
m,p-Xylenes	ND U	2.00	0.200	1	04/18/21 12:22	
o-Xylene	ND U	1.00	0.200	1	04/18/21 12:22	
trans-1,2-Dichloroethene	ND U	1.00	0.200	1	04/18/21 12:22	
trans-1,3-Dichloropropene	ND U	1.00	0.230	1	04/18/21 12:22	

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2104140-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Analysis Method: 624.1

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	94	73 - 125	04/18/21 12:22	
4-Bromofluorobenzene	92	85 - 122	04/18/21 12:22	
Toluene-d8	96	87 - 121	04/18/21 12:22	

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103679
Date Analyzed: 04/18/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2104140-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	624.1	18.7	20.0	93	70-130
1,1,2,2-Tetrachloroethane	624.1	17.8	20.0	89	60-140
1,1,2-Trichloroethane	624.1	19.3	20.0	97	70-130
1,1-Dichloroethane (1,1-DCA)	624.1	18.9	20.0	95	70-130
1,1-Dichloroethene (1,1-DCE)	624.1	23.1	20.0	115	50-150
1,2-Dichloroethane	624.1	19.7	20.0	98	70-130
1,2-Dichloropropane	624.1	19.5	20.0	98	35-165
2-Butanone (MEK)	624.1	20.0	20.0	100	61-137
2-Hexanone	624.1	19.1	20.0	95	63-124
4-Methyl-2-pentanone (MIBK)	624.1	20.1	20.0	101	66-124
Acetone	624.1	19.5	20.0	97	40-161
Acrolein	624.1	38.5	40.0	96	60-140
Acrylonitrile	624.1	105	100	105	60-140
Benzene	624.1	19.5	20.0	97	65-135
Bromodichloromethane	624.1	18.9	20.0	95	65-135
Bromoform	624.1	17.1	20.0	86	70-130
Bromomethane	624.1	13.2	20.0	66	15-185
Carbon Disulfide	624.1	20.1	20.0	100	66-128
Carbon Tetrachloride	624.1	17.9	20.0	89	70-130
Chlorobenzene	624.1	18.0	20.0	90	65-135
Chloroethane	624.1	19.6	20.0	98	40-160
Chloroform	624.1	17.6	20.0	88	70-135
Chloromethane	624.1	22.0	20.0	110	1-205
Dibromochloromethane	624.1	18.4	20.0	92	70-135
Methylene Chloride	624.1	19.1	20.0	95	60-140
Ethylbenzene	624.1	17.9	20.0	89	60-140
Styrene	624.1	19.0	20.0	95	80-124
Tetrachloroethene (PCE)	624.1	18.1	20.0	91	70-130
Toluene	624.1	19.3	20.0	96	70-130
Trichloroethene (TCE)	624.1	18.7	20.0	94	65-135
Vinyl Chloride	624.1	18.3	20.0	92	5-195
cis-1,2-Dichloroethene	624.1	19.7	20.0	99	80-117
cis-1,3-Dichloropropene	624.1	19.8	20.0	99	25-175

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103679
Date Analyzed: 04/18/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2104140-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	624.1	37.5	40.0	94	80-126
o-Xylene	624.1	18.5	20.0	93	79-123
trans-1,2-Dichloroethene	624.1	21.2	20.0	106	70-130
trans-1,3-Dichloropropene	624.1	19.2	20.0	96	50-150

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METALS

-3-

BLANKS

Contract: R2103679

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-INF-04142

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	C	Continuing Calibration Blank ug/L 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	5.40	U	5.40	U	5.40	U	5.40	U	5.400	U	P
Boron	33.60	J	27.00	J	34.40	J	31.70	J	5.800	U	P
Chromium	0.91	U	0.91	U	0.91	U	0.91	U	0.910	U	P

Comments:

METALS

-3-

BLANKS

Contract: R2103679

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-INF-04142

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	C	Continuing Calibration Blank ug/L 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			5.40	U	5.40	U	5.40	U			P
Boron			35.20	J	23.80	J	44.40	J			P
Chromium			0.91	U	0.91	U	0.91	U			P

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R2103679

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: PS-INF-04142

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	500	472	94					
Boron	1000	948	95					
Chromium	200	203	102					

Comments: _____

Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2103679-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Mercury, Total	1631E	ND U	ng/L	1.0	0.3	1	04/20/21 11:36	

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103679
Date Analyzed: 04/20/21

Lab Control Sample Summary
Inorganic Parameters

Units:ng/L
Basis:NA

Lab Control Sample
R2103679-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury, Total	1631E	5.02	5.0	100	77-128

General Chemistry

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Client:	Olin Corporation	**Service Request:**	R2103679
Project:	Olin - Pendleton Site/1229	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2103679-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	ND U	mg/L	0.0050	1	04/24/21 12:43	
Phenolics, Total Recoverable	420.4	ND U	mg/L	0.0050	1	04/22/21 17:30	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	ND U	mg/L	1.0	1	04/21/21 17:25	

Client: Olin Corporation
Project: Olin - Pendleton Site/1229
Sample Matrix: Water

Service Request: R2103679
Date Analyzed: 04/21/21 - 04/24/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2103679-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	Kelada-01	0.0955	0.100	95	90-110
Phenolics, Total Recoverable	420.4	0.0377	0.0400	94	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	184	214	86	80-120

Pendleton Sampling Timeline

For Influent (PSINF)

4/12/21

1000- Sevenson shut down system in preparation for sample event

4/14/21

0935- Low level mercury field blank was taken

0943- Sevenson restarted system

0946- Low level mercury sample was taken

0948- Low level mercury duplicate was taken

0957- 1 composite jar was started for the collection of TSS, phenols, and metals

0958- 1 grab sample was taken for CN (to be composited by lab)

1000- 1 grab sample was taken for VOCs

1014- water was collected into composite jar

1015- 1 grab sample was taken for CN (to be composited by lab)

1016- 1 grab sample was taken for VOCs

1029- water was collected into composite jar

1030- 1 grab sample was taken for CN (to be composited by lab)

1033- 1 grab sample was taken for VOCs

1044- water was collected into composite jar

1045- 1 grab sample was taken for CN (to be composited by lab)

1048- 1 grab sample was taken for VOCs

1052- sample for TSS was taken from composite jar

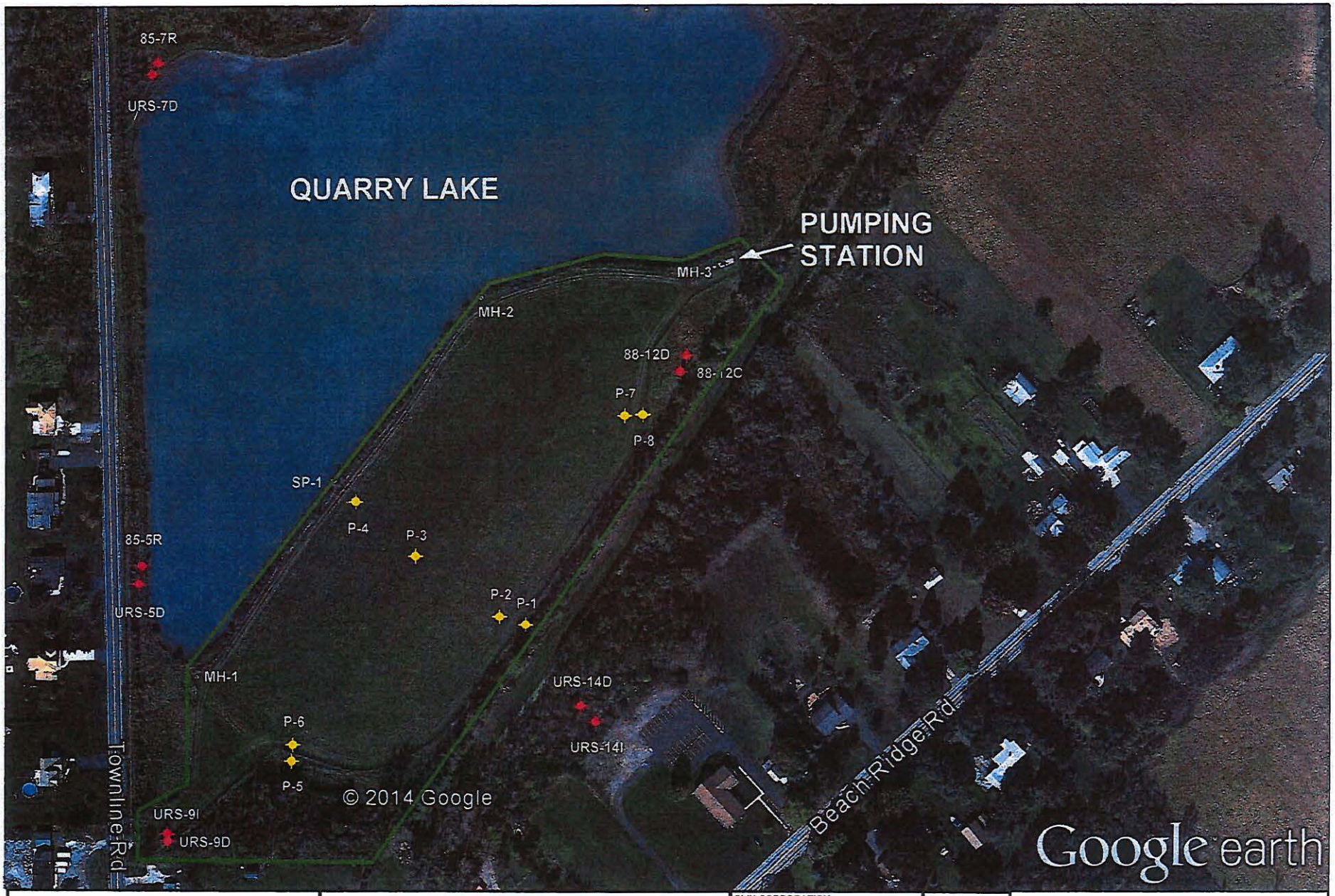
1053- sample for phenols was taken from composite jar

1055- sample for metals was taken from composite jar

Olin™

ATTACHMENT D

Well Location Map and Groundwater Elevations



Olin	**OLIN CORPORATION** Environmental Remediation Group 3855 N. Ocoee St., Ste. 200 Cleveland, tennessee 37312 423/336-4000		OLIN CORPORATION FRONTIER CHEMICAL PENDLETON SITE PENDLETON, NY	N	SCALE: 1 INCH = 200 FEET PIEZOMETER WELL MONITORING WELL SITE BOUNDRY MH = MANHOLE SP = STAND PIPE
	SCALE: NOTED	DRAWN BY: JRH CHKD. BY: ABC	DATE: 8-29-2019 DATE: 9-5-2019	SITE MAP MONITORING WELL/PIEZOMETER LOCATIONS APRIL 2019	FIG. NO. 1	

Summary of Groundwater Elevations
Summer 2021 through Fall 2021
Pendleton Site

	POSITION	LOCATION	Top of Riser Elevation FT	Depth to Water FT	Water Elevation FT-MSL 8681 4/12/2021	Water Elevation FT-MSL 8839 9/17/2021
P-1	(O)	EASTERN PORTION OF	583.21	1.95	581.3	581.26
P-2	(I)	CAPPED AREA	582.90	6.11	582	576.79
P-3	(I)	CENTER OF CAPPED AREA	606.33	29.50	577	576.83
P-4	(I)	ADJACENT TO QUARRY	582.31	8.53	572.3	573.78
SP-1	(T)	LAKE	579.86		564.9	564.9
P-5	(O)	SOUTHERN PORTION OF	583.05	3.15	580	579.9
P-6	(I)	CAPPED AREA	584.45	9.48	574.89	574.97
P-7	(I)	NORTHERN PORTION OF	580.97	5.35	574.48	575.62
P-8	(O)	CAPPED AREA	582.83	2.70	580.52	580.13
URS-14I		UPGRADIENT WELL NEST	581.14	0.25	580.13	580.89
URS-14D		IN CHURCH PARKING LOT	580.71	6.10	574.55	574.61
URS-9I		SOUTHERN WELL NEST	581.68	7.06	574.48	574.62
URS-9D		ALONG TOWN LINE ROAD	580.80	6.25	574.39	574.55
85-5R		MIDDLE WELL NEST ALONG	580.84	3.90	577.38	576.94
URS-5D		TOWN LINE ROAD	580.60	6.00	574.3	574.6
85-7R		NORTH WELL NEST ALONG	577.90	3.30	574.26	574.6
URS-7D		TOWN LINE ROAD	579.35	4.60	574.49	574.75
88-12C		WELL NEST OUTSIDE	583.12	8.35	575.07	574.77
88-12D		NORTHEAST PORTION OF	582.87	8.00	574.8	574.87
QUARRY LAKE					578.4	578.31

Notes:
Elevation based on USGS Datum.
O = piezometer located outside of capped area.
I = piezometer located inside capped area.
T = standpipe located within the ground water collection trench.

ATTACHMENT E

Semi-Annual Field Observation Report and
Monthly Inspection Checklist

FIELD OBSERVATION REPORT

PROJECT NO.: 94-1014-O REPORT NO.: 21-01 DATE: 4/14/21 PAGE: 2 OF 2

PROJECT: Pendleton – Frontier Chemical Site DAY: Wednesday

SUBJECT: Lake Level Survey, Semi-Annual Insp. PROJECT TIME: 10:00 am – 12:00 pm

CLIENT: Sevenson Environmental Services, Inc. SITE TIME: 10:30 am – 11:45 am

4.14.21 Site Photos:

Inundated Overflow Weir

Lakeside Cap Slope

Rodent Burrow at East end of Cap

FIELD OBSERVATION REPORT

PROJECT NO.: 94-1014-O REPORT NO.: 21-01 DATE: 4/14/21 PAGE: 1 OF 2

PROJECT: Pendleton – Frontier Chemical Site DAY: Wednesday

SUBJECT: Lake Level Survey, Semi-Annual Insp. PROJECT TIME: 10:00 am – 12:00 pm

CLIENT: Sevenson Environmental Services, Inc. SITE TIME: 10:30 am – 11:45 am

WEATHER: Mild, Mostly Sunny (60°F) PHOTOS: Yes X No

- As notified by Mike Walker (Sevenson Environmental), visit the Pendleton site to record the surface water elevation of the lake to coincide with the semi-annual site inspection event.
- The Quarry Lake surface water level near the pre-treatment vault is recorded by level survey using the top of the pre-treatment vault benchmark El. 580.50'. The lake water elevation is recorded at El. 578.40'.
- Mike Walker and Max (SES) are on site for the semi-annual inspection and to provide site access.
- Following are cursory observations made while on site:
  - The capped area is noted to be in generally good condition. An active rodent burrow is noted at the east end of the capped area just above P-7. SES is notified of the active burrow.
  - The overflow weir is inundated with approx. 1.2' of water.
  - There is standing water in the Zone "D" wetlands along the northeast side of the site.
  - The site access roads are generally in good condition, though wet and with some localized rutting.
  - SES notes that other annual inspection items (pinch valve operation, cleanout riser inspections, etc.) will be completed as part of this inspection event.
- Leave site at approx. 11:45 pm, returning to GGE's Lockport office to prepare this report.

PERSONNEL ON SITE / CONTACTED:

Mike Walker, Max – Sevenson

DISTRIBUTION:

Mike Walker – Sevenson
David Share, P.E. – Pendleton PRP Group
Adam Carringer – Pendleton PRP Grp
DAILY MANHOURS: 2.0 + report

Jesse E. Grossman, P.E. - Engineering Manager

Mark W. Glynn, P.E.

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

DOCFILE:21FOR

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Date: 4/12/21 **Time In:** 0830 **Time Out:** 1500

Inspector: Maxwell Liffiton, Mike Walker
Inspector Signature Maxwell Liffiton

Weather:	cloudy, intermittent showers (55°F)

Item	Task	Response		Comments
		Yes	No	
Low-Permeability Cover:	**Visually Inspect Surface Conditions**			
	1. Erosion problem?		✓	
	2. Lack or thinning of vegetation?		✓	
	3. Mowing required?		✓	
	4. Drainage problems?		✓	
	5. Areas of settlement?		✓	
	6. Areas of slope instability?		✓	
	7. Areas of damage?		✓	
Ground Water Collection and Conveyance System:	**Visually Inspect Manholes and Cleanouts**			
	1. Buildup of solids/precipitates to the extent that the flow of groundwater is affected?		✓	
	2. Measure water levels in manholes and Quarry Lake a. MH-1? DRY (well depth 12.69') b. MH-2 DRY (well depth 16.62') c. MH-3? 16.63' (well depth 19.40') d. Quarry Lake? 578.40'	✓		Quarry lake level provided by Glynn Geotechnical on 4/14/21. Measured as 578.40'. The previous lake level taken by Glynn was 577.02' on 9/15/20.
	3. Closed and opened pinch valve?	✓		Performed 4/14/21

Maxwell Inglis

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Item	Task	Response		Comments
		Yes	No	
	4. Leakage, degradation or corrosion of valves, pipes or appurtenances?		✓	
	5. Areas of damage?		✓	
Ground Water Pre-Treatment System (including Dry Vault and Wet Well):	Perform Inspection in accordance with Pre-Treatment System Operations Plan	✓		
Surface Water Runoff Facilities:	Visually Inspect Ditches and Culverts			
	1. Accumulation of debris?		✓	
	2. Excessive scouring?		✓	
	3. Areas of damage?		✓	
Perimeter Berm, Containment Berm, and Outlet Weir:	Visually Inspect Condition			
	1. Erosion problems?		✓	
	2. Areas of settlement?		✓	
	3. Areas of slope instability?		✓	
	4. Areas of damage?		✓	
Ground Water Monitoring Wells and Piezometers:	Visually Inspect Condition			
	1. Casings secured and locked?		✓	
	2. Areas of damage?	✓		As noted in Monitoring Well Integrity Checklists
Access Road:	Visually Inspect Surface Condition			
	1. Rutting?	✓		Some minor rutting south of landfill
	2. Potholes?		✓	
	3. Settlement?		✓	
	4. Areas of damage?		✓	

Maxwell Griffith

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Item	Task	Response		Comments
		Yes	No	
Physical Site Security:	**Visually Inspect Fences and Gates**			
	1. Signs intact?	✓		
	2. Fence breached?		✓	
	3. Access gates locked?	✓		
	4. Areas of damage?		✓	

Note any additional comments:

Site inspection was performed by SES on 4/12/21.

Jesse E. Grossman P.E. (Glynn Geotechnical) performed field observations and measured Quarry Lake level on 4/14/21.

SES performed pinch valve inspections and alarm system testing on 4/14/21.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Lifflton
Inspector Signature Maxwell Lifflton

Well Identification: P-1

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	1.96	FT		
Well Depth	16.42	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?		✓
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

There is a large hole in the well casing near ground level.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-2

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	0.92	FT		
Well Depth	15.73	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

~~All Okay~~. There is standing water in the annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-3

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	29.29	FT		
Well Depth	39.80	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-4

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	10.05	FT		
Well Depth	16.94	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

~~All Okay~~. There is standing water in the annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-5

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.07	FT		
Well Depth	15.55	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Stand pipe has no visible above-ground vent to allow for drainage.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-6

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	9.56	FT		
Well Depth	16.18	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?		✓
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

The well standpipe has shifted and is no longer vertical.
Access down the well is still possible.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-7

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.49	FT		
Well Depth	16.73	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

~~All Okay~~. There is standing water in the annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Littlo
Inspector Signature Maxwell Littlo

Well Identification: P-8

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	2.31	FT		
Well Depth	17.22	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS-5D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.30	FT		
Well Depth	49.78	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS -7D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	4.86	FT		
Well Depth	39.91	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

There is no visible above-ground vent in the well casing to allow for drainage.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS-9D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.41	FT		
Well Depth	50.98	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS-91

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	7.20	FT		
Well Depth	45.95	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

There is no visible above-ground vent in the well casing to allow for drainage.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS-14D

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.16	FT		
Well Depth	41.60	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

There is standing water in the annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: URS - 14 I

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	1.01	FT		
Well Depth	31.10	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Water is present in annular space

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Littlton
Inspector Signature Maxwell Littlton

Well Identification: 85-5R

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.46	FT		
Well Depth	38.05	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Maxwell Littlton
Inspector Signature Maxwell Littlton

Well Identification: 85-7R

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.64	FT		
Well Depth	27.70	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: 88-12C

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	8.05	FT		
Well Depth	31.20	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All Okay.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: 88-12D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	8.07	FT		
Well Depth	48.91	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?		✓
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

The well casing has significant rust damage.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 4/12/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: SP-1

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter		2-Inch	✓	4-Inch
Depth to Ground Water	—	FT (Not taken)		
Well Depth	—	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?		✓
3. Is the well stand pipe vertically aligned and secure?		✓
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	—	
11. Is the access down the well impeded or blocked?	✓	
Explain: See below		

COMMENTS / RECOMMENDATIONS:

The bolts securing the well pad have been snapped off. Access to the well is not secure. The stand pipe has shifted and is no longer vertical. The top of the stand pipe has shifted under the lip of the well casing. The well plug is not able to be removed, and thus well access is obstructed.

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FIELD OBSERVATION REPORT

PROJECT NO.: 94-1014-O REPORT NO.: 21-02 DATE: 9/17/21 PAGE: 1 OF 2

PROJECT: Pendleton – Frontier Chemical Site

DAY: Friday

SUBJECT: Lake Level Survey, Semi-Annual Insp.

PROJECT TIME: 10:00 am – 11:30 am

CLIENT: Sevenson Environmental Services, Inc.

SITE TIME: 9:30 am – 12:00 pm

WEATHER: Partly Cloudy, Warm (75°F)

PHOTOS: Yes X No

- As notified by Mike Walker (Sevenson Environmental), visit the Pendleton site to record the surface water elevation of the lake to coincide with the semi-annual site inspection event.
- Mike Walker (SES) is on site for inspection/maintenance and to provide site access. SES is completing monitoring well sampling and other semi-annual inspection items.
- The Quarry Lake surface water level near the pre-treatment vault is recorded by level survey using the top of the pre-treatment vault benchmark El. 580.50'. The lake water elevation is recorded at El. 578.31'.
- Following are cursory observations made while on site:
  - The capped area is noted to be in good condition.
  - The weir is inundated with approx. 0.5' of water
  - Site conditions are relatively dry with the lake level approx. 0.1' lower than recorded in April.
  - Note heavy brush/vegetative growth in areas outside of perimeter fence
  - Site access roads are in fair condition with some rutting.
- Leave site at approx. 11:30 pm, returning to GGEA's Lockport office to prepare this report.

PERSONNEL ON SITE / CONTACTED:
Mike Walker – Sevenson

DISTRIBUTION:
Mike Walker – Sevenson Environmental
David Share, P.E., Adam Carringer – Pendleton PRP Group

DAILY MANHOURS: 1.5 + report

Jesse E. Grossman, P.E. – Engineering Manager

Mark W. Glynn, P.E.

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FIELD OBSERVATION REPORT

PROJECT NO.: 94-1014-O REPORT NO.: 19-02 DATE: 10/09/19 PAGE: 2 OF 2

PROJECT: Pendleton – Frontier Chemical Site DAY: Wednesday

SUBJECT: Lake Level Survey, Semi-Annual Insp. PROJECT TIME: 11:00 am – 12:30 pm

CLIENT: Sevenson Environmental Services, Inc. SITE TIME: 11:15 am – 12:15 pm

Site Photos:

Inundated Overflow Weir

Civil • Structural • Geotechnical • Materials Testing • Consulting

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Date: 9/15/21 **Time In:** 1045 **Time Out:** 1400

Inspector: Mike Walker, Max Liffiton
Inspector Signature Max Liffiton

Weather:	Cloudy 76°F

Item	Task	Response		Comments
		Yes	No	
Low-Permeability Cover:	**Visually Inspect Surface Conditions**			
	1. Erosion problem?		✓	
	2. Lack or thinning of vegetation?		✓	
	3. Mowing required?		✓	
	4. Drainage problems?		✓	
	5. Areas of settlement?		✓	
	6. Areas of slope instability?		✓	
	7. Areas of damage?		✓	
Ground Water Collection and Conveyance System:	**Visually Inspect Manholes and Cleanouts**			
	1. Buildup of solids/precipitates to the extent that the flow of groundwater is affected?		✓	
	2. Measure water levels in manholes and Quarry Lake a. MH-1? DRY b. MH-2 DRY c. MH-3? 15' 11.5" d. Quarry Lake? 578.31'	✓		MH1 is dry and clean MH2 is dry (no water) with some mud in bottom MH3 water is 15' 11.5" to water. Glynn Geotechnical measured Quarry Lake at 578.31' on 9/17/21. Previous level 578.40' on 4/12/21.
	3. Closed and opened pinch valve?	✓		

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Max Tufft

Item	Task	Response		Comments
		Yes	No	
	4. Leakage, degradation or corrosion of valves, pipes or appurtenances?		✓	
	5. Areas of damage?		✓	
Ground Water Pre-Treatment System (including Dry Vault and Wet Well):	Perform Inspection in accordance with Pre-Treatment System Operations Plan	✓		
Surface Water Runoff Facilities:	Visually Inspect Ditches and Culverts			
	1. Accumulation of debris?		✓	
	2. Excessive scouring?		✓	
	3. Areas of damage?		✓	
Perimeter Berm, Containment Berm, and Outlet Weir:	Visually Inspect Condition			
	1. Erosion problems?		✓	
	2. Areas of settlement?		✓	
	3. Areas of slope instability?		✓	
	4. Areas of damage?		✓	
Ground Water Monitoring Wells and Piezometers:	Visually Inspect Condition			
	1. Casings secured and locked?	✓		
	2. Areas of damage?		✓	
Access Road:	Visually Inspect Surface Condition			
	1. Rutting?	✓		Some rutting around landfill
	2. Potholes?		✓	
	3. Settlement?		✓	
	4. Areas of damage?		✓	

Frontier Chemical – Pendleton
Site No. 932043
Semi-Annual Inspection Checklist

Mary Griffin

Item	Task	Response		Comments
		Yes	No	
Physical Site Security:	Visually Inspect Fences and Gates			
	1. Signs intact?	✓		
	2. Fence breached?		✓	
	3. Access gates locked?	✓		
	4. Areas of damage?		✓	

Note any additional comments:

Jesse E. Grossman P.E. (Glynn Geotechnical) performed field observations and measured Quarry Lake level on 9/17/21.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Clifton
Inspector Signature Max Clifton

Well Identification: P-1

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	1.95	FT		
Well Depth	16.50	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Concrete pad has been covered by soil. Recent rains have made the area a bit swampy, with standing water around the vent. well casing.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: P-2

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.11	FT		
Well Depth	15.82	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

No visible venting in well casing.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Uffelton
Inspector Signature Max Uffelton

Well Identification: P-3

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	29.50	FT		
Well Depth	39.85	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All good.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: P-4

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	8.53	FT		
Well Depth	17.00	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Some water in annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Uffelton
Inspector Signature Max Uffelton

Well Identification: P-5

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.15	FT		
Well Depth	15.65	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
No visible venting in stand pipe to allow for drainage.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: P-6

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	9.48	FT		
Well Depth	16.25	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?		✓
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
The well pipe is significantly slanted.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: P-7

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	5.35	FT		
Well Depth	16.80	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
Standing water in annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Maxwell Liffiton

Well Identification: P-8

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	2.70	FT		
Well Depth	17.33	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All good.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Hilton
Inspector Signature Max Hilton

Well Identification: URS-5D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.00	FT		
Well Depth	49.88	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Standing water in annular space.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: URS-7D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	4.60	FT		
Well Depth	39.92	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?		✓
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
Lid pin has rusted away and needs replacement.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: URS-9D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.25	FT		
Well Depth	51.05	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
Soil has overtaken concrete pad. Well is in a low swampy area.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Lifton
Inspector Signature Max Lifton

Well Identification: URS-9I

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	7.06	FT		
Well Depth	46.10	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?		✓
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
Growth + soil around base of well covers concrete.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: 85-5R

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.90	FT		
Well Depth	38.13	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All good.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: 85-7R

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	3.30	FT		
Well Depth	27.80	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

Soil has overtaken concrete pad.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffton
Inspector Signature Maxwell Liffton

Well Identification: 88-12C

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	8.35	FT		
Well Depth	31.01	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?	✓	
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

All good.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: 88-12D

WELL SPECIFICATIONS:

Protective Casing	✓	Above Ground		Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	8.00	FT		
Well Depth	48.60	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?		✓
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

In the well casing, the drainge vent has corroded shut, and there is some rust damage to the well casing.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/15/21

Inspector: Max Lifton
Inspector Signature Max Lifton

Well Identification: SP-1

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction	✓	PVC		Stainless Steel
Well Diameter		2-Inch	✓	4-Inch
Depth to Ground Water	Not taken	FT		
Well Depth	Not taken	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?		✓
3. Is the well stand pipe vertically aligned and secure?		✓
4. Is the concrete pad and surface seal in good condition?	✓	
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	—	
11. Is the access down the well impeded or blocked?	✓	
Explain:		

COMMENTS / RECOMMENDATIONS:

Bolts securing well have been snapped off. The top of the stand pipe has shifted under the lip of the well casing, and the well plug is not able to be removed.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/16/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: URS-14D

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	6.10	FT		
Well Depth	41.70	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?		✓
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:

No visible concrete pad.

Frontier Chemical – Pendleton
Site No. 932043
Monitoring Well Integrity Checklist

Date: 9/16/21

Inspector: Max Liffiton
Inspector Signature Max Liffiton

Well Identification: URS-14I

WELL SPECIFICATIONS:

Protective Casing		Above Ground	✓	Flush Mounted
Well Construction		PVC	✓	Stainless Steel
Well Diameter	✓	2-Inch		4-Inch
Depth to Ground Water	0.25	FT		
Well Depth	31.20	FT		

WELL INTEGRITY

	Yes	No
1. Well identification clearly marked?	✓	
2. Well covers and locks in good condition and secure?	✓	
3. Is the well stand pipe vertically aligned and secure?	✓	
4. Is the concrete pad and surface seal in good condition?		✓
5. Are soils surrounding the well pad eroded?		✓
6. Is the well casing in good condition?	✓	
7. Is the measuring point on casing well marked?	✓	
8. Is there standing water in the annular space?	✓	
9. Is the stand pipe vented at the base to allow drainage?		✓
10. Does the total sounded depth correspond to the original well completion depth?	✓	
11. Is the access down the well impeded or blocked?		✓
Explain:		

COMMENTS / RECOMMENDATIONS:
Standing water, no visible concrete pad.

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ATTACHMENT F

Pre-Treatment Flows

Pendleton Site Flow Summary
January 2020 - August 2021

	Month	Year	Monthly Flow (gal)	Avg gal/day	Days/month
	January	2020	4,025	130	31
	February	2020	3,276	113	29
	March	2020	3,962	128	31
	April	2020	3,639	121	30
	May	2020	4,168	134	31
	June	2020	3,765	126	30
	July	2020	2,922	94	31
	August	2020	2,313	75	31
	September	2020	1,615	54	30
	October	2020	2,121	68	31
Current	November	2020	2,214	74	30
Report	December*	2020	-5,909	-191	31
	January*	2021	-16,516	-533	31
	February	2021	7,972	285	28
	March	2021	22,951	740	31
	April	2021	3,869	129	30
	May	2021	7,548	243	31
	June	2021	3,502	117	30
	July	2021	5,271	170	31
	August	2021	2,563	83	31
Total Current Report			35,586	106	335

*Sump reading is not accurate due to flow meter being submerged during the flood event. Instrumentation sub recalbrated during start up.

Pendleton Site
October 2020 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	3,692	Gallons
1/2" Vault Sump Flow Meter	1,571	Gallons
Actual Treated Leachate	**2,121**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
10/1/2020	4:05:49	99	22
10/2/2020	4:04:54	142	23
10/3/2020	4:05:42	91	0
10/4/2020	4:04:54	50	0
10/5/2020	4:06:54	46	0
10/6/2020	4:04:53	45	1
10/7/2020	4:04:55	95	0
10/8/2020	4:04:48	47	0
10/9/2020	4:04:49	50	3
10/10/2020	4:05:02	47	1
10/11/2020	4:04:54	45	2
10/12/2020	4:04:54	46	3
10/13/2020	4:05:53	49	2
10/14/2020	4:04:57	46	1
10/15/2020	4:05:02	46	1
10/16/2020	4:04:55	47	0
10/17/2020	4:04:54	45	0
10/18/2020	4:06:53	47	0
10/19/2020	4:04:54	48	0
10/20/2020	4:04:49	189	71
10/21/2020	4:04:51	145	64
10/22/2020	4:04:54	193	105
10/23/2020	4:04:53	196	97
10/24/2020	4:04:57	394	317
10/25/2020	4:13:57	385	265
10/26/2020	4:04:54	76	22
10/27/2020	4:05:45	48	19
10/28/2020	4:04:54	192	85
10/29/2020	4:05:48	201	118
10/30/2020	4:04:54	245	161
10/31/2020	4:05:45	297	188
Total Discharge for October 2020		**3,692**	
Groundwater through the sump			**1,571**

Pendleton Site
November 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	7,978	Gallons
1/2" Vault Sump Flow Meter	5,764	Gallons
Actual Treated Leachate	**2,214**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
11/1/2020	4:04:56	254	146
11/2/2020	4:04:59	206	125
11/3/2020	4:04:54	203	118
11/4/2020	4:04:55	201	104
11/5/2020	4:05:02	149	87
11/6/2020	4:05:45	187	60
11/7/2020	4:04:53	95	29
11/8/2020	4:04:53	48	2
11/9/2020	4:04:53	46	1
11/10/2020	4:05:45	46	3
11/11/2020	4:05:45	0	0
11/12/2020	4:04:53	144	45
11/13/2020	4:04:54	201	112
11/14/2020	4:04:54	305	252
11/15/2020	4:04:56	208	143
11/16/2020	4:04:53	92	29
11/17/2020	4:06:55	408	319
11/18/2020	4:05:41	203	167
11/19/2020	4:04:54	47	0
11/20/2020	4:04:53	147	53
11/21/2020	4:04:55	145	92
11/22/2020	4:04:48	452	338
11/23/2020	4:04:48	465	415
11/24/2020	4:04:55	506	396
11/25/2020	4:05:46	503	427
11/26/2020	4:04:48	500	453
11/27/2020	4:04:56	583	478
11/28/2020	4:04:54	543	439
11/29/2020	4:05:00	491	424
11/30/2020	4:04:59	600	507
Total Discharge for November 2020		**7,978**	
Groundwater through the sump			**5,764**

Pendleton Site
December 2020 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	7,569	Gallons
1/2" Vault Sump Flow Meter	13,478	Gallons
Actual Treated Leachate	**-5,909**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
12/1/2020	4:05:47	876	765
12/2/2020	4:05:01	769	688
12/3/2020	4:06:46	707	608
12/5/2020	4:04:48	1315	1103
12/6/2020	4:32:27	624	515
12/7/2020	4:13:31	582	483
12/8/2020	4:06:51	601	487
12/9/2020	4:58:41	629	505
12/10/2020	4:19:37	673	557
12/11/2020	4:13:38	646	525
12/12/2020	4:04:55	97	384
12/13/2020	4:37:24	50	487
12/14/2020	4:04:55	0	742
12/15/2020	4:13:11	0	403
12/16/2020	4:37:14	0	284
12/17/2020	2:06:49	0	435
12/18/2020	4:11:09	0	341
12/19/2020	4:13:36	0	304
12/20/2020	4:18:43	0	308
12/21/2020	4:10:57	0	369
12/22/2020	4:11:04	0	324
12/25/2020	6:20:55	0	1313
12/26/2020	4:04:54	0	371
12/27/2020	4:29:40	0	338
12/28/2020	4:52:41	0	345
12/29/2020	4:25:38	0	107
12/30/2020	4:24:31	0	160
12/31/2020	4:48:17	0	227
Total Discharge for December 2020		**7,569**	
Groundwater through the sump			**13,478**

* sump reading is not accurate due to flow meter being submerged during the flood event. Intrumentation sub will recalibrate during start up.

Pendleton Site
January 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	0	Gallons
1/2" Vault Sump Flow Meter	16,516	Gallons*
Actual Treated Leachate	**-16,516**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
1/1/2021	4:13:41	0	161
1/2/2021	5:11:08	0	288
1/3/2021	4:14:42	0	145
1/4/2021	4:13:41	0	143
1/5/2021	4:50:15	0	1320
1/6/2021	4:24:48	0	1074
1/7/2021	4:10:57	0	379
1/8/2021	4:45:02	0	796
1/9/2021	4:06:46	0	537
1/10/2021	4:18:42	0	539
1/11/2021	4:50:43	0	658
1/12/2021	4:43:59	0	532
1/13/2021	4:17:12	0	127
1/14/2021	0:31:35	0	934
1/15/2021	4:31:05	0	524
1/16/2021	4:04:48	0	579
1/17/2021	4:11:08	0	292
1/18/2021	6:13:37	0	852
1/19/2021	4:13:20	0	541
1/20/2021	4:34:53	0	540
1/21/2021	4:16:57	0	494
1/23/2021	4:19:41	0	1060
1/24/2021	4:42:42	0	506
1/25/2021	4:49:11	0	484
1/26/2021	4:52:25	0	496
1/27/2021	4:05:39	0	121
1/28/2021	1:30:09	0	885
1/29/2021	4:05:45	0	503
1/30/2021	4:19:00	0	499
1/31/2021	4:06:58	0	507
Total Discharge for January 2021		**0**	
Groundwater through the sump			**16,516**

* sump reading is not accurate due to flow meter being submerged during the flood event. Intrumentation sub will recalibrate during start up.

Pendleton Site
February 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	23,951	Gallons
1/2" Sump Flow Meter	15,979	Gallons
Actual Treated Leachate	**7,972**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
2/1/2021	4:31:14	0	512
2/2/2021	4:27:56	0	481
2/3/2021	4:04:49	0	500
2/4/2021	5:11:00	0	260
2/5/2021	2:08:30	0	739
2/6/2021	4:04:54	0	525
2/7/2021	4:08:23	0	519
2/8/2021	4:21:28	0	512
2/9/2021	4:13:26	0	523
2/10/2021	5:09:15	0	534
2/11/2021	4:04:54	0	505
2/12/2021	4:31:31	0	508
2/13/2021	4:04:53	0	519
2/14/2021	4:32:22	0	504
2/15/2021	4:57:27	0	253
2/16/2021	6:05:44	0	799
2/17/2021	4:18:50	1998	374
2/18/2021	3:48:01	1997	664
2/19/2021	4:31:12	1991	235
2/20/2021	6:06:44	2058	755
2/21/2021	5:05:01	1968	520
2/22/2021	5:34:09	2100	523
2/23/2021	4:06:51	1992	598
2/24/2021	4:04:48	1072	336
2/25/2021	7:11:10	2841	1469
2/26/2021	4:16:06	1961	673
2/27/2021	4:30:30	1986	784
2/28/2021	4:14:12	1987	855
Total Discharge for February 2021		**23,951**	
Groundwater through the sump			**15,979**

Pendleton Site
March 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	40,196	Gallons
1/2" Vault Sump Flow Meter	17,245	Gallons
Actual Treated Leachate	**22,951**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
3/1/2021	4:41:57	485	191
3/2/2021	10:10:53	1509	1262
3/3/2021	4:05:46	1992	588
3/4/2021	4:21:16	633	381
3/5/2021	0:53:52	1998	581
3/6/2021	0:53:54	1989	532
3/7/2021	0:53:56	1979	504
3/8/2021	0:53:53	2045	492
3/9/2021	0:53:50	1921	481
3/10/2021	0:53:52	1952	505
3/11/2021	0:53:53	1979	515
3/12/2021	0:53:50	1933	517
3/13/2021	0:53:55	1996	506
3/14/2021	0:53:51	1988	482
3/15/2021	1:53:42	1994	490
3/16/2021	0:53:51	1985	513
3/17/2021	0:53:53	1315	505
3/18/2021	0:53:52	0	493
3/19/2021	0:53:51	75	484
3/20/2021	0:53:55	0	488
3/21/2021	0:53:53	0	491
3/22/2021	0:53:54	0	499
3/23/2021	0:53:54	1952	501
3/24/2021	0:53:49	2012	493
3/25/2021	0:53:51	1292	486
3/26/2021	0:53:53	732	546
3/27/2021	0:53:51	1009	839
3/28/2021	0:53:54	850	712
3/29/2021	0:53:51	981	854
3/30/2021	0:53:50	835	698
3/31/2021	0:53:48	765	616
Total Discharge for March 2021		**40,196**	
Groundwater through the sump			**17,245**

Pendleton Site
April 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	22,717	Gallons
1/2" Vault Sump Flow Meter	18,848	Gallons
Actual Treated Leachate	**3,869**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
4/1/2021	0:53:51	718	599
4/2/2021	0:53:53	724	588
4/3/2021	0:53:55	683	585
4/4/2021	0:53:51	728	571
4/5/2021	0:53:49	672	568
4/6/2021	0:53:48	731	566
4/7/2021	0:53:51	690	558
4/8/2021	0:53:50	664	552
4/9/2021	0:53:50	683	550
4/10/2021	0:53:53	676	555
4/11/2021	0:53:51	781	615
4/12/2021	0:53:49	595	775
4/13/2021	0:53:52	0	725
4/14/2021	0:53:54	1841	665
4/15/2021	0:55:15	824	645
4/16/2021	0:53:51	834	676
4/17/2021	0:53:51	847	707
4/18/2021	0:53:53	777	679
4/19/2021	0:53:54	819	648
4/20/2021	0:53:51	729	632
4/21/2021	0:53:54	787	636
4/22/2021	0:53:55	854	738
4/23/2021	0:53:52	843	701
4/24/2021	0:53:54	776	656
4/25/2021	0:53:51	771	634
4/26/2021	0:53:49	726	618
4/27/2021	0:53:54	774	600
4/28/2021	0:53:53	728	593
4/29/2021	0:53:48	722	591
4/30/2021	0:53:53	720	622
Total Discharge for April 2021		**22,717**	
Groundwater through the sump			**18,848**

Pendleton Site
May 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	22,987	Gallons
1/2" Vault Sump Flow Meter	15,439	Gallons
Actual Treated Leachate	**7,548**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
5/1/2021	0:53:52	768	634
5/2/2021	0:53:53	731	618
5/3/2021	0:53:55	723	600
5/4/2021	0:53:51	773	604
5/5/2021	0:53:51	721	596
5/6/2021	0:54:10	727	604
5/7/2021	0:54:10	727	621
5/8/2021	0:54:13	1040	884
5/9/2021	0:54:08	872	799
5/10/2021	0:54:13	868	728
5/11/2021	0:54:09	817	685
5/12/2021	0:54:14	771	662
5/13/2021	0:54:14	797	477
5/14/2021	0:54:10	1055	0
5/15/2021	0:54:11	865	0
5/16/2021	0:54:13	764	0
5/17/2021	0:54:13	782	0
5/18/2021	0:54:11	731	294
5/19/2021	0:54:13	729	586
5/20/2021	0:54:17	725	576
5/21/2021	0:54:12	687	566
5/22/2021	0:54:11	730	561
5/23/2021	0:54:10	673	560
5/24/2021	0:54:10	695	538
5/25/2021	0:54:13	666	518
5/26/2021	0:54:13	644	493
5/27/2021	0:54:10	593	470
5/28/2021	0:54:10	587	452
5/29/2021	0:54:17	585	444
5/30/2021	0:54:12	596	442
5/31/2021	0:54:10	545	427
Total Discharge for May 2021		**22,987**	
Groundwater through the sump			**15,439**

Pendleton Site
June 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	10,154	Gallons
1/2" Vault Sump Flow Meter	6,652	Gallons
Actual Treated Leachate	**3,502**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
6/1/2021	0:54:12	529	404
6/2/2021	0:54:10	488	384
6/3/2021	0:54:13	526	380
6/4/2021	0:54:11	529	372
6/5/2021	0:54:11	478	353
6/6/2021	0:54:10	480	367
6/7/2021	0:54:15	510	406
6/8/2021	0:54:10	478	343
6/9/2021	0:54:12	475	358
6/10/2021	0:53:52	479	340
6/11/2021	0:53:50	431	336
6/12/2021	0:53:55	433	314
6/13/2021	0:53:50	430	300
6/14/2021	0:53:54	453	355
6/15/2021	0:53:53	291	191
6/16/2021	0:53:50	290	179
6/17/2021	0:53:53	193	57
6/18/2021	0:53:48	188	35
6/19/2021	0:53:53	189	82
6/20/2021	0:53:55	243	90
6/21/2021	0:53:50	239	109
6/22/2021	0:53:50	197	110
6/23/2021	0:53:52	244	104
6/24/2021	0:53:50	196	89
6/25/2021	0:53:54	194	97
6/26/2021	0:53:53	242	69
6/27/2021	0:53:52	301	226
6/28/2021	0:53:50	47	13
6/29/2021	0:53:48	188	97
6/30/2021	0:53:52	193	92
Total Discharge for June 2021		**10,154**	
Groundwater throught the sump			**6,652**

Pendleton Site
July 2021 Flows

Olin/PRP Group Pendleton Site

1" Discharge Flow Meter	23,063	Gallons
1/2" Vault Sump Flow Meter	17,792	Gallons
Actual Treated Leachate	**5,271**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Vault Sump Flow Meter
7/1/2021	0:53:50	190	80
7/2/2021	0:53:51	143	65
7/3/2021	0:53:52	149	65
7/4/2021	0:53:59	143	23
7/5/2021	0:53:50	145	4
7/6/2021	0:53:53	241	173
7/7/2021	0:53:56	46	0
7/8/2021	0:53:55	204	127
7/9/2021	0:53:51	1131	956
7/10/2021	0:53:52	790	641
7/11/2021	0:53:51	627	486
7/12/2021	0:53:50	625	469
7/13/2021	0:53:52	582	449
7/14/2021	0:53:54	783	638
7/15/2021	0:53:51	1199	1012
7/16/2021	0:53:50	685	553
7/17/2021	0:53:54	2039	1441
7/18/2021	0:53:52	2135	1879
7/19/2021	0:53:52	1720	1141
7/20/2021	0:53:49	878	668
7/21/2021	0:53:50	1120	896
7/22/2021	0:53:55	1225	1022
7/23/2021	0:53:52	987	843
7/24/2021	0:53:53	787	628
7/25/2021	0:53:54	646	522
7/26/2021	0:53:59	599	475
7/27/2021	0:53:53	694	510
7/28/2021	0:53:49	647	532
7/29/2021	0:53:54	542	390
7/30/2021	0:53:55	540	393
7/31/2021	0:53:52	821	711
Total Discharge for July 2021		**23,063**	
Groundwater through the sump			**17,792**

Pendleton Site
August 2021 Flows

Olin/PRP Group Pendleton Site

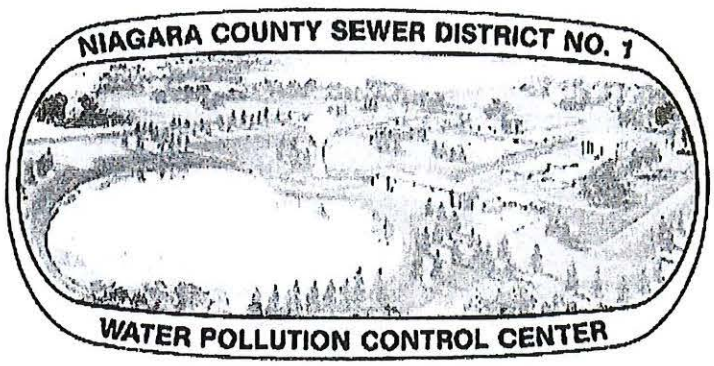
1" Discharge Flow Meter	14,033	Gallons
1/2" Sump Flow Meter	11,470	Gallons
Actual Treated Leachate	**2,563**	**Gallons**

Date	Time	1" Discharge Flow Meter	1/2" Sump Flow Meter
8/1/2021	0:53:51	444	314
8/2/2021	0:53:54	590	437
8/3/2021	0:53:55	644	514
8/4/2021	0:53:50	646	508
8/5/2021	0:53:51	640	493
8/6/2021	0:53:49	703	566
8/7/2021	0:53:53	662	539
8/8/2021	0:53:49	433	334
8/9/2021	0:53:54	597	467
8/10/2021	0:53:50	809	667
8/11/2021	0:53:50	583	457
8/12/2021	0:53:50	536	387
8/13/2021	0:53:53	616	506
8/14/2021	0:53:54	628	496
8/15/2021	0:53:51	392	285
8/16/2021	0:53:54	776	621
8/17/2021	0:53:48	458	390
8/18/2021	0:53:50	446	333
8/19/2021	0:53:53	691	525
8/20/2021	0:53:54	547	432
8/21/2021	0:53:52	497	398
8/22/2021	0:53:53	595	461
8/23/2021	0:53:52	484	369
8/24/2021	1:03:35	190	86
8/25/2021	0:53:49	283	162
8/26/2021	0:53:54	143	48
8/27/2021	0:53:52	0	177
8/28/2021	0:53:50	0	121
8/29/2021	0:53:50	0	66
8/30/2021	0:53:48	0	157
8/31/2021	0:53:49	0	154
Total Discharge for August 2021		**14,033**	
Groundwater through the sump			**11,470**

Olin™

ATTACHMENT G

Industrial Wastewater Discharge Permit



7346 Liberty Drive
Niagara Falls, NY 14304-3762
Phone: 716-693-0001
Fax: 716-693-8759

May 21, 2019

Pendleton Site PRP Group c/o Olin Corp.
3855 Ocoee Street, Suite 200
Cleveland, TN 37312

elizabeth.lesold@niagaracounty.com

Re: Corrective Action Required and Assessment of Penalty

Gentlemen:

The sampling requirements in Part I and the Sampling Measurement and Analytical Guidelines sections of the Industrial Waste Permit issued to Pendleton Site PRP Group were not followed during the first semi-annual monitoring period of 2019. Improper sample collection and documentation has been ongoing since 2017.

Three grab samples were collected for EPA 624 and Cyanide instead of the required 4 grab samples. Additionally, the chain of custody states that metals, phenol, and TSS samples were collected as "Comped in Field", but there is a single sample collection time for these analytes. Composite samples need to be collected for the duration of the 24 hour sampling period, with the chain of custody and submitted self-monitoring report clearly defining the sampling period and collection times for all samples collected.

The 2019 semiannual self-monitoring report has errors. The permit limits for EPA 624 analytes are incorrectly reported in ug/L and must be reported in mg/L. According to the submitted Analytical Summary, MQLs are used for detection limits for all analytes, but the laboratory report does not contain any MQL data. The reported result for mercury is also incorrect. **Please make corrections to this report and resubmit the affected pages within 15 days of the date on this letter as these are repeat errors.**

Pendleton Site PRP Group's penalty for repeated incorrect sampling is two hundred fifty dollars ($250). Please submit $250 to Niagara County Sewer District #1 within thirty (30) days of the date on this letter, to avoid additional legal action by the District. Additionally, please repeat the first semi-annual sampling event for 2019, collecting all samples as required in District Permit No. 18-11, within 30 days of the date on this letter. Low Level Mercury was collected properly and does not need to be resampled. Please assure all future sampling events are performed according to the required protocol to prevent an increased level of enforcement by NCSD #1.

If there are any questions on the above, please feel free to contact Elizabeth Lesold, Sanitary Chemist, at this office.

Best regards,

NIAGARA COUNTY SEWER DISTRICT #1

Aaron T. Earsing
Chief Operator

NIAGARA COUNTY SEWER DISTRICT #1

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES

1. Prior to implementing the self-monitoring sampling and analyses, the Industrial User must submit the following information to the District.

    a. The name(s) and address(es) of the laboratory or laboratories proposed to perform each of the chemical analyses.
    b. A description of the equipment and test methods proposed for the chemical analyses for each parameter.
    c. A list of the lower level of detectability expected for each parameter.
    d. A description of the overall recovery efficiency of the prepared sample, where applicable.
    e. A description of the quality control procedures used by the laboratory or laboratories to ensure reliable test results.
    f. A description of the sample collection point and sample collection procedures.
    g. A description of the compositing technique and equipment.
    h. A description of the sample preservation methods used for each parameter.

2. At the discretion of the District, Permittee may be required to notify the Niagara County Sewer District #1 Water Pollution Control Center before commencement of any sampling or flow monitoring. When directed by the District, the Permittee or Designee shall notify Niagara County Sewer District #1 Water Pollution Control Center, in writing, at least seventy-two (72) hours in advance. The District will then give a twenty-four (24) hour verbal notification to the firm or designee of whether split sampling will be initiated.

3. Before sampling is done, the sample points must be approved by the District.

4. All discharge lines from one (1) building, or all discharge lines from only one (1) single process must be sampled at the same time.

5. Sampling record must be used and submitted with monitoring reports. The sampling report shall contain the following minimum information:

    a. Date of each sample day.
    b. Exact location of sampling points – attach drawing for reference.
    c. If done manually, time of each grab sample with sampler's initials each time.
    d. Type of auto-sampler used. Size and type of tubing and sampling interval.
    e. Record all physical observation (sight, smell etc.) of the discharge at start-up, during inspections and changing samples.
    f. Note weather conditions.
    g. Signature of immediate sampling supervisor at the bottom of page.

6. If an auto-sampler is used, new tubing must be at least ¼ I.D. If visibly contaminated after sampling, it must be cleaned with detergent or methanol and deionized water each day. Proper refrigeration of the sample must be maintained during entire sampling period, when necessary. The intake hose velocity must be at least 2.0 f.p.s. with a maximum lift of twenty (20) feet.

7. All sampling shall be taken at the highest velocity, greatest turbulence and center of flow.

8. All sampling must be done on normal work days. If there is a process discharge after normal working hours, sampling must continue until no further discharge.

9. "COMPOSITE SAMPLE" "Composite" shall mean a combination of individual (or continuously taken) samples obtained at regular intervals over the entire discharge day. The volume of each sample shall be proportional to the discharge flow rate, when possible. For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half hour intervals shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four hours duration, but greater than one hour, grab samples shall be taken at a minimum of fifteen (15) minute intervals.

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES (cont'd.)

Composite samples for purgeable halocarbons (Method 601/8010), purgeable aromatics (Method 602/8020), acrolein/acrylonitrile (Method 603), volatile organics (Method 624/8240), or cyanide shall be lab composited from grab samples taken at regular intervals over the entire discharge day utilizing the appropriate special sample containers, preservatives and collection techniques. The number of grabs collected is dependent on the length of the sampling period, and shall be determined the following:

For a discharge period of one hour or less, a single grab sample may be collected for analysis of the above parameters.

For a discharge period between one and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composited for analysis of the above parameters.

Proper sample collection containers and techniques must be used.

"SPLIT SAMPLE" - must be done on site with both parties present before preservatives are added.

"DAILY" - each operating day

"DAILY MAXIMUM" - shall mean the highest allowable discharge of a pollutant and/or flow measured during any twenty-four (24) hour sampling period. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the daily discharge is calculated as the average measurement of the pollutant over the day.

"GRAB" - shall mean an individual sample which is taken from a wastestream on a one (1) time basis with no regard to the flow in the wastestream and without consideration of time.

"MONTHLY" on day each month (the same day each month) and a normal operating day (i.e. the 2nd Tuesday of each month).

"MONTHLY AVERAGE" - discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month, divided by the number of daily discharges measured during that month.

"WEEKLY" - every seventh day (the same day each week) and a normal operating day.

10. Total water consumption shall be recorded for each day's composite using the water meters. Water consumption method must be explained in report.

11. All discharges shall be flow-monitored whenever possible. If flow monitoring cannot be done, flow determination should be a best practical engineering estimate without being economically burdensome to the firm involved. Results and procedure used to determine flow must be included with the analysis report.

12. **Sample Collection Techniques for Single Discharge Lines**

On single discharge lines (all regulated wastes discharge through one outlet), sample collection for the required parameters will be collected according to the following:

a. The following parameters should only be analyzed on manually taken grab samples:

pH
Temperature
Chlorine Residual
Dissolved Oxygen
Fecal Coliforms
Oil and Grease

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES (cont'd.)

Sample Collection Techniques for Single Discharge Lines (cont'd.)

b. The following parameters should only be analyzed on composite samples made from manually collected grab samples:

Purgeable Halocarbons (EPA 601)
Purgeable Aromatics (EPA 602)
Acrolein/Acrylonitrile (EPA 603)
Purgeables (EPA 624)
Cyanide

For a discharge period of one hour or less, a single grab sample may be collected for analysis of the above parameters.

For a discharge period between one and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composited for analysis of the above parameters.

Proper sample collection containers and techniques must be used

c. The following parameters should be analyzed on an automatically collected composite sample or, if an auto sampler is unavailable, a manually collected composite sample:

Metals
Phenol-4AAP
BOD
Total Suspended Solids
Total Phosphorus
TKN/Ammonia
Base/Neutral Acids (EPA 625)
EPA Methods 604-614

(For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half-hour intervals) shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four (4) hours duration, grab samples shall be taken at a minimum of fifteen (15) minute intervals.)

13. **Sample Collection Techniques for Multiple Discharge Lines**

For multiple discharge lines (all regulated wastes discharge through more than one outlet), sample collection for the required parameters will be collected according to the following:

a. The following parameters must be analyzed separately from each discharge line's individual grab samples:

pH
Temperature
Chlorine Residual
Dissolved Oxygen
Fecal Coliforms
Oil and Grease

b. For the following parameters, a composite made from manually collected grab samples must be used. A separate composite must be made from each discharge line. The composites from the different discharge lines cannot be combined for analysis.

Purgeable Halocarbons (EPA 601)
Purgeable Aromatics (EPA 602)
Acrolein/Acrylonitrile (EPA 603)
Purgeables (EPA 624)
Cyanide

For a discharge period of one hour or less, a single grab sample may be collected for analysis of the above parameters.

Sample Collection Techniques for Multiple Discharge Lines (cont'd.)

For a discharge period between one hour and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composted for analysis of the above parameters.

Proper sample collection containers and techniques must be used.

c. For the following parameters, composites from each discharge line may be combined proportional to their flow only if physical flow measurement can be done.

Metals
Phenol-4AAP
BOD
Total Suspended Solids
Total Phosphorus
TKN/Ammonia
Base/Neutral Acids (EPA 625)
EPA Methods 604-613

(For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half-hour intervals) shall be collected from each discharge line and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four (4) hours duration, grab samples shall be taken at a minimum of fifteen (15) minute intervals.)

14. A chain of custody log sheet is required to be used for all sampling and analysis of each sample and attached to the report.

15. The handling, storage preservation and analytical procedures for each parameter shall follow Environmental Protection Agency Guidelines published in the Federal Register, pursuant to 40 CFR 136, dated October 26, 1984, or as subsequently revised.

16. The monitoring results report, sampling record(s), and chain of custody log sheet must be sent by the industry to the District and not by the consulting firm.

17. If any exemptions or changes have to be made due to unique situations, the District must be notified immediately for approval. When approved, a written explanation of the change must accompany the analysis sheet.

18. Any split samples that indicate a discrepancy of greater than 20% may be grounds for requiring resampling and analyses.

19. **"QUALITY CONTROL"** - All additional analyses which were run along with self-monitoring samples as a quality control measure, such as field blanks, duplicates or matrix spikes, etc., must be included in the self-monitoring report submitted to the District. Applicable quality control is mandatory in cases where the industrial user is conducting additional self-monitoring as a result of non-compliance.

20. All applicable analyses of NYSDOH certifiable parameters conducted pursuant to this permit shall be performed by a laboratory certified for said parameters by the New York State Department of Health.

5. **DILUTION**

No Industrial User shall increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

6. **PROPER DISPOSAL OF PRETREATMENT SLUDGES AND SPENT CHEMICALS**

The disposal of sludges and spent chemicals generated shall be done in a manner such as to prevent the pollutants from such material from entering the NCSD #1 sewer system. Said disposal shall also conform to all applicable State/Federal regulations.

7. **REVOCATION OF PERMIT**

The permit issued to the Industrial User by the District may be revoked when after inspection, monitoring or analysis, it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State, or local laws, ordinances, or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to the permit application or any other required reporting form, shall be cause for permit revocation, revocation of sewer discharges privileges, and/or imposition of criminal penalties.

8. **LIMITATION ON PERMIT TRANSFER**

Wastewater discharge permits are issued to a specific user for a specific operation and are not assignable to another user or transferrable to any other location without the prior written approval of the District. Sale of a facility by a User shall obligate the purchaser to seek prior written approval of the District for continued discharge to the sewerage system.

9. **PERMIT AVAILABILITY**

The original signed permit must be available upon request at all times for review at the Industrial User's address stated on the first page of this permit.

10. **MODIFICATION OR REVISION OF THE PERMIT**

a. The terms and conditions of this permit may be subject to modification by the District at any time as limitations or requirements, as identified in the District Sewer Use Law, are modified or other just cause exists.

b. This permit may also be modified to incorporate special conditions resulting from the issuance of a special order by NYSDEC or EPA.

c. The terms and conditions may be modified as a result of EPA promulgating a new federal pretreatment standard. If a pretreatment standard or prohibition (including Schedule of Compliance specified in such pretreatment standard or prohibition) is established under Section 807 (b) of the Act for a pollutant which is present, the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in permit, this permit shall be revised or modified in accordance with such pretreatment standard or prohibition.

d. The terms and conditions of this permit shall remain in effect until the permit is terminated or replaced by a subsequent permit.

11. **DUTY TO REAPPLY**

Ninety (90) days prior to expiration, the User shall reapply for reissuance of the permit. Application forms are available from the District upon request.

12. **SEVERABILITY**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

13. **ENFORCEMENT AND PENALTIES**

Any violation of Section 2 or 3 of the Niagara County Sewer Use Law (adopted January 18, 1994) is declared a violation except as otherwise provided by law. Any violation of Section 4, 5 or 6 of the Niagara County Sewer Use Law is thereby a misdemeanor except as otherwise provided by law. A User who is found to have violated any provision of the Niagara County Sewer Use Law (or permits and orders issued thereunder) and/or applicable pretreatment standards and requirements, shall be subject to applicable civil and criminal penalties including but not limited to fines not to exceed five thousand dollars ($5,000) per violation per day for each day on which non-compliance shall occur or continue.

14. **CLARIFICATION OF TERMS; SAMPLING/REPORTING INTERVALS**

Monthly-unless otherwise stated, monthly means each calendar month.

Quarterly-unless otherwise stated, quarterly means occurring in each quarter of a calendar year.

Each quarter of a calendar year is defined as follows:

1st quarter-January through March;
2nd quarter-April through June;
3rd quarter-July through September;
4th quarter-October through December;

Semi-annual-unless otherwise stated, semi-annual means twice per calendar year.

Annual or Annually-unless otherwise stated, annual and/or annually means each calendar year.

15. **CLARIFICATION OF 24-HOUR COMPOSITING PERIOD**

24 hour compositing period (24C period)- The collection of a 24-hour composite does not necessarily have to begin at 12 midnight. It may be collected over any 24-hour interval over which a true and representative sample can be collected, in conjunction with the requirements of this permit. For example, the compositing period may begin at 10:00 AM on Tuesday and end on 10:00 AM Wednesday. Please see the "SAMPLING MEASUREMENT ANDANALYTICAL GUIDELINES" section of this permit for a definition of a composite and additional information.

PART V - SPECIFIC CONDITIONS

NONE

PART III – REPORTING REQUIREMENTS (cont'd)

6. All self-monitoring reports prepared shall be submitted to:

Chief Operator
Niagara County Sewer District #1 Water Pollution Control Center
7346 Liberty Drive
Niagara Falls, New York 14304

7. Signatory Requirements - All reports required by this permit shall be signed by an authorized representative of the Industrial User.

8. If sampling performed by the Industrial User indicates a violation, the Industrial User is required to repeat the sampling and analysis and submit the results to the District within thirty (30) days after becoming aware of the violation.

   Additionally, applicable quality control is mandatory in cases where the Industrial User is conducting additional self-monitoring as a result of non-compliance. (See Sampling Measurement and Analytical Guidelines, Item #19 "Quality Control.")

9. Toxic Organic Management Plan - For Industrial Users who are required to monitor for Total Toxic Organics (TTO), and who are implementing a District-Approved, Toxic Organic Management Plan in lieu of this monitoring, the following certification shall be included with each self-monitoring report:

   > "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for total toxic organics, I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the control authority."

PART IV - STANDARD CONDITIONS

1. PROHIBITED DISCHARGES

The Industrial User shall comply with all the general prohibitive discharge standards.

2. INSPECTION/RIGHT-OF-ENTRY

The administrator and/or other duly authorized employees of the District, NYSDEC and/or USEPA, bearing proper credentials and identification, shall be permitted to enter all industrial properties without advance notice for the purpose of inspection, observation, measurement, sampling, monitoring, and testing in accordance with the provisions of its Sewer Use Law. The District shall also have the right to inspect and copy records pertaining to the Industry's self-monitoring procedures.

3. RECORDS RETENTION

The Industrial User shall retain and preserve for no less than (3) years any records, books, documents, memoranda, reports, correspondence, records of calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, and any summaries thereof, relating to monitoring, sampling and chemical analysis made by or in behalf of the user in connection with its discharge. All records that pertain to matters that are the subject of special orders, or any other enforcement or litigation activities brought by the District, shall be retained and observed by the Industrial User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

4. CONFIDENTIAL INFORMATION

Except for data determined to be confidential under Section 5.15 of the District's Sewer Use Law, all reports required by this permit shall be available for public inspection at the office of the Pretreatment Administrator, 7346 Liberty Drive, Niagara Falls, New York 14304.

Niagara County Sewer District #1

Industrial Waste Permit

Industrial User: Pendleton Site PRP Group
(Permittee)

Division Name (if Applicable): c/o Olin Corporation

Mailing Address: 3855 Ocoee Street, Suite 200
Street or P.O. Box

Cleveland, TN 37312
City, State and Zip Code

Site Address: Pendleton Site, Townline Road
Street Address

Pendleton, New York
City, State

The above Industrial User is authorized to discharge contaminated groundwater to the Niagara County Sewer District #1 sewer system in compliance with the District's Sewer Use Law, Local Law No. 1, Resolution No. 7-94, any applicable provisions of Federal or State law or regulation, and in accordance with discharge points(s), effluent limitations, monitoring requirements, and other conditions set forth herein.

Effective Date: August 28, 2018

Expiration Date: August 28, 2021

(Application for renewal shall be submitted 90 days prior to expiration)

District Permit No. 18-11

Date: 4/12/18 Signed:

(Direct discharge to Niagara County Sewer District #1 manhole. Discharge does not enter Town of Pendleton sewer system.)

Schedule A – Listing of Discharged Wastestreams

Industry Name: Pendleton (Frontier Chemical) Site
Groundwater Remediation

The following wastestreams are discharged to sanitary sewer system tributary of Niagara County Sewer District #1.

Waste-Streams	Nature of Waste	Volume gallons per day	Discharge Point
WS 001	Groundwater Remediation	376 (Avg.)	D 002

PART I – WASTEWATER DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

Industry Name: Pendleton (Frontier Chemical) Site
Sample Point A:
Sample Point: Groundwater Pump Station Discharge

Description: Contaminated Groundwater Discharge to NCSD #1 Manhole East of Site

Classification: Non-SIU

Parameter	Discharge Limitations[1]	Monitoring Requirements: Sampling Frequency	Monitoring Requirements: Sample Type
Flow		Continuous	
a.) Groundwater Remediation	2500 GPD, Daily Maximum		
Pollutants	**Discharge Limit**		
624	0.100 mg/L (Sum of all EPA 624 cmpds.)	Semi-Annual	24C[2]
Antimony	0.1 mg/L	Semi-Annual	24C
Boron	4.0 mg/L	Semi-Annual	24C
Chromium	5.33 mg/L	Semi-Annual	24C
Cyanide (T)	2.0 mg/L	Semi-Annual	4 Grabs[3]
Total Phenolics (4AAP)	Surveillance Only	Semi-Annual	
Total Suspended Solids	300 mg/L	Semi-Annual	24C
Low Level Mercury by USEPA method 1631	0.001 mg/L	Once annually, no later than Sept 30 of each year	Grab

These Limitations shall be effective immediately.

Notes:

(1) All other limitations as set forth in the District's Sewer Use Law shall also apply.

(2) 24-hour composite samples for volatile (624) organics to consist of a minimum of four (4) grabs within a 24-hour period. (See Sampling Measurement & Analytical Guidelines, Section 9, Paragraph 2.)

(3) Cyanide will be analyzed from 4 grabs collected over the 24 hour period using the appropriate containers/preservatives and lab composited.

PART II – SPECIAL CONDITIONS/COMPLIANCE SCHEDULE

1. Compliance Schedules: If additional pretreatment and/or operation and maintenance are required to meet discharge limitation and/or Pretreatment Regulations, the User will immediately advise District of the shortest schedule by which the User provide such additional pretreatment or reduction in flow discharged. The completion date in this schedule shall not be later than the compliance date established for any applicable Pretreatment Regulations.

PART III – REPORTING REQUIREMENTS

1. The Industrial User shall notify the District immediately upon any accidental or slug discharge to the sanitary sewer system. Formal written notification discussing circumstances of the event and remedies to prevent recurrence shall be submitted to the District within 3 days of occurrence.

2. The Industrial User shall notify the District and apply for a revised permit 30 days prior to the introduction of new wastewater or pollutants or any substantial change in the volume or characteristics of the wastewater being introduced into the POTW from the User's industrial processes.

3. Any upset experienced by the Industrial User of its treatment that places it in a temporary state of non-compliance with wastewater discharge limitations contained in this permit or other limitations specified in the District's Sewer Use Law shall be reported to the District within 24 hours of first awareness of the commencement of the upset. A detailed report shall be filed within 5 days.

4. Self-monitoring reports are due at the NCSD #1 office no greater than 60 days after the date of sampling. When reporting results, the following information shall be provided;

   a.) 1. The date, exact place, and time of sampling or measurements;
   2. The individual(s) who performed the sampling or measurements;
   3. The date(s) analyses were performed;
   4. The individual(s) who performed the analyses;
   5. The analytical techniques or methods used;
   6. The results of such analyses

   b.) A copy of the original lab report(s) as provided by the certified testing lab(s), including properly completed chain(s) of custody.

   c.) The original data from the lab report shall be transcribed into a table comparing the permit requirements to the obtained results. In cases where the permit contains requirements for daily maximum and maximum monthly average, columns for both of these shall be included in the table. When a single value applies to both daily max. and max. mo. avg. (because monitoring was only performed once during a month), separate columns shall still be included in the table, clearly indicating that the value is both the daily maximum and the monthly average.

   d.) All daily flows obtained since the previous reporting period, as well as the maximum and average daily flow for each month.

   e.) A certification statement as to whether the Industrial User is in compliance with the permit limitations. If the permit contains limitations for both daily max. and max. mo. avg., the statement must specify whether the User is in compliance with both limitations.

   f.) A certification statement that all normally operated (applicable) processes were operating (and discharging) during the monitoring period. Any processes not in operation shall be cited together with a listing of pollutants which might normally be present in said process discharge.

5. Additional Monitoring by Permittee - If the permittee monitors any pollutants at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of values required under Part I. Such increased frequency shall also be indicated.

NIAGARA COUNTY SEWER DISTRICT NO. 1

WATER POLLUTION CONTROL CENTER

7346 Liberty Drive
Niagara Falls, NY 14304-3762
Phone: 716-693-0001
Fax: 716-693-8759

August 30, 2021

Pendleton Site PRP Group
c/o Olin Corporation
490 Stuart Rd. N.E.
Cleveland, TN 37312

ATTN: Mr. Dave Share
Vice President, Environmental Remediation

Re: Pendleton Site PRP Group Industrial Waste Permit

Mr. Share:

Please find enclosed District Permit No. 21-11, issued by Niagara County Sewer District #1 to Pendleton Site PRP Group, c/o Olin Corporation. This permit is effective August 30, 2021 for the discharge of contaminated groundwater.

Please note the following changes have been made:

- Part 1 (Wastewater Discharge Limitations and Monitoring Requirements) was updated to include $CBOD_5$ and Total Phosphorous monitoring semi-annually. These analytes do not have discharge limitations but will be surcharged in the instance(s) of abnormal strength waste. See Part 1.
- Updated average daily discharge volume in Schedule A.
- Clarified discharge limitations and sampling requirements in Part I.
- Added Chief Operator's name to Part III.6, self-monitoring report submission.
- Minor changes to Sampling Measurement and Analytical Guidelines language.

Additionally, per Part IV.11., Pendleton Site PRP Group has the duty to reapply for reissuance of their permit ninety (90) days prior to expiration. The District Permit No. 18-11, issued to Pendleton Site PRP Group, expired August 28, 2021. NCSD #1 received the Industrial Wastewater Renewal Form on August 24, 2021. Please be aware that enforcement may follow should review of the daily flow for August 29, 2021 indicate that Pendleton Site PRP Group discharged to the sanitary sewer when Pendleton Site PRP Group did not have an Industrial Waste Permit.

If there are any questions, please feel free to contact Elizabeth Lesold, Sanitary Chemist, at this office.

Best regards,

NIAGARA COUNTY SEWER DISTRICT #1

Aaron T. Earsing
Chief Operator

Enclosure

cc: Adam Carringer

Niagara County Sewer District #1

Industrial Waste Permit

Industrial User: Pendleton Site PRP Group
(Permittee)

Division Name (if Applicable): c/o Olin Corporation

Mailing Address: 3855 Ocoee Street, Suite 200
Street or P.O. Box

Cleveland, TN 37312
City, State and Zip Code

Site Address: Pendleton Site, Townline Road
Street Address

Pendleton, New York
City, State

The above Industrial User is authorized to discharge contaminated groundwater to the Niagara County Sewer District #1 sewer system in compliance with the District's Sewer Use Law, Local Law No. 1, Revision 1, April 4, 2017, any applicable provisions of Federal or State law or regulation, and in accordance with discharge points(s), effluent limitations, monitoring requirements, and other conditions set forth herein.

Effective Date: August 30, 2021

Expiration Date: August 30, 2024

(Application for renewal shall be submitted 90 days prior to expiration)

District Permit No. 21-11

Date: 8/30/2021 Signed:

(Direct discharge to Niagara County Sewer District #1 manhole. Discharge does not enter Town of Pendleton sewer system.)

Schedule A – Listing of Discharged Wastestreams

Industry Name: Pendleton (Frontier Chemical) Site

Groundwater Remediation

The following wastestreams are discharged to sanitary sewer system tributary of Niagara County Sewer District #1.

Waste-Streams	Nature of Waste	Volume gallons per day	Discharge Point
WS 001	Groundwater Remediation	103 (Avg.)	D 002

PART I – WASTEWATER DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

Industry Name: Pendleton (Frontier Chemical) Site

Sample Point: Sample Point A: Groundwater Pump Station Discharge

Description: Contaminated Groundwater Discharge to NCSD #1 Manhole East of Site

Classification: Non-SIU

Parameter	Discharge Limitations[1]	Monitoring Requirements: Sampling Frequency	Monitoring Requirements: Sample Type
Flow		Continuous	
a.) Groundwater Remediation	2500 GPD, Daily Maximum		
Pollutants	Discharge Limit		
Volitile Organics by EPA 624	0.100 mg/L (Sum of all EPA 624 analyte values 0.01mg/L or greater)	Semi-Annual	24 hour composite[2] [3]
Antimony	0.1 mg/L	Semi-Annual	24 hour composite[2]
Boron	4.0 mg/L	Semi-Annual	24 hour composite[2]
Chromium	5.33 mg/L	Semi-Annual	24 hour composite[2]
Cyanide (T)	2.0 mg/L	Semi-Annual	24 hour composite[2] [3]
Total Phenolics (4AAP)	Surveillance Only	Semi-Annual	24 hour composite[2]
Total Suspended Solids	300 mg/L	Semi-Annual	24 hour composite[2]
Low Level Mercury by USEPA method 1631	0.001 mg/L	Once annually, no later than Sept 30 of each year	Grab
$CBOD_5$	See (4) below	Semi-Annual	24 hour composite[2]
Total Phosphorous	See (5) below	Semi-Annual	24 hour composite[2]

These Limitations shall be effective immediately.

Notes:

(1) All other limitations as set forth in the District's Sewer Use Law shall also apply.

(2) If period of normal operations on day of monitoring is less than 24 hours, the composite shall cover the period of normal operation only.

PART I WASTEWATER DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

(3) See Sampling Measurement & Analytical Guidelines, to determine the number of grab samples required for laboratory composite.

(4) $CBOD_5$ will be surcharged when the concentration exceeds 300 mg/L per the Niagara County Sewer District #1 Rules and Regulations Governing Abnormal Pollution Surcharges.

(5) Total Phosphorous will be surcharged when the concentration exceeds 10 mg/L per the Niagara County Sewer District #1 Rules and Regulations Governing Abnormal Pollution Surcharges.

PART II – SPECIAL CONDITIONS/COMPLIANCE SCHEDULE

1. Compliance Schedules: If additional pretreatment and/or operation and maintenance are required to meet discharge limitation and/or Pretreatment Regulations, the User will immediately advise District of the shortest schedule by which the User provide such additional pretreatment or reduction in flow discharged. The completion date in this schedule shall not be later than the compliance date established for any applicable Pretreatment Regulations.

PART III – REPORTING REQUIREMENTS

1. The Industrial User shall notify the District immediately upon any accidental or slug discharge to the sanitary sewer system. Formal written notification discussing circumstances of the event and remedies to prevent recurrence shall be submitted to the District within 3 days of occurrence.

2. The Industrial User shall notify the District and apply for a revised permit 30 days prior to the introduction of new wastewater or pollutants or any substantial change in the volume or characteristics of the wastewater being introduced into the POTW from the User's industrial processes.

3. Any upset experienced by the Industrial User of its treatment that places it in a temporary state of non-compliance with wastewater discharge limitations contained in this permit or other limitations specified in the District's Sewer Use Law shall be reported to the District within 24 hours of first awareness of the commencement of the upset. A detailed report shall be filed within 5 days.

4. Self-monitoring reports are due at the NCSD #1 office no greater than 60 days after the date of sampling. When reporting results, the following information shall be provided:

   a.) 1. The date, exact place, and time of sampling or measurements;
   2. The individual(s) who performed the sampling or measurements;
   3. The date(s) analyses were performed;
   4. The individual(s) who performed the analyses;
   5. The analytical techniques or methods used;
   6. The results of such analyses

   b.) A copy of the original lab report(s) as provided by the certified testing lab(s), including properly completed chain(s) of custody.

   c.) The original data from the lab report shall be transcribed into a table comparing the permit requirements to the obtained results. In cases where the permit contains requirements for daily maximum and maximum monthly average, columns for both of these shall be included in the table. When a single value applies to both daily max. and max. mo. avg. (because monitoring was only performed once during a month), separate columns shall still be included in the table, clearly indicating that the value is both the daily maximum and the monthly average.

   d.) All daily flows obtained since the previous reporting period, as well as the maximum and average daily flow for each month.

   e.) A certification statement as to whether the Industrial User is in compliance with the permit limitations. If the permit contains limitations for both daily max. and max. mo. avg., the statement must specify whether the User is in compliance with both limitations.

PART III – REPORTING REQUIREMENTS (cont'd)

f.) A certification statement that all normally operated (applicable) processes were operating (and discharging) during the monitoring period. Any processes not in operation shall be cited together with a listing of pollutants which might normally be present in said process discharge.

5. Additional Monitoring by Permittee - If the permittee monitors any pollutants at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of values required under Part I. Such increased frequency shall also be indicated.

6. All self-monitoring reports prepared shall be submitted to:

Aaron T. Earsing, Chief Operator
Niagara County Sewer District #1 Water Pollution Control Center
7346 Liberty Drive
Niagara Falls, New York 14304

7. Signatory Requirements - All reports required by this permit shall be signed by an authorized representative of the Industrial User.

8. If sampling performed by the Industrial User indicates a violation, the Industrial User is required to repeat the sampling and analysis and submit the results to the District within thirty (30) days after becoming aware of the violation.

Additionally, applicable quality control is mandatory in cases where the Industrial User is conducting additional self-monitoring as a result of non-compliance. (See Sampling Measurement and Analytical Guidelines, Item #19 "Quality Control.")

9. Toxic Organic Management Plan - For Industrial Users who are required to monitor for Total Toxic Organics (TTO), and who are implementing a District-Approved, Toxic Organic Management Plan in lieu of this monitoring, the following certification shall be included with each self-monitoring report:

> "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for total toxic organics, I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the control authority."

PART IV - STANDARD CONDITIONS

1. PROHIBITED DISCHARGES

The Industrial User shall comply with all the general prohibitive discharge standards.

2. INSPECTION/RIGHT-OF-ENTRY

The administrator and/or other duly authorized employees of the District, NYSDEC and/or USEPA, bearing proper credentials and identification, shall be permitted to enter all industrial properties without advance notice for the purpose of inspection, observation, measurement, sampling, monitoring, and testing in accordance with the provisions of its Sewer Use Law. The District shall also have the right to inspect and copy records pertaining to the Industry's self-monitoring procedures.

3. RECORDS RETENTION

The Industrial User shall retain and preserve for no less than (3) years any records, books, documents, memoranda, reports, correspondence, records of calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, and any summaries thereof, relating to monitoring, sampling and chemical analysis made by or in behalf of the user in connection with its discharge. All records that pertain to matters that are the subject of special orders, or any other enforcement or litigation activities brought by the District, shall be retained and observed by the Industrial User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

PART IV – STANDARD CONDITIONS (cont'd.)

4. CONFIDENTIAL INFORMATION

Except for data determined to be confidential under Section 5.15 of the District's Sewer Use Law, all reports required by this permit shall be available for public inspection at the office of the Pretreatment Administrator, 7346 Liberty Drive, Niagara Falls, New York 14304.

5. DILUTION

No Industrial User shall increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

6. PROPER DISPOSAL OF PRETREATMENT SLUDGES AND SPENT CHEMICALS

The disposal of sludges and spent chemicals generated shall be done in a manner such as to prevent the pollutants from such material from entering the NCSD #1 sewer system. Said disposal shall also conform to all applicable State/Federal regulations.

7. REVOCATION OF PERMIT

The permit issued to the Industrial User by the District may be revoked when after inspection, monitoring or analysis, it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State, or local laws, ordinances, or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to the permit application or any other required reporting form, shall be cause for permit revocation, revocation of sewer discharges privileges, and/or imposition of criminal penalties.

8. LIMITATION ON PERMIT TRANSFER

Wastewater discharge permits are issued to a specific user for a specific operation and are not assignable to another user or transferrable to any other location without the prior written approval of the District. Sale of a facility by a User shall obligate the purchaser to seek prior written approval of the District for continued discharge to the sewerage system.

9. PERMIT AVAILABILITY

The original signed permit must be available upon request at all times for review at the Industrial User's address stated on the first page of this permit.

10. MODIFICATION OR REVISION OF THE PERMIT

a. The terms and conditions of this permit may be subject to modification by the District at any time as limitations or requirements, as identified in the District Sewer Use Law, are modified or other just cause exists.

b. This permit may also be modified to incorporate special conditions resulting from the issuance of a special order by NYSDEC or EPA.

c. The terms and conditions may be modified as a result of EPA promulgating a new federal pretreatment standard. If a pretreatment standard or prohibition (including Schedule of Compliance specified in such pretreatment standard or prohibition) is established under Section 807 (b) of the Act for a pollutant which is present, the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in permit, this permit shall be revised or modified in accordance with such pretreatment standard or prohibition.

d. The terms and conditions of this permit shall remain in effect until the permit is terminated or replaced by a subsequent permit.

11. DUTY TO REAPPLY

Ninety (90) days prior to expiration, the User shall reapply for reissuance of the permit. Application forms are available from the District upon request.

PART IV – STANDARD CONDITIONS (cont'd).

12. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

13. ENFORCEMENT AND PENALTIES

Any violation of Section 2 or 3 of the Niagara County Sewer Use Law (adopted January 18, 1994) is declared a violation except as otherwise provided by law. Any violation of Section 4, 5 or 6 of the Niagara County Sewer Use Law is thereby a misdemeanor except as otherwise provided by law. A User who is found to have violated any provision of the Niagara County Sewer Use Law (or permits and orders issued thereunder) and/or applicable pretreatment standards and requirements, shall be subject to applicable civil and criminal penalties including but not limited to fines not to exceed five thousand dollars ($5,000) per violation per day for each day on which non-compliance shall occur or continue.

14. CLARIFICATION OF TERMS: SAMPLING/REPORTING INTERVALS

Monthly-unless otherwise stated, monthly means each calendar month.

Quarterly-unless otherwise stated, quarterly means occurring in each quarter of a calendar year.

Each quarter of a calendar year is defined as follows:
1st quarter-January through March;
2nd quarter-April through June;
3rd quarter-July through September;
4th quarter-October through December;

Semi-annual-unless otherwise stated, semi-annual means twice per calendar year.

Annual or Annually-unless otherwise stated, annual and/or annually means each calendar year.

15. CLARIFICATION OF 24-HOUR COMPOSITING PERIOD

24 hour compositing period (24C period)- The collection of a 24-hour composite does not necessarily have to begin at 12 midnight. It may be collected over any 24-hour interval over which a true and representative sample can be collected, in conjunction with the requirements of this permit. For example, the compositing period may begin at 10:00 AM on Tuesday and end on 10:00 AM Wednesday. Please see the "SAMPLING MEASUREMENT ANDANALYTICAL GUIDELINES" section of this permit for a definition of a composite and additional information.

PART V - SPECIFIC CONDITIONS

NONE

NIAGARA COUNTY SEWER DISTRICT #1

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES

1. Prior to implementing the self-monitoring sampling and analyses, the Industrial User must submit the following information to the District.

   a. The name(s) and address(es) of the laboratory or laboratories proposed to perform each of the chemical analyses.
   b. A description of the equipment and test methods proposed for the chemical analyses for each parameter.
   c. A list of the lower level of detectability expected for each parameter.
   d. A description of the overall recovery efficiency of the prepared sample, where applicable.
   e. A description of the quality control procedures used by the laboratory or laboratories to ensure reliable test results.
   f. A description of the sample collection point and sample collection procedures.
   g. A description of the compositing technique and equipment.
   h. A description of the sample preservation methods used for each parameter.

2. Before commencement of any sampling or flow monitoring, Niagara County Sewer District #1 Water Pollution Control Center shall be notified in writing at least seventy-two (72) hours in advance by the firm or designee. The District will give a twenty-four (24) hour verbal notification to the firm or District designee of whether split sampling will be initiated.

3. Before sampling is done, the sample points must be approved by the District.

4. All discharge lines from one (1) building, or all discharge lines from only one (1) single process must be sampled at the same time.

5. Sampling record must be used and submitted with monitoring reports. The sampling report shall contain the following minimum information:

   a. Date of each sample day.
   b. Exact location of sampling points - attach drawing for reference.
   c. If done manually, time of each grab sample with sampler's initials each time.
   d. Type of auto-sampler used. Size and type of tubing and sampling interval.
   e. Record all physical observation (sight, smell etc.) of the discharge at start-up, during inspections and changing of samples.
   f. Note weather conditions.
   g. Signature of immediate sampling supervisor at the bottom of page.

6. If an auto-sampler is used, new tubing must be at least 1/4 I.D. If visibly contaminated after sampling, it must be cleaned with detergent or methanol and deionized water each day. Proper refrigeration of the sample must be maintained during entire sampling period, when necessary. The intake hose velocity must be at least 2.0 f.p.s. with a maximum lift of twenty (20) feet.

7. All sampling shall be taken at the highest velocity, greatest turbulence and center of flow.

8. All sampling must be done on normal work days. If there is a process discharge after normal working hours, sampling must continue until no further discharge.

9. "COMPOSITE SAMPLE" "Composite" shall mean a combination of individual (or continuously taken) samples obtained at regular intervals over the entire discharge day. The volume of each sample shall be proportional to the discharge flow rate, when possible. For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half hour intervals shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four hours duration equal to or greater than one hour, grab samples shall be taken at a minimum of fifteen (15) minute intervals. A batch discharge less than one hour can be sampled with a single grab when the batch is continuously stirred or well mixed and the pollutants can be assumed to be uniformly dispersed.

   Composite samples for purgeable halocarbons (Method 601/8010), purgeable aromatics (Method 602/8020), acrolein/acrylonitrile (Method 603), volatile organics (Method 624/8240), or cyanide shall be lab composited from grab samples taken at regular intervals over the entire discharge day utilizing the appropriate special sample containers, preservatives and collection techniques. The number of grabs collected is dependent on the length of the sampling period, and shall be determined the following:

   For a discharge period of less than one hour, a single grab sample may be collected for analysis of the above parameters.

   For a discharge period between one and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composited for analysis of the above parameters.

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES (cont'd.)

Proper sample collection containers and techniques must be used.

"SPLIT SAMPLE" - must be done on site with both parties present before preservatives are added.

"DAILY" - each operating day

"DAILY MAXIMUM" - shall mean the highest allowable discharge of a pollutant and/or flow measured during any twenty-four (24) hour sampling period. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the daily discharge is calculated as the average measurement of the pollutant over the day.

"GRAB" - shall mean an individual sample which is taken from a wastestream on a one (1) time basis with no regard to the flow in the wastestream and without consideration of time.

"MONTHLY" on day each month (the same day each month) and a normal operating day (i.e. the 2nd Tuesday of each month).

"MONTHLY AVERAGE" - discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month, divided by the number of daily discharges measured during that month.

"WEEKLY" - every seventh day (the same day each week) and a normal operating day.

10. Total water consumption shall be recorded for each day's composite using the water meters. Water consumption method must be explained in report.

11. All discharges shall be flow-monitored whenever possible. If flow monitoring cannot be done, flow determination should be a best practical engineering estimate without being economically burdensome to the firm involved. Results and procedure used to determine flow must be included with the analysis report.

12. Sample Collection Techniques for Single Discharge Lines

On single discharge lines (all regulated wastes discharge through one outlet), sample collection for the required parameters will be collected according to the following:

a. The following parameters should only be analyzed on manually taken grab samples:

pH	Fecal Coliforms
Temperature	Oil and Grease
Chlorine Residual	Low Level Mercury
Dissolved Oxygen	

b. The following parameters should only be analyzed on composite samples made from manually collected grab samples:

Purgeable Halocarbons (EPA 601)
Purgeable Aromatics (EPA 602)
Acrolein/Acrylonitrile (EPA 603)
Purgeables (EPA 624)
Cyanide

For a discharge period of less than one hour, a single grab sample may be collected for analysis of the above parameters.

For a discharge period between one and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composited for analysis of the above parameters.

Proper sample collection containers and techniques must be used.

c. The following parameters should be analyzed on an automatically collected composite sample or, if an auto sampler is unavailable, a manually collected composite sample:

Metals (except Low Level Mercury)	Total Phosphorus
Phenol-4AAP	TKN/Ammonia
BOD	Base/Neutral Acids (EPA 625)
Total Suspended Solids	EPA Methods 604-614

(For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half-hour intervals) shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four (4) hours duration, grab samples shall be taken at a minimum of fifteen (15) minute intervals.)

SAMPLING MEASUREMENT AND ANALYTICAL GUIDELINES (cont'd.)

13. Sample Collection Techniques for Multiple Discharge Lines

For multiple discharge lines (all regulated wastes discharge through more than one outlet), sample collection for the required parameters will be collected according to the following:

a. The following parameters must be analyzed separately from each discharge line's individual grab samples:

pH	Fecal Coliforms
Temperature	Oil and Grease
Chlorine Residual	Low Level Mercury
Dissolved Oxygen	

b. For the following parameters, a composite made from manually collected grab samples must be used. A separate composite must be made from each discharge line. The composites from the different discharge lines cannot be combined for analysis.

Purgeable Halocarbons (EPA 601)
Purgeable Aromatics (EPA 602)
Acrolein/Acrylonitrile (EPA 603)
Purgeables (EPA 624)
Cyanide

For a discharge period of less than one hour, a single grab sample may be collected for analysis of the above parameters.

For a discharge period between one and 24 hours, a minimum of four (4) grabs will be taken at regular intervals and lab composited for analysis of the above parameters.

Proper sample collection containers and techniques must be used.

c. For the following parameters, composites from each discharge line may be combined proportional to their flow only if physical flow measurement can be done.

Metals (except Low Level Mercury)
Phenol-4AAP
BOD
Total Suspended Solids
Total Phosphorus
TKN/Ammonia
Base/Neutral Acids (EPA 625)
EPA Methods 604-613

(For a continuous discharge, a minimum of forty-eight (48) individual grab samples (at half-hour intervals) shall be collected from each discharge line and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of less than four (4) hours duration, grab samples shall be taken at a minimum of fifteen (15) minute intervals.)

14. A chain of custody log sheet is required to be used for all sampling and analysis of each sample and attached to the report.

15. The handling, storage preservation and analytical procedures for each parameter shall follow Environmental Protection Agency Guidelines published in the Federal Register, pursuant to 40 CFR 136, dated October 26, 1984, or as subsequently revised.

16. The monitoring results report, sampling record(s), and chain of custody log sheet must be sent by the industry to the District and not by the consulting firm.

17. If any exemptions or changes have to be made due to unique situations, the District must be notified immediately for approval. When approved, a written explanation of the change must accompany the analysis sheet.

18. Any split samples that indicate a discrepancy of greater than 20% may be grounds for requiring re-sampling and analyses.

19. "QUALITY CONTROL" - All additional analyses which were run along with self-monitoring samples as a quality control measure, such as field blanks, duplicates or matrix spikes, etc., must be included in the self-monitoring report submitted to the District. Applicable quality control is mandatory in cases where the industrial user is conducting additional self-monitoring as a result of non-compliance.

20. All analyses of NYSDOH certifiable parameters conducted pursuant to this permit shall be performed by a laboratory certified for said parameters by the New York State Department of Health.

Olin™

ATTACHMENT H

Pre-Treatment Operator's Logs

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 11-25-20 Time In: 12:00 N Time Out: 4:00 PM

Operator: MICHAEL WALKER
Operator Signature [signature]

Weather:	CLOUDY
Precipitation, Inches:	0
Temperature, ºF:	53° F
Purpose for Visit:	MONTHLY INSPECTION - NOVEMBER 2020

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2786466	GAL	12:30
½" Sump Flow Meter Totalizer Reading:	1552173	GAL	12:30
Flow Rate (during testing) P-1:	7.87	GPM	3:30
Flow Rate (during testing) P-2:	7.04	GPM	3:30
Pump Hour Meter Readings: Pump #1:	3728.6	HOURS	12:30
Pump Hour Meter Readings: Pump #2:	3624.0	HOURS	12:30
Wet Well Level:	< 2'	FT	12:30
Pressure Sensor Reading (Bar Graph) (during test):	44	PSI	3:30

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	43	43	0
Bag Filter #2:	43	35	8
Carbon Vessel #1:	22	20	2
Carbon Vessel #2:	20	14	6

Changed Filter Bags (Check ✓ One):	YES	X	TIME	
	NO			

Notes From Inspection: SITE WAS SECURE UPON ARRIVAL. ALL GATES & WELLS LOCKED. GAP LOOKED GOOD, NO ISSUES WITH COVER. PERFORMED MONTHLY INSPECTION TASKS, CHANGED CHART IN RECORDER, CHANGED BAG FILTERS, TESTED VALVES, TESTED SUMP PUMPS, ALL OK.
BACK WASHED GAC #1 TO KEEP ΔP DOWN.
DELIVERED NEW PRESSURE GAUGES TO SITE.

[signature]

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: Ø

Recommended Actions to Prevent Future Problems: Ø

Other Relevant Information: Ø

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 12-11-20 Time In: 1200 N Time Out: 4 00 P

Operator: Mike Walker
Operator Signature: Mike Walker

Weather:	Sunny Breezy
Precipitation, Inches:	0
Temperature, ºF:	55°F
Purpose for Visit:	Monthly Inspection December 2020

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2796583	GAL	12:30 P
½" Sump Flow Meter Totalizer Reading:	156079	GAL	12:30 P
Flow Rate (during testing) P-1:	7.92	GPM	3:20
Flow Rate (during testing) P-2:	6.24	GPM	3:20
Pump Hour Meter Readings: Pump #1:	3739.7	HOURS	12:30P
Pump Hour Meter Readings: Pump #2:	3636.6	HOURS	12:30P
Wet Well Level:	< 2'	FT	12:30P
Pressure Sensor Reading (Bar Graph) (during test):	46	PSI	320 p

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	45	45	0
Bag Filter #2:	45	38	7
Carbon Vessel #1:	23	19	4
Carbon Vessel #2:	19	14	5

Changed Filter Bags (Check ✓ One):	YES	✓	TIME	2:45 P
	NO			

Notes From Inspection: Site was secure upon arrival. Cap was green, cut & looked good. No damage to cap or equipment. Changed chart in Recorder, changed filter bags, Tested sump pumps. All ok.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Ø

Recommended Actions to Prevent Future Problems:
Ø

Other Relevant Information:
Ø

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 1/5/21 **Time In:** 7:00 am **Time Out:** 1:00 pm

Operator: Mike Walker
Operator Signature

Weather:	Cloudy
Precipitation, Inches:	0
Temperature, ºF:	34 F
Purpose for Visit:	Noticed an irregularity on the RACO report

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2796955	GAL	8:00
½" Sump Flow Meter Totalizer Reading:	1568590	GAL	8:00
Flow Rate (during testing) P-1:	----	GPM	
Flow Rate (during testing) P-2:	------	GPM	
	-		
Pump Hour Meter Readings: Pump #1:	3740.8	HOURS	8:00
Pump Hour Meter Readings: Pump #2:	3637.0	HOURS	8:00
Wet Well Level:	<2'	FT	8:00
Pressure Sensor Reading (Bar Graph) (during test):	0	PSI	8:00

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	0	0	
Bag Filter #2:	0	0	
Carbon Vessel #1:	0	0	
Carbon Vessel #2:	0	0	

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO	X		

Notes From Inspection: Last night, I noticed on the RACO Alarm Agent that the discharge pump had
Read "0" from 12/15/20 , while the sump flow meter was continuing to work. Either there was a flow
Meter malfunction or the vault was taking in water but not discharging. Went to the site first thing this
Morning. When I opened the vault door, I discovered that the vault had water in it approx. 7' deep,
Submerging all equipment in the vault. I went back to the shop and grabbed a couple of submersible
Pumps and hoses. Called Adam Carringer to notify him of the situation , and went back to the site to
Start dewatering the vault.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

The electricity that was in the upper control panel was still operational, so I plugged the pump in there.
I pumped the water from the vault into the wet well that collects the landfill leachate in case the water
In the vault was contaminated (wasn't sure). After about after 5 hours or so, the vault was dewatered.

I cleaned up the area as best I could and started checking breakers and circuits to assess any damage
And make the area safe. Discovered the lights and the exhaust fan are still functioning.

Future Plans:
Return tomorrow to continue damage assessment and move forward toward rebuilding WTS.

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	Y	N
#7 Pump # 2 Fail (Yes/No):	N	N
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	-----	----
#10 Flow Rate:	----	----

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 01/06/21 **Time In:** 7:00 am **Time Out:** 9:00 am

Operator: Mike Walker
Operator Signature 

Weather:	Cloudy
Precipitation, Inches:	0
Temperature, ºF:	35 F
Purpose for Visit:	Check on the vault- dewatering the area.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Arrived onsite at 0700. Opened the vault door to discover that another 2' of water had infiltrated the
Vault. Set up the submersible pump and pumped the water into the wet well.
After the vault was dewatered, I started testing circuits to see if anything still worked. Lights and the
Heater were still getting power. The lights worked, but the thermostat for the heater had been
Submerged and wasn't working. I found out that the power was OK to the one receptacle box
Down there, but the GFI was shot. I replaced it with a new one and now we had power in the vault.
I pulled and tested the sump pumps, one worked, the other did not for some reason.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

I purchase a new sump pump and reinstalled 2 functioning pumps in the sump to quell anymore
Incoming water overnight.

I then realized that the piping from sump pump #2 to the wet well was plugged with something. .I will bring a small compressor tomorrow and try to clear it.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 01/07/21 **Time In: 7:00 am** **Time Out: 10:00 am**

Operator: Mike Walker
Operator Signature

Weather:	Cloudy
Precipitation, Inches:	0
Temperature, ºF:	32 F
Purpose for Visit:	Continue working on vault issues

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Arrived on site to a dry vault. Sump pump #1 works. I took apart the piping that went from sump
Pump #2 and cleaned it out, then blew air thru all of it clear back to the wet well to make sure it was no
Longer plugged. Reinstalled sump pump #2 and tested. It worked.
I called the guys at Temp Press to see when they can come out and assess the instrumentation damage,
He said that he can come out on Friday.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 01/08/21 **Time In:** 8:00 am **Time Out:** 12:00 N

Operator: Mike Walker
Operator Signature:

Weather:	Partly Sunny
Precipitation, Inches:	0
Temperature, ºF:	33 F
Purpose for Visit:	Meet with Instrumentation guys

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Met on site with the guys from Temp Press to get them on board with repairing the WTS.
They checked all the circuits they could and established power to the overhead heater. Ordered a new
alternating block to reestablish the vault sump pumps to their original wiring. (I just had 1 pump
Plugged into a GFI to keep the vault dry until they came out. Tested some of the level and pressure
Circuits to see if they need repair or replace. Ordered a new pressure transmitter to indicate system
Pressure. They will be back when the ordered parts arrive.
Meanwhile Craig Bove and I kept cleaning out the vault of manuals, papers spare PVC parts etc.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

We also got a drum to put all of the spent bag filters into.

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 01/11/21 **Time In:** 8:30 am **Time Out:** 2:30 pm

Operator: Mike Walker
Operator Signature Mike Walker

Weather:	Cloudy
Precipitation, Inches:	0
Temperature, ºF:	29 F
Purpose for Visit:	Continue cleaning out the vault.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Arrived on site at 8:30 am. Confirmed power to the filter feed pumps was locked out. Disconnected
Wiring and piping to the filter feed pumps, carried them out to the truck for delivery to Moley
Magnetics for inspection and repair or replacement.
Made the site ready for Sevenson's pressure wash crew to come tomorrow and wash down all the walls
Floor and all the equipment in the vault to get the layer of orange silt from everything.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 01/12/21 **Time In: 8:00 am** **Time Out: 4:00 pm**

Operator: Mike Walker
Operator Signature : Mike Walker

Weather:	**Cloudy. Flurries**
Precipitation, Inches:	**Trace snow**
Temperature, ºF:	27 F
Purpose for Visit:	Power wash the vault and WTS equipment.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Onsite at 0800. Opened vault, all looked good. SES delivered the power washer, then went to get the
Water tank trailer. Jones continued to remove things from the vault that would be in their way.
Upon their return they power washed all of the walls and the WWTP equipment and the file cabinet and
Cleaned out all of the accumulated grit and sludge that was in the vault, then they helped Chris put all
Of the spare parts, piping and tools, etc. back in their proper places in the vault.
Now we can work cleanly in there.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Reestablish all instrumentation and controls for the system.
Reinstall the filter feed pumps when they are done.
Test and calibrate system.
Deliver more filter bags to the site. Old ones are not useable and had to be disposed of.

Recommended Actions to Prevent Future Problems:
Purchase and install the upgrades RACO alarm Agent that utilizes new 5G technology.

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	**Arrival**	**Departure**
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 1/21/21 **Time In:** 0800 **Time Out:** 1300

Operator: Jones
Operator Signature

Weather:	Cloudy, windy
Precipitation, Inches:	NA
Temperature, ºF:	33
Purpose for Visit:	Assist Temp Press

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
TEMP PRESS was onsite to continue work on plant controls after the plant was flooded.
The discharge pressure display was installed. Also the pressure differential alarms for the bag filters were replaced.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Install discharge pressure display
Replace differential pressure alarms for bag filters

Recommended Actions to Prevent Future Problems:

Other Relevant Information: TEMP PRESS is planning on returning after the pumps have been reinstalled. A crew of 2 men from TEMP PRESS were onsite from 8am to 1pm along with Jones from Sevenson.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 1/25/21 Time In: 1000 Time Out: 1400

Operator: Jones
Operator Signature

Weather:	Partly cloudy calm
Precipitation, Inches:	NA
Temperature, ºF:	32
Purpose for Visit:	maintenance

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection:
Temp Press was onsite to continue installations and calibrations on meters and alarms.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Temp Press installed brackets for the high sump level. They also confirmed the sump pumps are cycling from one to the other. Also confirmed was the hi hi level which ensures both pumps kick on in case one is shot. Rich from Temp Press is taking the cover plate for the discharge pressure display back to his shop to file to correct size.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:
Rich from Temp Press will return after SES has installed pumps to make final adjustments . HOURS- Temp Press 1 man 4 hr. SES 1 man 4 hr.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:		
#2 Panel Door:		
#3 Vault Sump High Alarm:		
#4 Containment Pipe Alarm:		
#5 High Wet Well Alarm:		
#6 Pump #1 Fail (Yes/No):		
#7 Pump # 2 Fail (Yes/No):		
#8 Bag Filter Differential Pressure High Alarm:		
#9 Wet Well Level (Actual Measure Spoken):		
#10 Flow Rate:		

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 2/12/21 **Time In:** 10am **Time Out:** 12 pm

Operator: Craig Bove
Operator Signature:

Weather:	Cloudy
Precipitation, Inches:	0
Temperature, ºF:	21 F
Purpose for Visit:	Continue with filter feed pump installation.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		GAL	
½" Sump Flow Meter Totalizer Reading:		GAL	
Flow Rate (during testing) P-1:		GPM	
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:		HOURS	
Pump Hour Meter Readings: Pump #2:		HOURS	
Wet Well Level:		FT	
Pressure Sensor Reading (Bar Graph) (during test):		PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:			
Bag Filter #2:			
Carbon Vessel #1:			
Carbon Vessel #2:			

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO			

Notes From Inspection: Site was secure upon arrival. Continued with installation of filter feed pumps (P-1 and P-2).
Installed new pressure gauges in the system.
Worked on replacing PVC piping where needed and cleaning out piping where I could.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: Continue with pump installation and wiring.
Clean and test flow meters that had been submerged.
Test all alarm circuits, etc.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/12/21 **Time In: 11:00 am** **Time Out: 1:00 pm**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**cloudy**
Precipitation, Inches:	**0**
Temperature, ºF:	15 F
Purpose for Visit:	Continue P-1 and P-2 installation

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2830418	**GAL**	11:30
½" Sump Flow Meter Totalizer Reading:	1590081	**GAL**	11:30
Flow Rate (during testing) P-1:	5.6 / 8.0	**GPM**	12:30
Flow Rate (during testing) P-2:	8.0	**GPM**	12:30
Pump Hour Meter Readings: Pump #1:		**HOURS**	
Pump Hour Meter Readings: Pump #2:		**HOURS**	
Wet Well Level:		**FT**	
Pressure Sensor Reading (Bar Graph) (during test):	Not installed yet	**PSI**	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	42	40	2
Bag Filter #2:	38	35	3
Carbon Vessel #1:	24	20	4
Carbon Vessel #2:	13	13	0

Changed Filter Bags (Check ✓ One):	**YES**	X	**TIME**	12:00
	NO			

Notes From Inspection: Installed fresh filter bags, tested pumps after wiring completed
Pump P-1 was initially running slower, I cleaned out the piping and fixed a leak , then the rate picked up to 8 gpm like pump P-2.
Tested the pumps in "hand' and "auto", all seems OK.
Sump pump tested OK . Need to calibrate the flow meters and clean them out next.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: Finish purging system piping and cleaning out the flow tubes on the meters.
Need to run a final test of system alarms (with Temp Press) before we allow to run unattended.

Recommended Actions to Prevent Future Problems:

Other Relevant Information: Meeting on Tuesday 2/16 onsite with Temp press to continue de-bugging
And start up of the system.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	--	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/15/21 **Time In: 0800** **Time Out: 1000**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Cloudy, Light Snow**
Precipitation, Inches:	**Trace of snow**
Temperature, ºF:	20 F
Purpose for Visit:	Installing pumps, prepping system for start up

Pre-Treatment Process Information	**Reading**	**Units**	**Time**
1" Final Discharge Flow Meter Totalizer Reading:	2830460	**GAL**	0900
½" Sump Flow Meter Totalizer Reading:	1591528	**GAL**	0900
Flow Rate (during testing) P-1:	8	**GPM**	1200
Flow Rate (during testing) P-2:	8	**GPM**	1200
Pump Hour Meter Readings: Pump #1:	3741.2	**HOURS**	0900
Pump Hour Meter Readings: Pump #2:	3639.7	**HOURS**	0900
Wet Well Level:	12' 8"	**FT**	0900
Pressure Sensor Reading (Bar Graph) (during test):	Not installed yet	**PSI**	

	Influent Gauge, PSI	**Effluent Gauge, PSI**	**Differential**
Bag Filter #1:	42	40	2
Bag Filter #2:	38	35	3
Carbon Vessel #1:	24	20	4
Carbon Vessel #2:	20	13	7

Changed Filter Bags (Check ✓ One):	**YES**		**TIME**	
	NO	X		

Notes from Inspection: During run test, the belt and pulley came off of Pump P-2. Had to remove belt
Guard and reinstall pulley and belt then guard.
Tested both pumps again and put system in "auto" to run while I was on site doing other tasks.
System should pump 2000 gallons and shut down automatically as planned. (limit switch only allows
2000 gallons to discharge per day, resets and restarts at midnight).
Secured site and left.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Meeting with Temp Press on site tomorrow to install system pressure display and test other alarm switched and telemetry systems.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/16/21 **Time In: 0700** **Time Out: 1100**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Snow**
Precipitation, Inches:	**8" fell overnight, still coming down**
Temperature, ºF:	22 F
Purpose for Visit:	Meet with Temp Press to install instruments and test system controls

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2834520	**GAL**	0800
½" Sump Flow Meter Totalizer Reading:	1592137	**GAL**	0800
Flow Rate (during testing) P-1:	7.8	**GPM**	1100
Flow Rate (during testing) P-2:	7.8	**GPM**	1100
Pump Hour Meter Readings: Pump #1:	3745.5	**HOURS**	1100
Pump Hour Meter Readings: Pump #2:	3643.8	**HOURS**	1100
Wet Well Level:		**FT**	
Pressure Sensor Reading (Bar Graph) (during test):	42.	**PSI**	1100

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	44	37	7
Bag Filter #2:	37	34	3
Carbon Vessel #1:	22	12	10
Carbon Vessel #2:	12	12	0

Changed Filter Bags (Check ✓ One):	**YES**		**TIME**	
	NO	X		

Notes From Inspection:
Plowed the entrance and sit road with site truck to get back to the vault.
Temp Press installed the differential pressure switches for the bag filters, calibrated and tested.
Installed the new system pressure display in the control panel on top. Installed the bag filter pressure
Sensors. Tested alarm switches, all ok.
Craig installed a rubber flap near the sump pumps to prevent overspray on equipment.
Set system on Auto to run overnight and see how it all work out.
Secured and left the site.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/18/21 **Time In: 0830** **Time Out: 1030**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Cloudy**
Precipitation, Inches:	**0**
Temperature, ºF:	21 F
Purpose for Visit:	Check on system, Plow driveway for access.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2838517	**GAL**	0950
½" Sump Flow Meter Totalizer Reading:	1593076	**GAL**	0950
Flow Rate (during testing) P-1:	0	**GPM**	0950
Flow Rate (during testing) P-2:	8.0	**GPM**	0950
Pump Hour Meter Readings: Pump #1:	3749.9	**HOURS**	0950
Pump Hour Meter Readings: Pump #2:	3648.2	**HOURS**	0950
Wet Well Level:	13'11"	**FT**	0950
Pressure Sensor Reading (Bar Graph) (during test):	45	**PSI**	0950

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	45	38	7
Bag Filter #2:	38	36	2
Carbon Vessel #1:	25	22	3
Carbon Vessel #2:	22	13	9

Changed Filter Bags (Check ✓ One):	**YES**		**TIME**	
	NO	X		

Notes From Inspection:
Site was secure upon arrival. Plowed the access road from front to back. Operated pump 2 in hand mode to check on system pressures. A-OK.
Last night the system shut itself down after pumping (discharge 2004 gallons, as it should. (permit required a 2500 gpd discharge limit). We set the auto shut down limit at 2000 to be safe. It works.
Switched pump 2 back to auto.
Tested High sump alarm function-OK. Tested Sump Pump level controls-OK. At "High- High" level, the second pump also kicks on as planned.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
Walker ordered a new ½ flow meter to measure the infiltration of outside water into the sump through cracks in the walls. The meter presently in use is not responding properly after being submerged.

Recommended Actions to Prevent Future Problems:
RACO has notified me that the new Alarm Agent unit for the site will ship on 2/19/21. We expect to
Receive it at Sevenson mid to late next week. We will get it installed ASAP after receipt of the unit.
This will function better with the new 5G cell towers locally and result in less watchdog alarm calls.

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	13′ 11″	--
#10 Flow Rate:	0	--

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/19/21 **Time In: 11:30am** **Time Out: 12:30 am**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Cloudy**
Precipitation, Inches:	**Light Snow Flurries**
Temperature, ºF:	25 F
Purpose for Visit:	Alarm call response, Bag Filter Pressure High, install grounding lugs on new pumps.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2840584	GAL	1220
½" Sump Flow Meter Totalizer Reading:	1593597	GAL	1220
Flow Rate (during testing) P-1:	7.9	GPM	1220
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:	3750.0	HOURS	1220
Pump Hour Meter Readings: Pump #2:	3652.7	HOURS	1220
Wet Well Level:	14'	FT	1220
Pressure Sensor Reading (Bar Graph) (during test):	44	PSI	1220

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	44	42	2
Bag Filter #2:	40	37	3
Carbon Vessel #1:	25	21	4
Carbon Vessel #2:	21	14	7

Changed Filter Bags (Check ✓ One):	YES	X	TIME	1200
	NO			

Notes From Inspection:
Arrived on site, everything was secure. Ran pump1 to verify pressures from alarm call.
Changed both bag filters (10m and 5m). ran system manually to bleed air from vessels and verify
No leaks had developed. Installed grounding lugs on the frame of the new filter feed pumps.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:
It looks like the wet well level has increased from 13'11" yesterday to 14'0" today, seems odd,
Particularly since we have pumped 2004 gallons out yesterday. Maybe more is infiltrating due to snow melt.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	YES	X
#9 Wet Well Level (Actual Measure Spoken):	14'	14
#10 Flow Rate:	----	===

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/22/21 **Time In:** 0900 **Time Out:** 1300

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Windy 20 mph, Cloudy**
Precipitation, Inches:	**Snow 4" overnight**
Temperature, ºF:	31 F
Purpose for Visit:	Alarm call bag filter pressure

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2846637	GAL	0930
½" Sump Flow Meter Totalizer Reading:	1595295	GAL	0930
Flow Rate (during testing) P-1:	7.83	GPM	
Flow Rate (during testing) P-2:	7.85	GPM	
Pump Hour Meter Readings: Pump #1:	3758.7	HOURS	0930
Pump Hour Meter Readings: Pump #2:	3657.1	HOURS	0930
Wet Well Level:	4'10"	FT	0930
Pressure Sensor Reading (Bar Graph) (during test):	38	PSI	

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	38	37	1
Bag Filter #2:	37	36	1
Carbon Vessel #1:	27	23	4
Carbon Vessel #2:	23	15	8

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO	X		

Notes From Inspection:
Bottom of wet well: 19'1"
Water to TOC:14'2.5"
Water depth: 4'10.5"

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	YES	X
#9 Wet Well Level (Actual Measure Spoken):	===	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/19/21 **Time In: 11:30am** **Time Out: 12:30 am**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Cloudy**
Precipitation, Inches:	**Light Snow Flurries**
Temperature, ºF:	25 F
Purpose for Visit:	Alarm call response, Bag Filter Pressure High, install grounding lugs on new pumps.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2840584	GAL	1220
½" Sump Flow Meter Totalizer Reading:	1593597	GAL	1220
Flow Rate (during testing) P-1:	7.9	GPM	1220
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:	3750.0	HOURS	1220
Pump Hour Meter Readings: Pump #2:	3652.7	HOURS	1220
Wet Well Level:	14'	FT	1220
Pressure Sensor Reading (Bar Graph) (during test):	44	PSI	1220

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	44	42	2
Bag Filter #2:	40	37	3
Carbon Vessel #1:	25	21	4
Carbon Vessel #2:	21	14	7

Changed Filter Bags (Check ✓ One):	YES	X	TIME	1200
	NO			

Notes From Inspection:
Arrived on site, everything was secure. Ran pump1 to verify pressures from alarm call.
Changed both bag filters (10m and 5m). ran system manually to bleed air from vessels and verify
No leaks had developed. Installed grounding lugs on the frame of the new filter feed pumps.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:
It looks like the wet well level has increased from 13'11" yesterday to 14'0" today, seems odd,
Particularly since we have pumped 2004 gallons out yesterday. Maybe more is infiltrating due to snow melt.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	YES	X
#9 Wet Well Level (Actual Measure Spoken):	14'	14
#10 Flow Rate:	----	===

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/23/21 **Time In: 0755 Time Out: 1630**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Light Snow**
Precipitation, Inches:	**2"**
Temperature, ºF:	31 F
Purpose for Visit:	Check on system, Bag filter pressure High Alarm

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2848630	**GAL**	0755
½" Sump Flow Meter Totalizer Reading:	1595657	**GAL**	0755
Flow Rate (during testing) P-1:		**GPM**	
Flow Rate (during testing) P-2:	7.7	**GPM**	0755
Pump Hour Meter Readings: Pump #1:	3758.7	**HOURS**	0755
Pump Hour Meter Readings: Pump #2:	3661.5	**HOURS**	0755
Wet Well Level:	14'3.5"	**FT**	0755
Pressure Sensor Reading (Bar Graph) (during test):	38	**PSI**	0755

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	37	37	0
Bag Filter #2:	37	34	3
Carbon Vessel #1:	26.5	22	4.5
Carbon Vessel #2:	22	14	8

Changed Filter Bags (Check ✓ One):	**YES**		**TIME**	
	NO	X		

Notes from Inspection: Wet well water depth: 4'11.5"
Removed PVC piping from effluent of bag filter#1 to Influent of bag filter#2 and effluent of bag filter#2
To influent of GAC filter#1, and the 3 stainless braided hoses from the bag filter differential pressure
Switch system. Took back to Sevenson shop for cleaning and restoration/replacement. Power washed
Orange/clay/iron type residue from piping and hoses/fittings. Back to site to reassemble and backwash
GAC unit #1.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: After back washing GAC #1 . shut down the system to let the wet well settle over night. Will return in the morning to restart system.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/24/21 **Time In: 0730** **Time Out: 1030**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Cloudy**
Precipitation, Inches:	**0**
Temperature, ºF:	31 F
Purpose for Visit:	Restart System, tar joint on top of vault

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:		**GAL**	
½" Sump Flow Meter Totalizer Reading:		**GAL**	
Flow Rate (during testing) P-1:	7.86	**GPM**	0730
Flow Rate (during testing) P-2:		**GPM**	
Pump Hour Meter Readings: Pump #1:		**HOURS**	
Pump Hour Meter Readings: Pump #2:		**HOURS**	
Wet Well Level:	4'9"	**FT**	0730
Pressure Sensor Reading (Bar Graph) (during test):	36	**PSI**	0730

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	36	35.5	0.5
Bag Filter #2:	35.5	34	1.5
Carbon Vessel #1:	25	22.5	2.5
Carbon Vessel #2:	22.5	14	8.5

Changed Filter Bags (Check ✓ One):	**YES**		**TIME**	
	NO	X		

Notes From Inspection:
Checked clarity of water in the wet well-OK. Started the system . Replaced ½" nipple and ball valve on
The pressure switch for the bag filter.
System running well.
Cleaned the tar seam in the concrete on the top of the outside of the vault, heated it up and applied a
New seal with more tar.
Tested the sump Hi and HH alarm, and also the leak containment alarm on the effluent piping-OK.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: SS bag filter housing #2 has a welded seam that looks suspect. It may need some repair in the future for a possible leak.

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 02/26/21 **Time In: 0800** **Time Out: 1000**

Operator: Craig Bove
Operator Signature: Craig Bove

Weather:	**Sunny**
Precipitation, Inches:	**0**
Temperature, ºF:	31 F
Purpose for Visit:	Alarm Call BFP High. Install Supports for PRV and test PRV.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2852759	GAL	0830
½" Sump Flow Meter Totalizer Reading:	1598127	GAL	0830
Flow Rate (during testing) P-1:	7.76	GPM	0900
Flow Rate (during testing) P-2:		GPM	
Pump Hour Meter Readings: Pump #1:	3763.2	HOURS	0830
Pump Hour Meter Readings: Pump #2:	3666.0	HOURS	0830
Wet Well Level:	4' 9"	FT	0830
Pressure Sensor Reading (Bar Graph) (during test):	39	PSI	0900

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	39	37	2
Bag Filter #2:	37	34	3
Carbon Vessel #1:	27	23	4
Carbon Vessel #2:	23	15	8

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO	X		

Notes From Inspection:
Tested relief valve on P-1, Installed support brackets under both pressure relief valves.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
The new Alarm Agent unit has arrived. Walker will set up a time for Temp Press to come out and install
And program the unit. This should eliminate the random watchdog alarm calls we have been getting .

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Craig Bove

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 03/04/21 **Time In:** 0800 **Time Out:** 1300

Operator:
Operator Signature

Weather:	Sunny, windy
Precipitation, Inches:	AM Flurries
Temperature, ºF:	28 F
Purpose for Visit:	Meet on site with Temp Press to install new Alarm Agent and Calibrate.

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2864758	GAL	0830
½" Sump Flow Meter Totalizer Reading:	1602581	GAL	0830
Flow Rate (during testing) P-1:	7.97	GPM	1230
Flow Rate (during testing) P-2:	7.57	GPM	1230
Pump Hour Meter Readings: Pump #1:	3776.4	HOURS	1230
Pump Hour Meter Readings: Pump #2:	3679.7	HOURS	1230
Wet Well Level: DTW	14'9"	FT	1230
Pressure Sensor Reading (Bar Graph) (during test):	37	PSI	1230

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	37	37	0
Bag Filter #2:	37	35	2
Carbon Vessel #1:	27	24	3
Carbon Vessel #2:	24	13	11

Changed Filter Bags (Check ✓ One):	YES	X	TIME	1130
	NO			

Notes From Inspection:
Met on site with Temp Press to install the new Alarm Agent autodialer system. Site was secure on arrival
After the new autodialer was installed, we triggered all alarms to test. All OK. Also copied the pumping
Date from 3/1/21 to 3/4/21 in case we lose it when doing the change over on the website.
Discovered a cracked PVC fitting in the effluent piping from BF #to that piping apart and repaired that
Leg of the system.
Secured site and set the system to Auto for the evening.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
I will check the performance of he new auto dialer for the next few says to make sure that it is recording
Data and operating properly.

Recommended Actions to Prevent Future Problems:
We are expecting the arrival of a new totalizing flow meter for the sump in the vault in 3-4 weeks.

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	---	---

Mike Walker

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 03/23/21 **Time In:** 1100 **Time Out:** 1430

Operator: Maxwell Liffiton
Operator Signature: Maxwell Liffiton

Weather:	Sunny
Precipitation, Inches:	0.0
Temperature, ºF:	55 F
Purpose for Visit:	Monthly inspection of site (March 2021)

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2889940	GAL	1100
½" Sump Flow Meter Totalizer Reading:	1612134	GAL	1100
Flow Rate (during testing) P-1:	6.9	GPM	1130
Flow Rate (during testing) P-2:	7.7	GPM	1130
Pump Hour Meter Readings: Pump #1:	38145	HOURS	1110
Pump Hour Meter Readings: Pump #2:	37063	HOURS	1110
Wet Well Level:	15 ft 8.5 in	FT	1110
Pressure Sensor Reading (Bar Graph) (during test):	42 / *27.2	PSI	1130

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	41 / *26	40 / *25	1 / *1
Bag Filter #2:	40 / *25	39 / *23	1 / *2
Carbon Vessel #1:	31 / *16	28 / *13	3 / *3
Carbon Vessel #2:	28 / *13	10 / *12	18 / *1

Changed Filter Bags (Check ✓ One):	YES	✓	TIME	1120
	NO			

Notes from Inspection: The Pump #1 pressure release valve is leaking below design pressure. Leaks were observed at 30 PSI and 40 PSI. This causes a portion of the pump discharge to be recycled to the sump area. The valve will need to be recalibrated or replaced.
A backwash operation was performed on both carbon vessels. Both bag filters were replaced. After the backwash operation, the pressure differential of carbon vessel #2 greatly decreased.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:
The Pump #1 pressure release valve will be sent for calibration.

Recommended Actions to Prevent Future Problems:
Bring a clean glass jar to aid in visually checking for solids in backwash flow.

Other Relevant Information:
Values marked with a * indicate readings taken after backwash and filter change procedures.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	No	No
#7 Pump # 2 Fail (Yes/No):	No	No
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	0.0	7.79

Maxwell Tufflo

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 5-13-21 **Time In:** 0800 **Time Out:** 1600

Operator: M. WALKER
Operator Signature Michael Walker

Weather:	SUNNY
Precipitation, Inches:	0
Temperature, ºF:	52 F
Purpose for Visit:	MONTHLY INSPECTION FOR MAY 2021 + INSTALL NEW SUMP FLOWMETER

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2933058	GAL	0900
½" Sump Flow Meter Totalizer Reading: NEW METER INSTALLED	000	GAL	0900
Flow Rate (during testing) P-1:	8.19	GPM	11:10
Flow Rate (during testing) P-2:	7.98	GPM	11:10
Pump Hour Meter Readings: Pump #1:	3861.2	HOURS	0900
Pump Hour Meter Readings: Pump #2:	3755.4	HOURS	0900
Wet Well Level:	< 2	FT	0900
Pressure Sensor Reading (Bar Graph) (during test):	31	PSI	1100

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	30	29	
Bag Filter #2:	29	29	
Carbon Vessel #1:	18	15	
Carbon Vessel #2:	15	14	

Changed Filter Bags (Check ✓ One):	**YES**	X	**TIME**	11:00
	NO			

Notes From Inspection:

ARRIVED ONSITE @ 0830, SITE WAS LOCKED AND SECURE, NO DAMAGE TO CAP OR EQUIPMENT EVIDENT.
MET ONSITE W/ JEREMY K FROM TEMPPRESS INC. TO INSTALL THE NEW FLOW METER FOR THE VAULT SUMP. ALSO PERFORMED THE MONTHLY INSPECTION FOR MAY 2021. CHANGED FILTER BAGS, CHANGED RECORDER CHART, TESTED SYSTEM, ALL OK. TURNED OFF PANEL HEATERS FOR THE SUMMER SEASON.

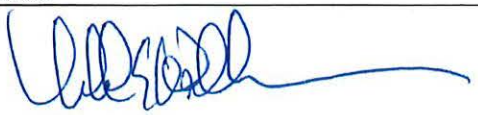
Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: ∅

Recommended Actions to Prevent Future Problems:

Other Relevant Information: Bushes + brush Growing thru Perimeter Fence
will need to cut back next month.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—



Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 5-13-21 **Time In:** 0800 **Time Out:** 1600

Operator: M. WALKER
Operator Signature [signature]

Weather:	SUNNY
Precipitation, Inches:	0
Temperature, ºF:	52 F
Purpose for Visit:	MONTHLY INSPECTION FOR MAY 2021 + INSTALL NEW SUMP FLOW METER

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2933058	GAL	0900
½" Sump Flow Meter Totalizer Reading: NEW METER INSTALLED	000	GAL	0900
Flow Rate (during testing) P-1:	8.19	GPM	11:10
Flow Rate (during testing) P-2:	7.98	GPM	11:10
Pump Hour Meter Readings: Pump #1:	3861.2	HOURS	0900
Pump Hour Meter Readings: Pump #2:	3755.4	HOURS	0900
Wet Well Level:	< 2	FT	0900
Pressure Sensor Reading (Bar Graph) (during test):	31	PSI	1100

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	30	29	
Bag Filter #2:	29	29	
Carbon Vessel #1:	18	15	
Carbon Vessel #2:	15	14	

Changed Filter Bags (Check ✓ One):	YES	X	TIME	11:00
	NO			

Notes From Inspection:

ARRIVED ONSITE @ 0830, SITE WAS LOCKED AND SECURE, NO DAMAGE TO CAP OR EQUIPMENT EVIDENT.
MET ONSITE D. WITH JEREMY K FROM TEMPRESS INC. TO INSTALL THE NEW FLOW METER FOR THE VAULT SUMP. ALSO PERFORMED THE MONTHLY INSPECTION FOR MAY 2021. CHANGED FILTER BAGS, CHANGED RECORDER CHART, TESTED SYSTEM, ALL OK. TURNED OFF PANEL HEATERS FOR THE SUMMER SEASON.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: ∅

Recommended Actions to Prevent Future Problems:

Other Relevant Information: Bushes + Brush Growing thru Perimeter Fence
will need to cut back next month.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 5-18-21 **Time In:** 0830 **Time Out:** 1130

Operator: Mike Walker
Operator Signature

Weather:	Sunny
Precipitation, Inches:	0
Temperature, ºF:	76°F
Purpose for Visit:	TROUBLESHOOT READOUT on Sump Flow Meter

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2937321	GAL	915
½" Sump Flow Meter Totalizer Reading:	3329.0	GAL	915
Flow Rate (during testing) P-1:	8.02	GPM	0930
Flow Rate (during testing) P-2:	7.7	GPM	0930
Pump Hour Meter Readings: Pump #1:	38654	HOURS	0915
Pump Hour Meter Readings: Pump #2:	37597	HOURS	0920
Wet Well Level:	2	FT	0915
Pressure Sensor Reading (Bar Graph) (during test):	27	PSI	0930

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	27	25	
Bag Filter #2:	25	25	
Carbon Vessel #1:	15	13	
Carbon Vessel #2:	13	13	

Changed Filter Bags (Check ✓ One):	YES		TIME	
	NO	✓		

Notes From Inspection: Walker onsite to meet with Temp PRESS to TROUBLE SHOOT THE VAULT SUMP FLOW METER. THE Local READOUT WAS functioning, But it was not communicating with the autodialer. We ~~were~~ was not getting the totalization (Daily) Readout on the website.
Subcontractor Called TECH Support and Re wired + Reset the outputs, now it seems ok.
I checked WT System PRESSURES + performance - All ok

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: ∅

Recommended Actions to Prevent Future Problems: ∅

Other Relevant Information: ∅

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO ✓	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 6-17-21 **Time In:** 0900 **Time Out:** 1300

Operator: M Walker
Operator Signature: [signature]

Weather:	69° Cloudy
Precipitation, Inches:	0
Temperature, ºF:	69F
Purpose for Visit:	Monthly Insp June 2021

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2953662	GAL	0930
½" Sump Flow Meter Totalizer Reading:	15655	GAL	0930
Flow Rate (during testing) P-1:	8.14	GPM	10:45
Flow Rate (during testing) P-2:	7.85	GPM	10:45
Pump Hour Meter Readings: Pump #1:	3882.1	HOURS	0930
Pump Hour Meter Readings: Pump #2:	3777.2	HOURS	0930
Wet Well Level:	<2	FT	0930
Pressure Sensor Reading (Bar Graph) (during test):	32	PSI	10:30

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	31	30	1
Bag Filter #2:	30	19	11
Carbon Vessel #1:	19	15	4
Carbon Vessel #2:	15	14	1

Changed Filter Bags (Check ✓ One):	YES	X	TIME	10:30
	NO			

Notes From Inspection: Site was secure upon arrival, all gates locked. No sign of damage or vandalism. Performed monthly inspection including: change chart in recorder, change filter bags. Tested sump pumps - ok. Leak check on system - ok. Grass cover on cap is 18" tall, family of fox now present at site. All system's check ok.

[signature]

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: Ø

Recommended Actions to Prevent Future Problems: Ø

Other Relevant Information: Ø

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 7-14-21 Time In: 1130AM Time Out: 330 PM

Operator: Mike Walker
Operator Signature: [signature]

Weather:	Partly Cloudy
Precipitation, Inches:	1" overnight
Temperature, ºF:	81° F
Purpose for Visit:	Monthly inspection for July 2021

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2961722	GAL	12:15
½" Sump Flow Meter Totalizer Reading:	20785	GAL	12:15
Flow Rate (during testing) P-1:	8.08	GPM	12:55
Flow Rate (during testing) P-2:	7.95	GPM	1:10
Pump Hour Meter Readings: Pump #1:	3890.4	HOURS	12:15
Pump Hour Meter Readings: Pump #2:	3785.7	HOURS	12:15
Wet Well Level:	4.2'	FT	12:15
Pressure Sensor Reading (Bar Graph) (during test):	31.9	PSI	12:55

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	31	30	1
Bag Filter #2:	30	28	2
Carbon Vessel #1:	19	15	4
Carbon Vessel #2:	15	14	1

Changed Filter Bags (Check ✓ One):	YES	X	TIME	12:45
	NO			

Notes From Inspection:
Site locked + secure upon arrival, all gates locked + wells secure. Performed monthly inspection of water treatment system. Changed chart in recorder, changed filter bags, tested system for leaks - ok. Tested sump pumps - ok. Recorded data. Drove site, left.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: Ø

Recommended Actions to Prevent Future Problems: Ø

Other Relevant Information: Ø

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	NO	NO
#7 Pump # 2 Fail (Yes/No):	NO	NO
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	—	—
#10 Flow Rate:	—	—

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 08/18/21 **Time In: 1:00 p Time Out: 5:00p**

Operator: Mike Walker
Operator Signature:

Weather:	**Rain**
Precipitation, Inches:	**0.25"**
Temperature, ºF:	74 F
Purpose for Visit:	Monthly Inspection- August 2021

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2,989,849	**GAL**	1:30
½" Sump Flow Meter Totalizer Reading:	42,898	**GAL**	1:30
Flow Rate (during testing) P-1:	7.95	**GPM**	4:00
Flow Rate (during testing) P-2:	7.62	**GPM**	4:00
Pump Hour Meter Readings: Pump #1:	3918.9	**HOURS**	1:30
Pump Hour Meter Readings: Pump #2:	3875.8	**HOURS**	1:30
Wet Well Level:	< 2'	**FT**	1:30
Pressure Sensor Reading (Bar Graph) (during test):	31	**PSI**	4:15

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	30	30	0
Bag Filter #2:	30	28	2
Carbon Vessel #1:	19	14	5
Carbon Vessel #2:	14	12	2

Changed Filter Bags (Check ✓ One):	**YES**	X	**TIME**	3:30
	NO			

Notes From Inspection: Site was secure upon arrival. Not evidence of any damage to the System or
Equipment from either vandals or animals.
Performed monthly inspection tasks including, changed chart on recorder, changed filter bags,
Tested sump pumps for alternating operation (OK). Tested level alarms (OK). Bled the lines to the digital
Pressure gauge. Installed new seals on the bag filter rings.
The landscape crew had been onsite to mow the grass cover on the cap, it looks good. No evidence of
Any varmint burrows.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items: none

Recommended Actions to Prevent Future Problems:

Other Relevant Information:
May need to cut down some of the growth along the lakeside fenceline this fall.

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	X	X
#2 Panel Door:	X	X
#3 Vault Sump High Alarm:	X	X
#4 Containment Pipe Alarm:	X	X
#5 High Wet Well Alarm:	X	X
#6 Pump #1 Fail (Yes/No):	No	NO
#7 Pump # 2 Fail (Yes/No):	No	NO
#8 Bag Filter Differential Pressure High Alarm:	X	X
#9 Wet Well Level (Actual Measure Spoken):	"	"
#10 Flow Rate:	X	X

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Date: 9/15/21 **Time In:** 1045 **Time Out:** 1400

Operator: Mike Walker / Max Liffiton
Operator Signature: Max Liffiton

Weather:	Cloudy
Precipitation, Inches:	0.0
Temperature, ºF:	69 F
Purpose for Visit:	Monthly inspection of site, semiannual inspection and sample event (September 2021)

Pre-Treatment Process Information	Reading	Units	Time
1" Final Discharge Flow Meter Totalizer Reading:	2999489	GAL	1100
½" Sump Flow Meter Totalizer Reading:	50711	GAL	1100
Flow Rate (during testing) P-1:	7.56	GPM	1530
Flow Rate (during testing) P-2:	7.81	GPM	1530
Pump Hour Meter Readings: Pump #1:	3928.4	HOURS	1110
Pump Hour Meter Readings: Pump #2:	3828.2	HOURS	1110
Wet Well Level:	15 ft 11.5 in	FT	1110
Pressure Sensor Reading (Bar Graph) (during test):	42	PSI	1140

	Influent Gauge, PSI	Effluent Gauge, PSI	Differential
Bag Filter #1:	42	36	6
Bag Filter #2:	36	28	8
Carbon Vessel #1:	18	12	6
Carbon Vessel #2:	12	12	0

Changed Filter Bags (Check ✓ One):	YES	✓	TIME	1600
	NO			

Notes from Inspection: Arrived on site at 1045. Site was secure, all gates and panels locked, no evidence
Of damage to anything. Set up to sample influent water and treated water. Began sampling at 1133.
Samples were taken every 20 minutes until complete at 1300. Performed semi annual site inspection
and documentation. Changed bag filters and the chart in the recorder, tested pressures and level
alarms, tested sumps.

Frontier Chemical – Pendleton
Site No. 932043
Pre-Treatment System Operator's Log

Planned Action Items:

Recommended Actions to Prevent Future Problems:

Other Relevant Information:

SYSTEM CHECK LIST (Check ✓ if OK)	Arrival	Departure
#1 Vault Door:	✓	✓
#2 Panel Door:	✓	✓
#3 Vault Sump High Alarm:	✓	✓
#4 Containment Pipe Alarm:	✓	✓
#5 High Wet Well Alarm:	✓	✓
#6 Pump #1 Fail (Yes/No):	No	No
#7 Pump # 2 Fail (Yes/No):	No	No
#8 Bag Filter Differential Pressure High Alarm:	✓	✓
#9 Wet Well Level (Actual Measure Spoken):	---	---
#10 Flow Rate:	0.0	7.56`