ENVIRONMENTAL REMEDIATION GROUP
3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

April 1, 2014

Mr. Alex Czuhanich
New York State Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233

Re: 2013 Annual Operations, Maintenance, and Monitoring Report
Olin Chemicals Buffalo Avenue Facility, Niagara Falls, NY
AOC Index No. R9-4171-94-08, NYSDEC Site No. 932051A

Dear Mr. Czuhanich:

Olin has prepared the attached *2013 Annual Operations, Maintenance, and Monitoring Plan* for New York State Department of Environmental Conservation's (NYSDEC's) review. If you have any questions or concerns, please contact me directly at (423) 336-4576.

Sincerely,

Richard W. McClure, PG
OLIN CORPORATION

cc: David Share: Olin ERG, Cleveland, TN
Rob Meyer: Olin, Niagara Falls, NY
Tony Englund: AMEC E&I, Kennesaw, GA

2013 Annual Operations, Maintenance, and Monitoring Report

Olin Niagara Falls Plant
Niagara Falls, New York

Prepared for:

OLIN CORPORATION

Prepared by:

AMEC Environment &Infrastructure, Inc.
1075 Big Shanty Road NW, Suite 100
Kennesaw, Georgia 30144

April 1, 2014
Project 6107-14-0002

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
ARGC	Alundum Road – Gill Creek
BHC	Benzene hexachloride
GWTS	Groundwater Treatment System
NYSDEC	New York State Department of Environmental Conservation
Olin	Olin Corporation
Order	Administrative Order on Consent
RW	Recovery Well

1.0 INTRODUCTION

As required by the Administrative Order on Consent (Order) #R9-4171-94-08 between New York State Department of Environmental Conservation (NYSDEC) and Olin Corporation (Olin), Olin has implemented a Remedial Plan to address groundwater contamination at Plant 2, in Niagara Falls, New York. In accordance with the Remedial Plan, a Groundwater Treatment System (GWTS) was installed at the site in 1998 and has been operated since that time. The goals of the GWTS are to reduce the concentration of Olin-derived constituents in the site groundwater and restrict off-site migration of these constituents. The Olin-derived constituents are defined in the Remedial Plan and include aromatic compounds, benzene hexachlorides (BHCs), and mercury.

The Remedial Plan also requires periodic reporting of groundwater quality and groundwater elevation information collected during the operations of the GWTS. This Annual Operations, Maintenance, and Monitoring Report covers the period from January 1, 2013 through December 31, 2013. Olin has continued to implement the Remedial Plan as required by the Order during this reporting period.

2.0 OPERATIONS AND MAINTENANCE

The GWTS operated with a run time of approximately 84% in 2013. Table 2.1 shows the run time and down time for each month in 2013. The longest downtime occurred in March. This shutdown was the result of an air stripper treatment issue related to maintaining the optimum blower flow rate. The GWTS was shut down for several days to troubleshoot and correct the issue. The blower discharge damper was repaired and flow rate monitoring was increased. There were no other occurrences throughout the year. Other downtimes included:

- Malfunctioning air stripper air flow gauge
- Requested shut down by Niagara Falls Water Board due to flooding in the Niagara Falls area
- Installation of a 7th tray to the air stripper
- Scheduled electrical maintenance

Olin made several system improvements throughout 2013 which included the following:

- Added a 7th tray to the air stripper to increase treatment efficiency
- Increased air stripper blower size to accommodate additional tray
- Integrated air stripper air flow measurement and control into the distributed control system (DCS)
- Integrated carbon vessel differential pressures into the DCS
- Other DCS wiring and programming modifications to improve GWTS control
- Revised and improved the GWTS Operations and Maintenance Plan

Revision 6 of the GWTS Operations and Maintenance Plan was submitted to NYSDEC on October 28, 2013. Revision 6 included updated Standard Operating Conditions, updated equipment information, and updated Piping and Instrumentation Diagrams. On January 30, 2014, NYSDEC gave approval of Revision 6 (**Appendix A**). Although Revision 6 was a general update to all sections, the primary update focused on adding the 7th air stripper tray, increases to the air stripper blower size, and refinements in air stripper operations.

Details of the routine maintenance tasks and troubleshooting are included for this reporting period in the weekly reports from Olin's contractor, Sevenson Environmental Services (**Appendix B**). The weekly O&M reports document recovery well (RW) flow rates, RW water elevations, other system parameters, and maintenance issues.

3.0 GWTS PERFORMANCE

Figures 3.1 through 3.8 show the RW flow rates and water elevations throughout 2013. Flow rates and water elevations were consistent with historic values. Total monthly flows for 2013 are presented on Table 3.1.

Tables 3.2 through 3.5 show RW header concentrations and mass removal for each quarter of 2013. Table 3.6 shows the mass removed over the operational life of the GWTS. The total volume of groundwater extracted since GWTS startup is approximately 405 million gallons. Approximately 11.8 million gallons were extracted in 2013. The GWTS has extracted over 91,000 pounds of organics, 399 pounds of pesticides, and approximately 4 pounds of mercury from operations starting December 1997 through 2013.

Figures 3.9 through 3.11 show the mass removal rates for volatile organic compounds, pesticides, and mercury over the history of operation. The pesticide and mercury removal rates indicate that progress has been made in removing those constituents. The graph of organic mass removed per million gallons shows periodic fluctuation in removal rates but no general decreasing trend. As has been observed throughout the history of operation, greater than 97 percent of organics mass (aliphatics) removed by the Olin treatment system originates off-site from the DuPont facility. Since the aliphatic constituents migrate to the Olin extraction wells from sources located some distance at the DuPont facility, the potential for reduction in the organic mass removal rate with continued pumping is relatively low.

Tables 3.7 through 3.10 show GWTS treatment performance results. These performance data are used to optimize system performance and schedule change out of activated carbon. The activated carbon was replaced once in 2013 (April 9).

4.0 HYDRAULIC ANALYSIS

Groundwater level measurements were collected quarterly in 2013. Tables 4.1 through 4.4 present the quarterly water elevations for the monitored zones at the site. The water elevations were used to evaluate the potentiometric surface at the site.

4.1 A-ZONE

Figures 4.1 through 4.4 show the interpreted A-Zone potentiometric surface (April, June, September, and December) for each quarter of 2013. These figures show A-zone capture in the Alundum Road-Gill Creek (ARGC) area by Olin's recovery well and passive relief well system. The yellow highlighted areas represent areas that are estimated to be dewatered as defined by the bottom elevation of the A-zone. The corresponding table shows which wells had water level elevations that was below the physical bottom of the A-zone. In cases where the A zone was dewatered, the physical bottom of the system was used in the interpreted potentiometric surface.

4.2 B-ZONE

Figures 4.5 through 4.8 show B-Zone potentiometric surface maps for each quarter of 2013. The contour approach was updated in 2013 as follows.

- A formerly interpreted constant head boundary along the Buffalo Avenue Sewer was removed because reliable data regarding the hydraulic influence of the sewer on the B-Zone could not be confirmed.
- Average water levels for OBA-12B and OBA-13B from February 2011 through December 2012 were calculated and used to estimate the hydraulic conditions north of Buffalo Avenue. Historic water level data showed very consistent elevations. These wells were abandoned in December 2012 due to their locations on easements, but the hydraulic information is still relevant to the conceptual site model.
- The pumping stress from Solvent wells PW-3B and PW-4B were included in the evaluation due to the significant influence they have on the adjacent area. Olin used the PW-3B and PW-4B elevations from Solvent Quarterly Reports where available (April and June 2013). Average elevations were used if a Solvent Quarterly Report was not available (September and December 2013).
- Some B-Zone and A&B-Zone wells were not used in the evaluation because their water levels consistently indicate that they are poorly or not connected to the B-Zone and

therefore, are not representative of B-Zone conditions. These wells are identified on Tables 4.1 through 4.4.

The B-Zone potentiometric surface maps show hydraulic capture in the ARGC area along Gill Creek and an inward gradient toward the site from across Buffalo Avenue. There are isolated areas along Gill Creek that show groundwater gradients to the east due to the influence and capture by Solvent's pumping system.

4.3 C-ZONE

Figures 4.9 through 4.12 show C-Zone potentiometric surface maps for each quarter of 2013. The C-Zone figures generally show flow to the west toward the Olin production well but also a low at OBA-7C. The elevations and contouring are consistent with historic C-zone pot maps.

4.4 CD-ZONE

Figures 4.13 through 4.16 show CD-Zone potentiometric surface maps for each quarter of 2013. CD-zone hydraulic gradients indicate southwestward flow toward the Olin production well and OBA-8C in Plant 1.

5.0 GROUNDWATER QUALITY

Site groundwater quality is monitored annually. Samples were collected from the site monitoring wells June 28 through July 5, 2013. Table 5.1 provides the analytical results. Figures 5.1 through 5.8 show the constituent distributions for the following indicator parameters in the A and B-Zones:

- 1,2,4-Trichlorobenzene - Aromatic
- Trichloroethene – Aliphatic
- Gamma-BHC – Pesticide
- Total Mercury - Mercury

Constituent concentrations and distribution are consistent with historical site monitoring data.

TABLES

Table 2.1: 2013 Monthly Runtime Summary

Month	Downtime (hours)	Runtime (hours)	Runtime %
January 2013	2.5	741.5	99.7%
February 2013	40.2	631.8	94.0%
March 2013	436.3	307.7	41.4%
April 2013	155.7	564.3	78.4%
May 2013	120.7	623.3	83.8%
June 2013	18.8	701.2	97.4%
July 2013	195.4	548.6	73.7%
August 2013	92.2	651.8	87.6%
September 2013	184.6	535.4	74.4%
October 2013	30.3	713.7	95.9%
November 2013	56	664	92.2%
December 2013	73.2	670.8	90.2%
Total	**1405.9**	**7354.1**	**84.0%**

Prepared By: JDD 2/20/2014
Checked By: AWE 2/20/2014

Table 3.1: Summary of Total Flow and Average System Flow Rates for 2013

Period	Total Flow (gal/month)	Total Quarterly Flow (gal)	Average Flow Rate (gpm)									Flow Contribution Per Well (gal/month)							
			RW-1	RW-2	RW-3	RW-4	PR-4	RW-5	PR-12	OBA-9AR	Total	RW-1	RW-2	RW-3	RW-4	PR-4	RW-5	PR-12	OBA-9AR
January-13	1,563,522		6.1	8.8	0.4	2.2	2.4	14.4	0.1	0.5	35.0	271,926	393,679	19,082	100,288	109,090	643,481	3,037	22,940
February-13	1,296,824		5.5	7.7	0.4	1.2	1.0	13.4	2.4	0.5	32.2	223,661	309,764	14,184	49,629	41,434	540,150	97,916	20,086
March-13	625,820		2.4	3.7	0.1	0.4	0.8	4.9	1.4	0.2	14.0	109,210	164,723	6,062	18,180	34,188	219,712	64,619	9,127
1st Qtr 13		**3,486,167**																	
April-13	827,121		4.5	6.1	0.2	0.8	2.1	3.2	2.0	0.4	19.3	194,236	261,458	9,433	32,372	89,985	134,953	85,908	18,776
May-13	926,485		4.6	7.5	0.2	0.7	1.4	3.5	2.5	0.3	20.7	204,001	334,361	9,352	33,437	63,246	155,473	111,551	15,064
June-13	827,428		4.6	8.6	0.3	0.7	1.2	3.1	0.1	0.5	19.2	199,206	375,467	10,956	29,932	51,616	137,843	2,621	19,787
2ndQtr 13		**2,581,033**																	
July-13	591,748		1.9	5.8	0.1	0.5	0.9	3.5	0.1	0.4	13.3	84,829	259,110	6,612	22,251	40,608	157,887	1,982	18,469
August-13	847,082		2.5	6.6	0.2	0.6	1.1	7.2	0.4	0.4	19.0	113,500	294,488	8,792	24,579	47,987	321,111	16,973	19,652
September-13	832,931		2.2	6.9	0.2	0.4	2.0	7.0	0.1	0.5	19.3	94,770	296,771	7,027	19,323	87,134	302,345	4,081	21,480
3rdQtr 13		**2,271,761**																	
October-13	1,097,330		2.6	6.9	0.2	0.6	3.7	8.6	1.1	0.9	24.6	115,058	309,407	8,614	28,299	165,489	383,069	47,854	39,541
November-13	1,158,139		2.9	7.4	0.3	0.6	3.1	8.5	3.3	0.6	26.8	125,719	318,457	13,891	27,957	135,985	369,307	142,549	24,274
December-13	1,215,759		2.6	6.8	0.6	0.6	2.6	8.0	5.6	0.4	27.2	114,776	305,203	26,444	27,400	114,082	359,028	249,314	19,512
4thQtr 13		**3,471,229**																	
Maximum	**1,563,521.9**		**6.1**	**8.8**	**0.6**	**2.2**	**3.7**	**14.4**	**5.6**	**0.9**	**35.0**	**271,925.5**	**393,678.8**	**26,444.4**	**100,287.8**	**165,488.7**	**643,480.8**	**249,313.8**	**39,541.0**
Average	**984,182**		**3.5**	**6.9**	**0.3**	**0.8**	**1.9**	**7.1**	**1.6**	**0.5**	**22.5**	**154,241**	**301,907**	**11,704**	**34,471**	**81,737**	**310,363**	**69,034**	**20,726**
2013 System Total	**11,810,190**											**1,850,889**	**3,622,888**	**140,449**	**413,647**	**980,843**	**3,724,360**	**828,404**	**248,708**

Prepared by: JDD 02/24/14
Checked by: AWE 02/24/14

Table 3.2: April 2, 2013 Recovery Well Header Concentrations and 1st Quarter 2013 Mass Removal

Well ID: / Sample Date:	Sample RW-1 4/2/2013	Sample RW-2 4/2/2013	Sample RW-3 4/2/2013	Sample RW-4 4/2/2013	Sample PR-4 4/2/2013	Sample RW-5 4/2/2013	Sample PR-12 4/2/2013	Sample OBA-9AR 4/2/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L								
Aliphatic Compounds								
1,1,1-Trichloroethane	100 U	1.0 U	1.0 U	5.0 U	10 U	500 U	590	190
1,1,2,2-Tetrachloroethane	100 U	8.9	2.1	5.5	10 U	3900	20000	2000
1,1,2-Trichloroethane	100 U	1.0 U	1.0 U	5.0 U	10 U	500 U	400	140
1,1-Dichloroethene	100 U	1.0 U	1.0 U	5.0 U	10 U	500 U	280	130
Carbon tetrachloride	100 U	1.0 U	1.0 U	5.0 U	10 U	500 U	1200	100 U
Chloromethane (Methyl chloride)	100 U	1.0 U	1.0 U	5.0 U	10 U	500 U	250 U	100 U
cis-1,2-Dichloroethene	2000	67	7.7	240	110	7700	14000	2000
Methylene chloride (Dichloromethane)	230	1.0 U	1.0 U	5.0 U	10 U	500 U	2500	100 U
Tetrachloroethene (PCE)	3700	120	36	320	180	36000	40000 D	6900
trans-1,2-Dichloroethene	100 U	1.1	1.0 U	8.3	10 U	500 U	300	130
Trichloroethene (TCE)	11000	200	36	320	210	55000	130000 D	52000 D
Vinyl Chloride	310	1.1	1.0 U	180	91	1100	1700	340
Aromatic Compounds								
1,2,4-Trichlorobenzene	4300	4.8	19	1700 D	1300	3200	3700	9700
1,2-Dichlorobenzene	150	1.0 U	1.6	58	87	500 U	1000	7600
1,3-Dichlorobenzene	300	1.2	7.9	580	370	500 U	370	1100
1,4-Dichlorobenzene	160	1.0 U	5.0	450	220	520	1100	7000
Benzene	200	1.0 U	1.0 U	58	36	500 U	1100	320
Chlorobenzene	160	1.0 U	1.2	250	170	500 U	590	640
Pesticide Concentrations - SW846 8081 µg/L								
alpha-BHC	20	0.24	1.3	46	61	110	120	360
beta-BHC	2.8	0.13	0.87	5.1	7.4	8.7	17	31
delta-BHC	2.4 U	0.047 U	2.4	2.4 U	6.3	8.3	8.7	24
gamma-BHC (Lindane)	3.1	0.18	2.0	29	63	84	93	230
Total Metal Concentrations - SW846 7470 ug/L								
Mercury	0.71	0.20 U	1.04	0.28	0.20 U	0.20 U	0.23	0.20 U
Total Flow 1st Quarter 2013 - gallons								
Flow	604,796	868,166	39,327	168,097	184,712	1,403,343	165,573	52,153
Total Mass Removed 1st Quarter 2013 - pounds								
Aliphatic Compounds	**87.4**	**2.9**	**0.0**	**1.5**	**0.9**	**1219.2**	**292.6**	**27.9**
Aromatic Compounds	**26.7**	**0.0**	**0.0**	**4.4**	**3.4**	**43.7**	**10.9**	**11.5**
Pesticides	**0.13**	**0.00**	**0.00**	**0.11**	**0.21**	**2.48**	**0.33**	**0.18**
Mercury	**0.0036**	**0.0000**	**0.0003**	**0.0004**	**0.0000**	**0.0000**	**0.0003**	**0.0000**

Notes:

U - constituent not detected - reporting limit shown.
D - concentration is the result of a dilution due to exceeding the calibration range.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.3: June 27, 2013 Recovery Well Header Concentrations and 2nd Quarter 2013 Mass Removal

Well ID: / Sample Date:	Sample RW-1 6/27/2013	Sample RW-2 6/27/2013	Sample RW-3 6/27/2013	Sample RW-4 6/27/2013	Sample PR-4 6/27/2013	Sample RW-5 6/27/2013	Sample PR-12 6/27/2013	Sample OBA-9AR 6/27/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L								
Aliphatic Compounds								
1,1,1-Trichloroethane	100 U	2.0 U	1.0 U	20.0 U	10 U	250 U	25 U	200 U
1,1,2,2-Tetrachloroethane	100 U	8.6	1 U	20 U	10 U	3000	25 U	910
1,1,2-Trichloroethane	100 U	2.0 U	1.0 U	20.0 U	10 U	250 U	25 U	200 U
1,1-Dichloroethene	100 U	2.0 U	1.0 U	20.0 U	10 U	250 U	25 U	200 U
Carbon tetrachloride	100 U	2.0 U	1.0 U	20.0 U	10 U	250 U	25 U	200 U
Chloromethane (Methyl chloride)	100 U	2.0 U	1.0 U	20.0 U	10 U	250 U	25 U	200 U
cis-1,2-Dichloroethene	2500	80	1	190	160	4900	710	900
Methylene chloride (Dichloromethane)	610	2.0 U	1.0 U	20.0 U	10 U	250 U	150	200 U
Tetrachloroethene (PCE)	3400	100	12	230	180	17000	980	3000
trans-1,2-Dichloroethene	100 U	2 U	1.0 U	20 U	10 U	250 U	25 U	200 U
Trichloroethene (TCE)	12000	180	12	190	190	30000	3300	18000 D
Vinyl Chloride	270	2 U	1.0 U	160	150	590	87	200 U
Aromatic Compounds								
1,2,4-Trichlorobenzene	3400	16	3	1900 D	2000	910	1400	8000
1,2-Dichlorobenzene	140	2.0 U	1 U	57	100	250 U	120	7000
1,3-Dichlorobenzene	280	5.1	1.1	540	620	250 U	190	920
1,4-Dichlorobenzene	140	3.6	1.0 U	390	550	300	190	5700
Benzene	260	2.0 U	1.0 U	72	65	250 U	74	230
Chlorobenzene	170	2.0 U	1 U	210	320	250 U	87	450
Pesticide Concentrations - SW846 8081 µg/L								
alpha-BHC	31	1.2	2	74	130	140	34	520
beta-BHC	3.6	0.4	1.4	5.1	8.5	9.5	4.7 U	31
delta-BHC	2.4 U	0.1	0.26	3.9	16	10	4.7 U	24 U
gamma-BHC (Lindane)	8.7	0.82	0.5	47	130	110	20	330
Total Metal Concentrations - SW846 7470 ug/L								
Mercury	1.13	0.27	1.82	0.20 U	0.20 U	0.20 U	0.5	0.20 U
Total Flow 2nd Quarter 2013 - gallons								
Flow	597,443	971,286	29,741	95,741	204,847	428,269	200,080	53,627
Total Mass Removed 2nd Quarter 2013 - pounds								
Aliphatic Compounds	**94.0**	**3.0**	**0.0**	**0.6**	**1.2**	**199.1**	**8.8**	**10.2**
Aromatic Compounds	**22.0**	**0.2**	**0.0**	**2.5**	**6.3**	**4.3**	**3.5**	**10.0**
Pesticides	**0.22**	**0.02**	**0.00**	**0.10**	**0.49**	**0.97**	**0.09**	**0.25**
Mercury	**0.0057**	**0.0022**	**0.0005**	**0.0000**	**0.0000**	**0.0000**	**0.0008**	**0.0000**

Notes:

U - constituent not detected - reporting limit shown.
D - concentration is the result of a dilution due to exceeding the calibration range.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.4: September 6, 2013 Recovery Well Header Concentrations and 3rd Quarter 2013 Mass Removal

Well ID: / Sample Date:	Sample RW-1 9/6/2013	Sample RW-2 9/6/2013	Sample RW-3 9/6/2013	Sample RW-4 9/6/2013	Sample PR-4 9/6/2013	Sample RW-5 9/6/2013	Sample PR-12 9/6/2013	Sample OBA-9AR 9/6/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L								
Aliphatic Compounds								
1,1,1-Trichloroethane	100 U	1.0 U	1.0 U	25 U	20 U	500 U	25 U	200 U
1,1,2,2-Tetrachloroethane	100 U	6.9	5.5	25 U	20 U	7400	25 U	1200
1,1,2-Trichloroethane	100 U	1.0 U	1.0 U	25 U	20 U	500 U	25 U	200 U
1,1-Dichloroethene	100 U	1.0 U	1.0 U	25 U	20 U	500 U	25 U	200 U
Carbon tetrachloride	100 U	1.0 U	1.0 U	25 U	20 U	500 U	25 U	200 U
Chloromethane (Methyl chloride)	100 U	1.0 U	1.0 U	25 U	20 U	500 U	25 U	200 U
cis-1,2-Dichloroethene	2900	78	21	540 U	170	7300 D	640	1700
Methylene chloride (Dichloromethane)	500	1.0 U	1.0 U	25 U	20 U	500 U	86	200 U
Tetrachloroethene (PCE)	4200	100	53	310 U	250	28000 D	880	5400
trans-1,2-Dichloroethene	100 U	1 U	1.0 U	25 U	20 U	500 U	25 U	200 U
Trichloroethene (TCE)	14000	170 D	60	240 D	280	60000 D	2600	29000
Vinyl Chloride	240	1 U	1.0 U	390 D	150	800 D	120	210
Aromatic Compounds								
1,2,4-Trichlorobenzene	4400	5.5	1.6	3200 D	2500	1800	1700	9200
1,2-Dichlorobenzene	180	1.0 U	1 U	100 D	140	500 U	120	7500
1,3-Dichlorobenzene	350	1.4	1.5	890 D	920	500 U	310	1100
1,4-Dichlorobenzene	190	1.1	1.4	680 D	20 U	500 U	280	6700
Benzene	300	1.0 U	1.0 U	120 D	83	500 U	84	310
Chlorobenzene	220	1.0 U	1 U	320 D	460	500 U	150	570
Pesticide Concentrations - SW846 8081 µg/L								
alpha-BHC	23	0.41	0.64	93	150	120	42	440
beta-BHC	3.2	0.3	1.8	7.4	10	12	3.1	36
delta-BHC	0.94 U	0.049 U	0.24	4.7 U	18	9.1	3.2	24 U
gamma-BHC (Lindane)	2.3	0.33	0.3	53	130	90	28	280
Total Metal Concentrations - SW846 7470 ug/L								
Mercury	1.54	0.20 U	1.33	0.20 U	0.22	0.20 U	0.4	0.20 U
Total Flow 3rd Quarter 2013 - gallons								
Flow	293,098	850,369	22,432	66,154	175,729	781,344	23,035	59,601
Total Mass Removed 3rd Quarter 2013 - pounds								
Aliphatic Compounds	**53.6**	**2.5**	**0.0**	**0.3**	**1.3**	**677.5**	**0.8**	**18.7**
Aromatic Compounds	**13.8**	**0.1**	**0.0**	**2.9**	**6.0**	**11.8**	**0.5**	**12.7**
Pesticides	**0.07**	**0.01**	**0.00**	**0.09**	**0.45**	**1.51**	**0.01**	**0.24**
Mercury	**0.0038**	**0.0000**	**0.0002**	**0.0000**	**0.0003**	**0.0000**	**0.0001**	**0.0000**

Notes:

U - constituent not detected - reporting limit shown.
D - concentration is the result of a dilution due to exceeding the calibration range.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.5: December 3, 2013 Recovery Well Header Concentrations and 4th Quarter 2013 Mass Removal

Well ID: / Sample Date:	Sample RW-1 12/3/2013	Sample RW-2 12/3/2013	Sample RW-3 12/3/2013	Sample RW-4 12/3/2013	Sample PR-4 12/3/2013	Sample RW-5 12/3/2013	Sample PR-12 12/3/2013	Sample OBA-9AR 12/3/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L								
Aliphatic Compounds								
1,1,1-Trichloroethane	100 U	1.0 U	1.0 U	10.0 U	20 U	250 U	160	200 U
1,1,2,2-Tetrachloroethane	100 U	11	8.3	10 U	20 U	4100	8800 D	2100
1,1,2-Trichloroethane	100 U	1.0 U	1.0 U	10.0 U	20 U	250 U	140	200 U
1,1-Dichloroethene	100 U	1.0	1.0 U	10.0 U	20 U	250 U	84	200 U
Carbon tetrachloride	100 U	1.0 U	1.0 U	10.0 U	20 U	250 U	310	200 U
Chloromethane (Methyl chloride)	100 U	1.0 U	1.0 U	10.0 U	<20 U	250 U	25 U	200 U
cis-1,2-Dichloroethene	1800	130	29	460	160	5800	3600	1900
Methylene chloride (Dichloromethane)	220	1.0 U	1.0 U	22.0	20	250 U	690	200 U
Tetrachloroethene (PCE)	2800	130	47	430	180	17000	18000 D	6700
trans-1,2-Dichloroethene	100 U	1.5	1.0 U	10	20 U	250 U	78	200 U
Trichloroethene (TCE)	9400	240 D	58	1100	310	39000	62000 D	57000 D
Vinyl Chloride	100	1.2	2.1	170	85	590	300	200 U
Aromatic Compounds								
1,2,4-Trichlorobenzene	3100	20	85	1500	1900	780	840	10000
1,2-Dichlorobenzene	150	1.0 U	9.5	68	120	250 U	86	8900
1,3-Dichlorobenzene	270	3.2	39	470	790	250 U	110	1300
1,4-Dichlorobenzene	150	1.6	35.0	400	600	310	180	7900
Benzene	150	1.1	1.9	82	73	250 U	360	320
Chlorobenzene	150	1.0	9.9	200	350	250 U	230	740
Pesticide Concentrations - SW846 8081 µg/L								
alpha-BHC	25	0.66	7.4	35	210	140	76	1800
beta-BHC	4.3	0.38	1.7	3.8	18	11	12	94
delta-BHC	0.94 U	0.047 U	8.2	3.3	14	10	6.5	62
gamma-BHC (Lindane)	1.7	0.6	14.0	27	200	100	66	1300
Total Metal Concentrations - SW846 7470 ug/L								
Mercury	1.33	0.20 U	0.72	1.71	0.20	0.20 U	0.20 U	0.20 U
Total Flow 4th Quarter 2013 - gallons								
Flow	355,552	933,067	48,949	83,656	415,556	1,111,404	439,717	83,327
Total Mass Removed 4th Quarter 2013 - pounds								
Aliphatic Compounds	**42.7**	**4.0**	**0.1**	**1.5**	**2.6**	**619.1**	**346.9**	**47.3**
Aromatic Compounds	**11.8**	**0.2**	**0.1**	**1.9**	**13.3**	**10.1**	**6.7**	**20.4**
Pesticides	**0.09**	**0.01**	**0.01**	**0.05**	**1.54**	**2.43**	**0.59**	**1.37**
Mercury	**0.0040**	**0.0000**	**0.0003**	**0.0012**	**0.0007**	**0.0000**	**0.0000**	**0.0000**

Notes:

U - constituent not detected - reporting limit shown.
D - concentration is the result of a dilution due to exceeding the calibration range.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.6: Contaminant Mass Removal and Groundwater Extraction Summary (Dec 1997 to Present)

Quarter	Aliphatic		Aromatic		Pesticides		Mercury		G.W. Extracted	
	lb	Ann. Tot.	lb	Ann. Tot.	lb	Ann. Tot.	lb	Ann. Tot.	gal	Ann. Tot.
Q1-98	NA		NA		NA		NA		210,000	
Q2-98	354.7		34.9578		0.15		0.16608		1,175,800	
Q3-98	580.4		16.397		4.87		0.31233		2,575,531	
Q4-98	1193.7		82.1497		5.17		0.15449		4,052,996	
		2,129		133.50		10		0.63289		8,014,327
Q1-99	790.3		24.3354		8.47		3.51375		4,233,520	
Q2-99	1019.7		17.0826		7.10		0.15335		3,991,584	
Q3-99	1117.9		77.0616		8.74		0.10204		5,219,208	
Q4-99	1016.3		36.4233		6.83		0.02489		6,366,934	
		3,944		154.90		31		3.79403		19,811,246
Q1-00	1247.1		72.3109		24.15		0.06115		6,757,603	
Q2-00	1411.3		106.858		10.27		0.05932		6,663,345	
Q3-00	907.8		103.288		18.67		0.05645		6,007,755	
Q4-00	1168.9		90.3489		9.61		0.01237		6,803,495	
		4,735		372.81		63		0.18929		26,232,198
Q1-01	1316.5		90.8135		6.72		0.05640		7,379,548	
Q2-01	2596.9		113.195		11.86		0.03898		8,474,363	
Q3-01	2384.7	[a]	105.46	[a]	11.08	[a]	0.03094	[a]	7,607,539	
Q4-01	575.1		63.3279		8.37		0.05329		5,642,388	
		6,873		372.80		38		0.17960		29,103,838
Q1-02	1266.9		53.4303		6.92		0.06152		6,580,672	
Q2-02	472.1		59.6619		6.69		0.07870		8,693,727	
Q3-02	1189.9		72.3968		6.04		0.06637		5,950,649	
Q4-02	443.8		38.5437		3.50		0.07369		5,385,584	
		3,373		224.03		23		0.28027		26,610,632
Q1-03	879.8		44.8224		3.47		0.58368		5,151,629	
Q2-03	1726.1		162.614		5.24		0.06155		7,276,723	
Q3-03	1459.9		89.6481		0.00		0.12051		6,700,727	
Q4-03	1593.7		68.184		5.21		0.05788		6,483,046	
		5,660		365.27		14		0.82363		25,612,125
Q1-04	1414.7		86.4896		4.85		0.03647		5,846,144	
Q2-04	1839.9		99.5038		5.77		0.05817		6,826,643	
Q3-04	1961.3	[a]	113.335	[a]	8.08	[a]	0.04811	[a]	6,494,680	
Q4-04	3609.9		83.9802		6.08		0.18456		8,127,002	
		8,826		383.31		25		0.32732		27,294,469
Q1-05	2591.7	[a]	71.5544	[a]	4.64	[a]	0.13792	[a]	6,490,183	
Q2-05	1131.5		38.9625		3.46		0.03594		5,910,497	
Q3-05	828.9	[a]	33.114	[a]	2.81	[a]	0.04407	[a]	7,113,517	
Q4-05	833.0		50.4396		6.69		0.08576		5,271,114	
		5,385		194.07		18		0.30369		24,785,311
Q1-06	991.4		52.2367		3.55		0.02144		5,139,061	
Q2-06	1118.8		36.7004		4.43		0.03623		8,872,651	
Q3-06	1118.9		52.538		4.22		0.01536		8,253,291	
Q4-06	1118.0		59.4582		4.88		0.04032		8,959,291	
		4,347		200.93		17		0.11336		31,224,294
Q1-07	1347.8		61.4375		4.04		0.02170		7,250,389	
Q2-07	1658.2		36.9582		4.19		0.04413		8,203,421	
Q3-07	1307.5		82.328		5.31		0.03239		6,553,414	
Q4-07	1500.9		85.3163		7.78		0.02990		5,741,687	
		5,815		266.04		21		0.12812		27,748,911
Q1-08	887.1		47.5786		3.33		0.05402		6,394,472	
Q2-08	1221.4		49.3187		4.23		0.00961		6,750,450	
Q3-08	1600.6		89.449		6.74		0.00833		8,159,637	
Q4-08	1928.0		110.694		7.59		0.01118		9,010,318	
		5,637		297.04		22		0.08315		30,314,877
Q1-09	1600.7		69.9005		5.66		0.00585		7,487,247	
Q2-09	1615.2		74.4036		5.65		0.01025		6,960,098	
Q3-09	1762.8		127.808		8.18		0.00885		8,806,214	
Q4-09	1608.7		107.754		30.36		0.02216		9,730,305	
		6,587		379.87		50		0.04711		32,983,864
Q1-10	2136.5		93.543		5.73		0.00146		8,157,833	
Q2-10	1969.3		79.81		4.28		0.00523		7,255,838	
Q3-10	1609.0		81.4295		3.76		0.04101		7,532,651	
Q4-10	1711.1		94.2708		4.85		0.02593		7,127,476	
		7,426		349.05		19		0.07362		30,073,798
Q1-11	1560.2		53.8423		3.79		0.02017		6,732,218	
Q2-11	1729.4		111.407		4.10		0.01348		5,811,286	
Q3-11	1618.2		82.0094		5.30		0.02617		9,060,804	
Q4-11	1551.8		99.6175		5.18		0.00878		6,319,658	
		6,460		346.88		18		0.06860		27,923,966
Q1-12	1483.9		57.354		4.10		0.00569		8,474,213	
Q2-12	1561.5		106.072		4.92		0.00880		7,582,966	
Q3-12	3464.2		146.031		7.47		0.00535		6,043,496	
Q4-12	1398.7		119.249		4.98		0.00183		5,169,991	
		7,908		428.71		21		0.02167		27,270,666
Q1-13	1632.4		100.649		3.33		0.00106		3,486,167	
Q2-13	316.9		48.8031		1.92		0.00129		2,581,033	
Q3-13	754.8		47.8548		2.31		0.00065		2,271,761	
Q4-13	1064.1		64.5173		6.00		0.00219		3,471,228	
		3,768		261.82		14		0.00519		11,810,189
TOTAL		**11,676**		**690.5**		**35**		**0.09545**		**67,004,821**

[a] Estimated loading based on replication of previous quarter's constituent concentrations.
Flow data are actual for each quarter

Prepared by: JDD 02/10/14
Checked by: AWE 02/10/14

Table 3.7: April 2, 2013 GWTS Treatment Performance

Sample Location: / Sample Date:	Sample AIR STRIPPER INFLUENT 4/2/2013	Sample AIR STRIPPER EFFLUENT 4/2/2013	Calculation AIR STRIPPER REMOVAL EFFICIENCY (%) 4/2/2013	Sample BETWEEN CARBON VESSELS 4/2/2013	Calculation CARBON VESSEL 1 REMOVAL EFFICIENCY (%) 4/2/2013	Sample SYSTEM EFFLUENT 4/2/2013	Calculation CARBON VESSEL 2 REMOVAL EFFICIENCY (%) 4/2/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L							
Aliphatic Compounds							
1,1,1-Trichloroethane	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
1,1,2,2-Tetrachloroethane	2400	130 U	94.6%	100	NA	95	5.0%
1,1,2-Trichloroethane	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
1,1-Dichloroethene	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
Carbon tetrachloride	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
Chloromethane (Methyl chloride)	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
cis-1,2-Dichloroethene	2300	39	98.3%	55	-41.0%	63	-14.5%
Methylene chloride (Dichloromethane)	230	4.9	97.9%	3.4	30.6%	3.0	11.8%
Tetrachloroethene (PCE)	8500	52	99.4%	47	9.6%	45	4.3%
trans-1,2-Dichloroethene	100 U	2.0 U	NA	2.5 U	NA	2.0 U	NA
Trichloroethene (TCE)	21000 D	200	99.0%	300	-50.0%	330	-10.0%
Vinyl Chloride	250	2.0 U	99.2%	2.5 U	NA	2.0 U	NA
Aromatic Compounds							
1,2,4-Trichlorobenzene	1500	30	98.0%	8.6	71.3%	4.7	45.3%
1,2-Dichlorobenzene	220	4.2	98.1%	2.5 U	40.5%	2.0 U	NA
1,3-Dichlorobenzene	160	2.8	98.3%	2.5 U	10.7%	2.0 U	NA
1,4-Dichlorobenzene	270	5.2	98.1%	2.5	51.9%	2.0 U	20.0%
Benzene	130	2.0 U	NA	2.5 U	NA	2.0 U	NA
Chlorobenzene	120 U	2.0	NA	2.5 U	NA	2.0 U	NA
Pesticide Concentrations - SW846 8081 µg/L							
alpha-BHC	57	42	26.3%	21	50.0%	11	47.6%
beta-BHC	7.7	6.5	15.6%	3.6	44.6%	2.9	19.4%
delta-BHC	4.7 U	2.4 U	NA	2.3	NA	1.9	17.4%
gamma-BHC (Lindane)	40	30	25.0%	16	46.7%	8.2	48.8%
Total Metal Concentrations - SW846 7470 ug/L							
Mercury	0.29	0.23	20.7%	0.20 U	13.0%	0.20 U	NA

Notes:
U - constituent not detected - reporting limit shown.
ug/L - micrograms per liter
mg/L - milligrams per liter
NA - not applicable

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.8: June 27, 2013 GWTS Treatment Performance

Sample Location: / Sample Date:	Sample AIR STRIPPER INFLUENT 6/27/2013	Sample AIR STRIPPER EFFLUENT 6/27/2013	Calculation AIR STRIPPER REMOVAL EFFICIENCY (%) 6/27/2013	Sample BETWEEN CARBON VESSELS 6/27/2013	Calculation CARBON VESSEL 1 REMOVAL EFFICIENCY (%) 6/27/2013	Sample SYSTEM EFFLUENT 6/27/2013	Calculation CARBON VESSEL 2 REMOVAL EFFICIENCY (%) 6/27/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L							
Aliphatic Compounds							
1,1,1-Trichloroethane	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,1,2,2-Tetrachloroethane	820	1.0 U	99.9%	1.1	-10.0%	1.0 U	9.1%
1,1,2-Trichloroethane	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,1-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Carbon tetrachloride	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Chloromethane (Methyl chloride)	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
cis-1,2-Dichloroethene	1900	1.5	99.9%	4.1	-173.3%	1.0 U	75.6%
Methylene chloride (Dichloromethane)	140	1.0 U	99.3%	1.0 U	NA	1.0 U	NA
Tetrachloroethene (PCE)	5800	2.2	100.0%	1.0 U	54.5%	1.0 U	NA
trans-1,2-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Trichloroethene (TCE)	12000	5.3	100.0%	5	5.7%	1.0 U	80.0%
Vinyl Chloride	150	1.0 U	99.3%	1.0 U	NA	1.0 U	NA
Aromatic Compounds							
1,2,4-Trichlorobenzene	430	1.0 U	99.8%	1.0 U	NA	1.0 U	NA
1,2-Dichlorobenzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,3-Dichlorobenzene	130	1.0 U	99.2%	1.0 U	NA	1.0 U	NA
1,4-Dichlorobenzene	160	1.0 U	99.4%	1.0 U	NA	1.0 U	NA
Benzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Chlorobenzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Pesticide Concentrations - SW846 8081 µg/L							
alpha-BHC	55	7.8	85.8%	0.24	96.9%	0.047 U	80.4%
beta-BHC	5.1	4	21.6%	0.4	89.5%	0.047 U	88.8%
delta-BHC	4.7 U	3	36.2%	0.3	89.0%	0.047 U	85.8%
gamma-BHC (Lindane)	40	8.1	79.8%	0.13	98.4%	0.047 U	63.8%
Total Metal Concentrations - SW846 7470 ug/L							
Mercury	0.39	0.38	2.6%	0.20 U	47.4%	0.20 U	NA

Notes:
U - constituent not detected - reporting limit shown.
ug/L - micrograms per liter
mg/L - milligrams per liter
NA - not applicable

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.9: September 6, 2013 GWTS Treatment Performance

Sample Location: / Sample Date:	Sample AIR STRIPPER INFLUENT 9/6/2013	Sample AIR STRIPPER EFFLUENT 9/6/2013	Calculation AIR STRIPPER REMOVAL EFFICIENCY (%) 9/6/2013	Sample BETWEEN CARBON VESSELS 9/6/2013	Calculation CARBON VESSEL 1 REMOVAL EFFICIENCY (%) 9/6/2013	Sample SYSTEM EFFLUENT 9/6/2013	Calculation CARBON VESSEL 2 REMOVAL EFFICIENCY (%) 9/6/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L							
Aliphatic Compounds							
1,1,1-Trichloroethane	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,1,2,2-Tetrachloroethane	2300	110	95.2%	42	61.8%	4.7	88.8%
1,1,2-Trichloroethane	100 U	1.6	98.4%	1.0	NA	1.0 U	NA
1,1-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Carbon tetrachloride	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Chloromethane (Methyl chloride)	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
cis-1,2-Dichloroethene	2100	39	98.1%	25	35.9%	7.5	70.0%
Methylene chloride (Dichloromethane)	100 U	2	98.0%	1.2	40.0%	1.1	8.3%
Tetrachloroethene (PCE)	7200	41	99.4%	9.9	75.9%	1.0 U	89.9%
trans-1,2-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Trichloroethene (TCE)	16000	150	99.1%	59	60.7%	4.5	92.4%
Vinyl Chloride	190	1.0 U	99.5%	1.0 U	NA	1.0 U	NA
Aromatic Compounds							
1,2,4-Trichlorobenzene	630	17	97.3%	1.0 U	94.1%	1.0 U	NA
1,2-Dichlorobenzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,3-Dichlorobenzene	110	2.1	98.1%	1.0 U	52.4%	1.0 U	NA
1,4-Dichlorobenzene	140	3.4	97.6%	1.0 U	70.6%	1.0 U	NA
Benzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Chlorobenzene	100 U	1.7	98.3%	1.0 U	NA	1.0 U	NA
Pesticide Concentrations - SW846 8081 µg/L							
alpha-BHC	66	42	36.4%	6.4	84.8%	0.43	93.3%
beta-BHC	5.2	5.4	-3.8%	1.7	68.5%	0.23	86.5%
delta-BHC	4.9	4	18.4%	1.2	70.0%	0.13	89.2%
gamma-BHC (Lindane)	48	31	35.4%	4.7	84.8%	0.25	94.7%
Total Metal Concentrations - SW846 7470 ug/L							
Mercury	0.28	0.29	-3.6%	0.20 U	31.0%	0.20 U	NA

Notes:
U - constituent not detected - reporting limit shown.
ug/L - micrograms per liter
mg/L - milligrams per liter
NA - not applicable

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 3.10: December 3, 2013 GWTS Treatment Performance

Sample Location: / Sample Date:	Sample AIR STRIPPER INFLUENT 12/3/2013	Sample AIR STRIPPER EFFLUENT 12/3/2013	Calculation AIR STRIPPER REMOVAL EFFICIENCY (%) 12/3/2013	Sample BETWEEN CARBON VESSELS 12/3/2013	Calculation CARBON VESSEL 1 REMOVAL EFFICIENCY (%) 12/3/2013	Sample SYSTEM EFFLUENT 12/3/2013	Calculation CARBON VESSEL 2 REMOVAL EFFICIENCY (%) 12/3/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L							
Aliphatic Compounds							
1,1,1-Trichloroethane	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,1,2,2-Tetrachloroethane	3100	84	97.3%	53	36.9%	16	69.8%
1,1,2-Trichloroethane	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,1-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Carbon tetrachloride	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Chloromethane (Methyl chloride)	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
cis-1,2-Dichloroethene	2200	17	99.2%	21	-23.5%	16	23.8%
Methylene chloride (Dichloromethane)	220	2	99.1%	1.5	25.0%	1.2	20.0%
Tetrachloroethene (PCE)	6800	16	99.8%	8.7	45.6%	1.8	79.3%
trans-1,2-Dichloroethene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
Trichloroethene (TCE)	20000	76	99.6%	80	-5.3%	26	67.5%
Vinyl Chloride	180	1.0 U	99.4%	1.0 U	NA	1.0 U	NA
Aromatic Compounds							
1,2,4-Trichlorobenzene	900	4.2	99.5%	1.3	69.0%	1.0 U	NA
1,2-Dichlorobenzene	100 U	1.0 U	NA	1.0 U	NA	1.0 U	NA
1,3-Dichlorobenzene	140	1.1	99.2%	1.0 U	9.1%	1.0 U	NA
1,4-Dichlorobenzene	180	1.6	99.1%	1.0 U	37.5%	1.0 U	NA
Benzene	110	1.0 U	99.1%	1.0 U	NA	1.0 U	NA
Chlorobenzene	110	1.0 U	99.1%	1.0 U	NA	1.0 U	NA
Pesticide Concentrations - SW846 8081 µg/L							
alpha-BHC	73	35	52.1%	4.0	88.6%	0.31	92.3%
beta-BHC	8.1	7.1	12.3%	3.3	53.5%	0.72	78.2%
delta-BHC	6.1	5.1	16.4%	2.4	52.9%	0.46	80.8%
gamma-BHC (Lindane)	55	31	43.6%	4.4	85.8%	0.19	95.7%
Total Metal Concentrations - SW846 7470 ug/L							
Mercury	0.27	0.26	3.7%	0.20 U	23.1%	0.20 U	NA

Notes:
U - constituent not detected - reporting limit shown.
ug/L - micrograms per liter
mg/L - milligrams per liter
NA - not applicable

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.1: April 2, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	4/2/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A-ZONE				
OBA-1A	562.8	571.02	4.74	566.28
OBA-2A	561.6	572.93	Dry	561.60
OBA-5A	558.2	572.21	7.36	564.85
OBA-6A	561.4	570.75	5.14	565.61
OBA-7A	563	573.97	7.60	566.37
OBA-8A	560.2	573.52	10.89	562.63
OBA-9A	558.3	569.75	8.23	561.52
OBA-9AR	557.9	570.68	12.78	557.90
OBA-11A	559.2	573.22	12.96	560.26
OBA-16A	560.9	573.55	10.90	562.65
OBA-18A	559.9	573.85	13.14	560.71
OBA-19A	558.6	574.34	12.75	561.59
OBA-23A	561.4	570.72	8.64	562.08
PN-1A	560.8	571.01	6.47	564.54
PN-2A	562	571.20	Dry	562.00
PN-3A	559.7	571.43	10.01	561.42
PN-4A	559.1	568.78	8.75	560.03
PN-5A	559.1	569.10	7.01	562.09
PN-6A	559.2	568.93	6.21	562.72
PN-7A	558.9	568.70	5.88	562.82
PN-8A	557.8	568.83	4.56	564.27
PN-9A	559.47	571.26	10.73	560.53
PN-10A	561.8	570.56	8.73	561.83
PN-11A	558.9	568.54	4.69	563.85
PN-13A	560.46	573.70	8.91	564.79
PN-14A	561.05	573.79	8.81	564.98
PN-15A	559.93	571.15	6.91	564.24
PN-16A	560.67	570.92	8.48	562.44
PN-17A	560.81	571.04	6.15	564.89
PN-18A	562.03	570.77	8.03	562.74
PN-19A	562.43	571.20	7.28	563.92
PN-20A	558.82	570.49	7.83	562.66
PN-21A	559.19	569.88	4.75	565.13
Gill Creek Stilling Well[1]	NA	NA	NA	562.82
A/B-ZONE[4,5]				
PR-1	561.8	572.82	10.39	562.43
PR-1-PZ	561.8	571.58	9.17	562.41
PR-2	561.7	572.72	15.52	557.20
PR-2-PZ	561.7	572.70	15.28	557.42
PR-3	558.2	572.79	15.34	557.45

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.1: April 2, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	4/2/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A/B-ZONE CONTINUED[4,5]				
PR-3-PZ	558.2	572.16	14.73	557.43
PR-4	556.7	570.21	17.90	552.31
PR-4-PZ	556.7	570.14	14.98	555.16
PR-5	559.1	570.68	13.02	557.66
PR-5-PZ	559.1	569.69	11.98	557.71
PR-6	559.7	568.70	9.93	558.77
PR-7	558.9	569.06	7.53	561.53
PR-8	559.2	568.42	5.97	562.45
PR-9	556.6	568.72	6.79	561.93
PR-10	558.9	568.44	8.00	560.44
PR-11	559.1	568.01	4.10	563.91
PR-12	558.9	569.79	12.41	557.38
PR-13	559.4	569.07	11.14	557.93
RW-1	561.2	573.69	16.94	556.75
RW-1-PZ	561.2	572.73	15.73	557.00
RW-2	557	572.49	15.03	557.46
RW-2-PZ	557	572.22	14.79	557.43
RW-3	557.1	570.09	12.49	557.60
RW-3-PZ	557.1	570.03	12.52	557.51
RW-4	557.3	569.77	12.11	557.66
RW-4-PZ	557.3	569.81	12.41	557.40
RW-5	557.3	569.79	12.36	557.43
RW-5-PZ	557.3	569.74	12.34	557.40
OBA-1B	NA	570.90	9.32	561.58
OBA-2B	NA	573.07	15.74	557.33
OBA-5B	NA	572.70	13.37	559.33
OBA-6B	NA	570.71	4.75	565.96
OBA-7B	NA	574.47	10.49	563.98
OBA-8B	NA	573.24	14.31	558.93
OBA-11B	NA	573.29	16.01	557.28
OBA-16B	NA	573.47	15.98	557.49
OBA-23B	NA	570.54	13.44	557.10
PN-1B	NA	570.87	13.42	557.45
PN-2B	NA	571.01	13.59	557.42
PN-3B	NA	571.36	13.92	557.44
PN-4B	NA	568.69	11.46	557.23
PN-5B	NA	569.10	11.65	557.45
PN-6B	NA	569.07	11.61	557.46
PN-7B	NA	568.95	11.24	557.71
PN-8B	NA	568.38	10.97	557.41
PN-9B	NA	571.90	13.72	558.18
PN-10B	NA	571.63	14.64	556.99

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.1: April 2, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	4/2/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
B-ZONE CONTINUED[5]				
PN-11B	NA	568.21	10.53	557.68
PN-12B	NA	570.43	12.70	557.73
PN-13B	NA	573.73	16.02	557.71
PN-14B	NA	573.76	15.85	557.91
PN-15B	NA	571.14	13.50	557.64
PN-16B	NA	570.85	10.52	560.33
PN-17B	NA	571.07	13.82	557.25
PN-18B	NA	570.83	13.31	557.52
PN-19B	NA	571.11	13.31	557.80
PN-20B	NA	570.21	12.86	557.35
PN-21B	NA	569.85	11.15	558.70
C-ZONE				
OBA-1C	NA	570.96	14.97	555.99
OBA-4C	NA	573.54	16.18	557.36
OBA-7C	NA	574.85	19.38	555.47
OBA-14C	NA	570.61	14.89	555.72
OBA-15B	NA	573.58	16.23	557.35
CD-ZONE				
OBA-2C	NA	573.12	17.83	555.29
OBA-3C	NA	573.14	17.84	555.30
OBA-5C	NA	572.46	17.67	554.79
OBA-6C	NA	570.71	15.15	555.56
OBA-8C	NA	573.81	20.80	553.01
OBA-11C	NA	573.37	16.84	556.53
Olin Production Well[2]	NA	NA	504	554.9

Notes:

1. The Gill Creek Stilling Well is monitored with a dedicated level transducer which collects hourly elevation measurements. The water elevation shown and used to prepare the A-Zone potentiometric surface map is the average hourly elevation for the date shown.
2. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate is shown in place of the depth to water.
3. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.

Notes Continued:

4. Water elevations from the A/B-Zone wells with red text were used for the A-Zone potentiometric surface map.
5. The blue highlighted wells were not used when preparing the B-Zone potentiometric surface map. These appear to be poorly or not connected to the B-Zone based on their typical water elevations which are more than 2 feet higher than the average B-Zone elevation.

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.2: June 25, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	6/25/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A-ZONE				
OBA-1A	562.8	571.02	4.05	566.97
OBA-2A	561.6	572.93	Dry	561.60
OBA-4A	558.7	572.88	12.07	560.81
OBA-5A	558.2	572.21	7.30	564.91
OBA-6A	561.4	570.75	5.19	565.56
OBA-7A	563	573.97	7.59	566.38
OBA-8A	560.2	573.52	10.76	562.76
OBA-9A	558.3	569.75	7.90	561.85
OBA-9AR	557.9	570.68	13.38	557.30
OBA-11A	559.2	573.22	12.93	560.29
OBA-14A	552.5	571.10	13.15	557.95
OBA-15A	551	573.08	15.60	557.48
OBA-16A	560.9	573.55	10.44	563.11
OBA-18A	559.9	573.85	13.10	560.75
OBA-19A	558.6	574.34	12.61	561.73
OBA-23A	561.4	570.72	8.47	562.25
OBA-24A	558.23	569.45	6.31	563.14
OBA-25A	558.44	569.47	5.21	564.26
OBA-26A	557.75	570.04	6.21	563.83
PN-1A	560.8	571.01	6.25	564.76
PN-2A	562	571.20	8.99	562.21
PN-3A	559.7	571.43	8.88	562.55
PN-4A	559.1	568.78	6.92	561.86
PN-5A	559.1	569.10	6.39	562.71
PN-6A	559.2	568.93	5.85	563.08
PN-7A	558.9	568.70	5.69	563.01
PN-8A	557.8	568.83	4.70	564.13
PN-9A	559.47	571.26	10.09	561.17
PN-10A	561.8	570.56	8.66	561.90
PN-11A	558.9	568.54	4.71	563.83
PN-13A	560.46	573.70	8.49	565.21
PN-14A	561.05	573.79	8.38	565.41
PN-15A	559.93	571.15	7.15	564.00
PN-16A	560.67	570.92	7.31	563.61
PN-17A	560.81	571.04	5.42	565.62
PN-18A	562.03	570.77	6.68	564.09
PN-19A	562.43	571.20	7.23	563.97
PN-20A	558.82	570.49	7.80	562.69
PN-21A	559.19	569.88	4.70	565.18
Gill Creek Stilling Well[1]	NA	NA	NA	562.64

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.2: June 25, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	6/25/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A/B-ZONE[4,5]				
PR-1	561.8	572.82	9.60	563.22
PR-1-PZ	561.8	571.58	8.30	563.28
PR-2	561.7	572.72	14.85	557.87
PR-2-PZ	561.7	572.70	14.94	557.76
PR-3	558.2	572.79	15.15	557.64
PR-3-PZ	558.2	572.16	14.45	557.71
PR-4	556.7	570.21	14.27	555.94
PR-4-PZ	556.7	570.14	13.92	556.22
PR-5	559.1	570.68	12.71	557.97
PR-5-PZ	559.1	569.69	11.71	557.98
PR-6	559.7	568.70	9.80	558.90
PR-7	558.9	569.06	7.16	561.90
PR-8	559.2	568.42	5.62	562.80
PR-9	556.6	568.72	6.53	562.19
PR-10	558.9	568.44	7.63	560.81
PR-11	559.1	568.01	4.30	563.71
PR-12	558.9	569.79	8.94	560.85
PR-13	559.4	569.07	10.90	558.17
RW-1	561.2	573.69	15.88	557.81
RW-1-PZ	561.2	572.73	14.93	557.80
RW-2	557	572.49	14.77	557.72
RW-2-PZ	557	572.22	14.52	557.70
RW-3	557.1	570.09	12.20	557.89
RW-3-PZ	557.1	570.03	12.22	557.81
RW-4	557.3	569.77	11.70	558.07
RW-4-PZ	557.3	569.81	12.10	557.71
RW-5	557.3	569.79	10.98	558.81
RW-5-PZ	557.3	569.74	12.09	557.65
B-ZONE[5]				
OBA-1B	NA	570.90	9.46	561.44
OBA-2B	NA	573.07	15.45	557.62
OBA-5B	NA	572.70	13.16	559.54
OBA-6B	NA	570.71	4.91	565.80
OBA-7B	NA	574.47	10.35	564.12
OBA-8B	NA	573.24	14.05	559.19
OBA-11B	NA	573.29	15.74	557.55
OBA-14B	NA	571.26	13.67	557.59
OBA-16B	NA	573.47	15.66	557.81
OBA-23B	NA	570.54	12.53	558.01
OBA-24B	NA	569.28	11.27	558.01
OBA-25B	NA	569.45	11.44	558.01
PN-1B	NA	570.87	12.65	558.22

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.2: June 25, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	6/25/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
B-ZONE CONTINUED[5]				
PN-2B	NA	571.01	13.26	557.75
PN-3B	NA	571.36	13.66	557.70
PN-4B	NA	568.69	11.24	557.45
PN-5B	NA	569.10	11.37	557.73
PN-6B	NA	569.07	11.34	557.73
PN-7B	NA	568.95	10.97	557.98
PN-8B	NA	568.38	10.75	557.63
PN-9B	NA	571.90	13.45	558.45
PN-10B	NA	571.63	13.76	557.87
PN-11B	NA	568.21	10.33	557.88
PN-12B	NA	570.43	12.34	558.09
PN-13B	NA	573.73	15.61	558.12
PN-14B	NA	573.76	15.30	558.46
PN-15B	NA	571.14	13.21	557.93
PN-16B	NA	570.85	9.41	561.44
PN-17B	NA	571.07	13.09	557.98
PN-18B	NA	570.83	12.80	558.03
PN-19B	NA	571.11	11.15	559.96
PN-20B	NA	570.21	12.59	557.62
PN-21B	NA	569.85	10.55	559.30
C-ZONE				
OBA-1C	NA	570.96	14.50	556.46
OBA-4C	NA	573.54	15.88	557.66
OBA-7C	NA	574.85	18.68	556.17
OBA-14C	NA	570.61	14.53	556.08
OBA-15B	NA	573.58	15.97	557.61
CD-ZONE				
OBA-2C	NA	573.12	17.06	556.06
OBA-3C	NA	573.14	17.44	555.70
OBA-5C	NA	572.46	16.65	555.81
OBA-6C	NA	570.71	14.32	556.39
OBA-8C	NA	573.81	20.25	553.56
OBA-11C	NA	573.37	16.60	556.77
Olin Production Well[2]	NA	NA	493	554.9

Notes:

1. The Gill Creek Stilling Well is monitored with a dedicated level transducer which collects hourly elevation measurements. The water elevation shown and used to prepare the A-Zone potentiometric surface map is the average hourly elevation for the date shown.

Notes Continued:

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.2: June 25, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	6/25/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)

2. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate is shown in place of the depth to water.

3. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.

4. Water elevations from the A/B-Zone wells with red text were used for the A-Zone potentiometric surface map.

5. The blue highlighted wells were not used when preparing the B-Zone potentiometric surface map. These appear to be poorly or not connected to the B-Zone based on their typical water elevations which are more than 2 feet higher than the average B-Zone elevation.

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.3: September 6, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	9/6/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A-ZONE				
OBA-1A	562.8	571.02	4.27	566.75
OBA-2A	561.6	572.93	DRY	561.6
OBA-4A	558.7	572.88	12.81	560.07
OBA-5A	558.2	572.21	7.33	564.88
OBA-6A	561.4	570.75	5.28	565.47
OBA-7A	563	573.97	7.93	566.04
OBA-8A	560.2	573.52	11.17	562.352
OBA-9A	558.3	569.75	8.44	561.31
OBA-9AR	557.9	570.68	13.59	557.09
OBA-11A	559.2	573.22	12.97	560.25
OBA-14A	552.5	571.10	13.09	558.01
OBA-15A	551	573.08	16.08	557
OBA-16A	560.9	573.55	10.88	562.67
OBA-18A	559.9	573.85	13.12	560.73
OBA-19A	558.6	574.34	13.11	561.23
OBA-23A	561.4	570.72	8.88	561.84
OBA-24A	558.23	569.45	6.62	562.83
OBA-25A	558.44	569.47	5.37	564.1
OBA-26A	557.75	570.04	6.38	563.66
PN-1A	560.8	571.01	6.51	564.5
PN-2A	562	571.20	DRY	562
PN-3A	559.7	571.43	9.16	562.27
PN-4A	559.1	568.78	6.97	561.81
PN-5A	559.1	569.10	6.42	562.68
PN-6A	559.2	568.93	5.97	562.96
PN-7A	558.9	568.70	5.8	562.9
PN-8A	557.8	568.83	4.79	564.04
PN-9A	559.47	571.26	10.31	560.95
PN-10A	561.8	570.56	8.81	561.75
PN-11A	558.9	568.54	4.75	563.79
PN-13A	560.46	573.70	8.66	565.04
PN-14A	561.05	573.79	8.51	565.28
PN-15A	559.93	571.15	6.97	564.18
PN-16A	560.67	570.92	7.87	563.05
PN-17A	560.81	571.04	5.89	565.15
PN-18A	562.03	570.77	7.54	563.23
PN-19A	562.43	571.20	7.28	563.92
PN-20A	558.82	570.49	8	562.49
PN-21A	559.19	569.88	4.78	565.1
Gill Creek Stilling Well[1]	NA	NA	NA	562.73

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.3: September 6, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	9/6/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A/B-ZONE[4,5]				
PR-1	561.8	572.82	9.81	563.01
PR-1-PZ	561.8	571.58	8.59	562.99
PR-2	561.7	572.72	14.99	557.73
PR-2-PZ	561.7	572.70	14.94	557.76
PR-3	558.2	572.79	15.09	557.7
PR-3-PZ	558.2	572.16	14.45	557.71
PR-4	556.7	570.21	12.4	557.81
PR-4-PZ	556.7	570.14	12.42	557.72
PR-5	559.1	570.68	12.71	557.97
PR-5-PZ	559.1	569.69	11.73	557.96
PR-6	559.7	568.70	9.89	558.81
PR-7	558.9	569.06	7.25	561.81
PR-8	559.2	568.42	5.73	562.69
PR-9	556.6	568.72	6.67	562.05
PR-10	558.9	568.44	7.68	560.76
PR-11	559.1	568.01	4.3	563.71
PR-12	558.9	569.79	11.66	558.13
PR-13	559.4	569.07	10.99	558.08
RW-1	561.2	573.69	16.11	557.58
RW-1-PZ	561.2	572.73	15.09	557.64
RW-2	557	572.49	14.73	557.76
RW-2-PZ	557	572.22	14.51	557.71
RW-3	557.1	570.09	12.19	557.9
RW-3-PZ	557.1	570.03	12.25	557.78
RW-4	557.3	569.77	11.34	558.43
RW-4-PZ	557.3	569.81	12.02	557.79
RW-5	557.3	569.79	11.97	557.82
RW-5-PZ	557.3	569.74	11.86	557.88
B-ZONE[5]				
OBA-1B	NA	570.90	11.33	559.57
OBA-2B	NA	573.07	15.44	557.63
OBA-5B	NA	572.70	13.23	559.47
OBA-6B	NA	570.71	5.28	565.43
OBA-7B	NA	574.47	10.66	563.81
OBA-8B	NA	573.24	14.71	558.53
OBA-11B	NA	573.29	16.33	556.96
OBA-14B	NA	571.26	13.69	557.57
OBA-16B	NA	573.47	15.69	557.78
OBA-23B	NA	570.54	12.76	557.78
OBA-24B	NA	569.28	11.32	557.96
OBA-25B	NA	569.45	11.53	557.92
PN-1B	NA	570.87	12.98	557.89

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.3: September 6, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	9/6/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
B-ZONE CONTINUED[5]				
PN-2B	NA	571.01	13.24	557.77
PN-3B	NA	571.36	13.68	557.68
PN-4B	NA	568.69	11.16	557.53
PN-5B	NA	569.10	11.4	557.7
PN-6B	NA	569.07	11.3	557.77
PN-7B	NA	568.95	11	557.95
PN-8B	NA	568.38	10.65	557.73
PN-9B	NA	571.90	13.52	558.38
PN-10B	NA	571.63	13.91	557.72
PN-11B	NA	568.21	10.38	557.83
PN-12B	NA	570.43	12.42	558.01
PN-13B	NA	573.73	15.72	558.01
PN-14B	NA	573.76	14.55	559.21
PN-15B	NA	571.14	13.26	557.88
PN-16B	NA	570.85	10.36	560.49
PN-17B	NA	571.07	13.09	557.98
PN-18B	NA	570.83	12.69	558.14
PN-19B	NA	571.11	13	558.11
PN-20B	NA	570.21	12.6	557.61
PN-21B	NA	569.85	10.8	559.05
C-ZONE				
OBA-1C	NA	570.96	14.69	556.27
OBA-4C	NA	573.54	15.88	557.66
OBA-7C	NA	574.85	18.89	555.96
OBA-14C	NA	570.61	14.53	556.08
OBA-15B	NA	573.58	15.96	557.62
CD-ZONE				
OBA-2C	NA	573.12	17.23	555.89
OBA-3C	NA	573.14	17.54	555.6
OBA-5C	NA	572.46	16.83	555.63
OBA-6C	NA	570.71	14.29	556.42
OBA-8C	NA	573.81	20.53	553.28
OBA-11C	NA	573.37	17.23	556.14
Olin Production Well[2]	NA	NA	570	554.5

Notes:

1. The Gill Creek Stilling Well is monitored with a dedicated level transducer which collects hourly elevation measurements. The water elevation shown and used to prepare the A-Zone potentiometric surface map is the average hourly elevation for the date shown.

Notes Continued:

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.3: September 6, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	9/6/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)

2. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate is shown in place of the depth to water.

3. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.

4. Water elevations from the A/B-Zone wells with red text were used for the A-Zone and B-Zone potentiometric surface maps.

5. The blue highlighted wells were not used when preparing the B-Zone potentiometric surface map. These appear to be poorly or not connected to the B-Zone based on their typical water elevations which are more than 2 feet higher than the average B-Zone elevation.

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.4: December 3, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	12/3/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A-ZONE				
OBA-1A	562.8	571.02	3.11	567.91
OBA-2A	561.6	572.93	DRY	561.6
OBA-5A	558.2	572.21	7.36	564.85
OBA-6A	561.4	570.75	5.1	565.65
OBA-7A	563	573.97	7.22	566.75
OBA-8A	560.2	573.52	10.34	563.182
OBA-9A	558.3	569.75	8.28	561.47
OBA-9AR	557.9	570.68	12.8	557.88
OBA-11A	559.2	573.22	12.98	560.24
OBA-16A	560.9	573.55	10.17	563.38
OBA-18A	559.9	573.85	13.19	560.66
OBA-19A	558.6	574.74	11.51	563.23
OBA-23A	561.4	570.72	7.96	562.76
PN-1A	560.8	571.01	6.43	564.58
PN-2A	562	571.20	8.42	562.78
PN-3A	559.7	571.43	8.76	562.67
PN-4A	559.1	568.78	7.09	561.69
PN-5A	559.1	569.10	6.64	562.46
PN-6A	559.2	568.93	5.98	562.95
PN-7A	558.9	568.70	5.83	562.87
PN-8A	557.8	568.83	4.4	564.43
PN-9A	559.47	571.26	DRY	559.47
PN-10A	561.8	570.56	8.38	562.18
PN-11A	558.9	568.54	4.64	563.9
PN-13A	560.46	573.70	8.6	565.1
PN-14A	561.05	573.79	8.58	565.21
PN-15A	559.93	571.15	6.92	564.23
PN-16A	560.67	570.92	6.9	564.02
PN-17A	560.81	571.04	5.03	566.01
PN-18A	562.03	570.77	6.43	564.34
PN-19A	562.43	571.20	7.37	563.83
PN-20A	558.82	570.49	9.73	560.76
PN-21A	559.19	569.88	4.75	565.13
Gill Creek Stilling Well[1]	NA	NA	NA	562.49
A/B-ZONE[4,5]				
PR-1	561.8	572.82	8.91	563.91
PR-1-PZ	561.8	571.58	7.67	563.91
PR-2	561.7	572.72	14.92	557.8
PR-2-PZ	561.7	572.70	15.28	557.42
PR-3	558.2	572.79	15.5	557.29
PR-3-PZ	558.2	572.16	14.86	557.3

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.4: December 3, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	12/3/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
A/B-ZONE CONTINUED[4,5]				
PR-4	556.7	570.21	13.9	556.31
PR-4-PZ	556.7	570.14	13.65	556.49
PR-5	559.1	570.68	12.97	557.71
PR-5-PZ	559.1	569.69	12.11	557.58
PR-6	559.7	568.70	10.33	558.37
PR-7	558.9	569.06	7.36	561.7
PR-8	559.2	568.42	5.77	562.65
PR-9	556.6	568.72	6.58	562.14
PR-10	558.9	568.44	8.09	560.35
PR-11	559.1	568.01	NM	NM
PR-12	558.9	569.79	12.47	557.32
PR-13	559.4	569.07	11.19	557.88
RW-1	561.2	573.69	16.09	557.6
RW-1-PZ	561.2	572.73	15.14	557.59
RW-2	557	572.49	15.17	557.32
RW-2-PZ	557	572.22	14.92	557.3
RW-3	557.1	570.09	12.62	557.47
RW-3-PZ	557.1	570.03	12.64	557.39
RW-4	557.3	569.77	NM	NM
RW-4-PZ	557.3	569.81	12.52	557.29
RW-5	557.3	569.79	12.52	557.27
RW-5-PZ	557.3	569.74	12.5	557.24
B-ZONE[5]				
OBA-1B	NA	570.90	NM	NM
OBA-2B	NA	573.07	15.82	557.25
OBA-5B	NA	572.70	13.2	559.5
OBA-6B	NA	570.71	5.1	565.61
OBA-7B	NA	574.47	10.17	564.3
OBA-8B	NA	573.24	14.72	558.52
OBA-11B	NA	573.29	16.09	557.2
OBA-16B	NA	573.47	15.97	557.5
OBA-23B	NA	570.54	12.68	557.86
PN-1B	NA	570.87	12.79	558.08
PN-2B	NA	571.01	13.61	557.4
PN-3B	NA	571.36	14.07	557.29
PN-4B	NA	568.69	11.58	557.11
PN-5B	NA	569.10	11.79	557.31
PN-6B	NA	569.07	11.7	557.37
PN-7B	NA	568.95	11.4	557.55
PN-8B	NA	568.38	11.08	557.3
PN-9B	NA	571.90	13.86	558.04
PN-10B	NA	571.63	13.91	557.72

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 4.4: December 3, 2013 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	12/3/2013	
			Depth to Water (feet btoc)	Water Elevation[3] (feet)
B-ZONE CONTINUED[5]				
PN-11B	NA	568.21	10.71	557.5
PN-12B	NA	570.43	12.69	557.74
PN-13B	NA	573.73	16	557.73
PN-14B	NA	573.76	13.2	560.56
PN-15B	NA	571.14	13.58	557.56
PN-16B	NA	570.85	8.88	561.97
PN-17B	NA	571.07	12.97	558.1
PN-18B	NA	570.83	12.51	558.32
PN-19B	NA	571.11	12.82	558.29
PN-20B	NA	570.21	12.92	557.29
PN-21B	NA	569.85	10.9	558.95
C-ZONE				
OBA-1C	NA	570.96	14.89	556.07
OBA-4C	NA	573.54	16.3	557.24
OBA-7C	NA	574.85	19.79	555.06
OBA-14C	NA	570.61	15.17	555.44
OBA-15B	NA	573.58	16.32	557.26
CD-ZONE				
OBA-2C	NA	573.12	17.7	555.42
OBA-3C	NA	573.14	18.09	555.05
OBA-5C	NA	572.46	17.58	554.88
OBA-6C	NA	570.71	14.86	555.85
OBA-8C	NA	573.81	21.58	552.23
OBA-11C	NA	573.37	16.92	556.45
Olin Production Well[2]	NA	NA	515	554.8

Notes:

1. The Gill Creek Stilling Well is monitored with a dedicated level transducer which collects hourly elevation measurements. The water elevation shown and used to prepare the A-Zone potentiometric surface map is the average hourly elevation for the date shown.
2. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate is shown in place of the depth to water.
3. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.
4. Water elevations from the A/B-Zone wells with red text were used for the A-Zone potentiometric surface map.
5. The blue highlighted wells were not used when preparing the B-Zone potentiometric surface map. These appear to be poorly or not connected to the B-Zone based on their typical water elevations which are more than 2 feet higher than the average B-Zone elevation.

Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample OBA-1A 7/2/2013	Sample OBA-1B 7/2/2013	Sample OBA-2B 7/2/2013	Sample OBA-4B 6/28/2013	Sample OBA-5A 7/2/2013	Sample OBA-5B 7/2/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	50 U	500 U
1,1,2,2-Tetrachloroethane	1 U	1 U	9.3	1 U	50 U	860
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	50 U	500 U
1,1-Dichloroethene	1 U	2.1	1 U	1 U	50 U	500 U
Carbon tetrachloride	1 U	1 U	1 U	1 U	50 U	500 U
Chloromethane (Methyl chloride)	1 U	1 U	1 U	1 U	50 U	500 U
cis-1,2-Dichloroethene	1 U	23	46	21	470	10000
Methylene chloride (Dichloromethane)	1 U	1 U	1 U	1 U	50 U	500 U
Tetrachloroethene (PCE)	1 U	20	39	1 U	340	16000
trans-1,2-Dichloroethene	1 U	1.4	1.3	1 U	50 U	500 U
Trichloroethene (TCE)	1 U	45	76	3	230	76000
Vinyl Chloride	1 U	29	1 U	6.2	180	800
Aromatic Compounds						
1,2,4-Trichlorobenzene	1 U	1 U	360	1 U	8500	12000
1,2-Dichlorobenzene	1 U	1 U	6.9	1 U	500	2400
1,3-Dichlorobenzene	1 U	1 U	12	1 U	1400	1700
1,4-Dichlorobenzene	1 U	1 U	3.4	1 U	1100	1300
Benzene	1 U	1 U	1 U	1 U	720	28000
Chlorobenzene	1 U	1 U	1 U	3.3	760	18000
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	0.47 J	0.05 J	1.2 J	0.047 U	270 J	530 J
beta-BHC	7.2	0.055	0.33	0.073	72	130
delta-BHC	0.47 U	0.047 U	0.047 U	0.047 U	24 U	24 U
gamma-BHC (Lindane)	0.47 U	0.047 U	0.06	0.047 U	150	600
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	23.1	0.20 U	0.20 U	0.20 U	0.20 U

Notes:

U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample OBA-6A 7/5/2013	Sample OBA-6B 7/5/2013	Sample OBA-8A 6/28/2013	Sample OBA-8B 6/28/2013	Sample OBA-11B 6/28/2013	Duplicate OBA-11B 6/28/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	1 U	1 U	1 U	20 U	25 U	25 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	20 U	25 U	25 U
1,1,2-Trichloroethane	1 U	1 U	1 U	20 U	25 U	25 U
1,1-Dichloroethene	1 U	1 U	1 U	20 U	25 U	27
Carbon tetrachloride	1 U	1 U	1 U	20 U	25 U	25 U
Chloromethane (Methyl chloride)	1 U	1 U	1 U	20 U	25 U	25 U
cis-1,2-Dichloroethene	1 U	38	1 U	28	3900	4000
Methylene chloride (Dichloromethane)	1 U	1 U	1 U	20 U	25 U	25 U
Tetrachloroethene (PCE)	1 U	32	1.7	29	25 U	25 U
trans-1,2-Dichloroethene	1 U	1 U	1 U	20 U	38	39
Trichloroethene (TCE)	1 U	28	3.8	48	28	26
Vinyl Chloride	1 U	13	1 U	20 U	1500	1500
Aromatic Compounds						
1,2,4-Trichlorobenzene	1.1	120	1 U	3700	280	240
1,2-Dichlorobenzene	1 U	24	1 U	160	25 U	25 U
1,3-Dichlorobenzene	1 U	20	1 U	280	30	33
1,4-Dichlorobenzene	1 U	27	1 U	46	25 U	25 U
Benzene	1 U	7.6	1 U	20 U	25 U	25 U
Chlorobenzene	1 U	4.6	1 U	20 U	25 U	25 U
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	0.047 U	0.047 U	0.077	1.7	5.9	5.3
beta-BHC	0.058	0.18 J	0.28	0.93	0.9	0.86
delta-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.24 U	0.24 U
gamma-BHC (Lindane)	0.047 U	0.047 U	0.047 U	0.047 U	0.24 U	0.24 U
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	3.43	0.20 U	0.20 U	0.26	0.27

Notes:

U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample OBA-14B 6/28/2013	Sample OBA-16A 7/2/2013	Sample OBA-16B 6/28/2013	Sample OBA-23A 7/2/2013	Sample OBA-23B 7/2/2013	Duplicate OBA-23B 7/2/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	100 U	1 U	1 U	1 U	2.5 U	2 U
1,1,2,2-Tetrachloroethane	1600	1 U	2.9	1 U	2.5 U	2 U
1,1,2-Trichloroethane	100 U	1 U	1 U	1 U	2.5 U	2 U
1,1-Dichloroethene	100 U	1 U	1.2	1 U	2.5 U	2 U
Carbon tetrachloride	100 U	1 U	1 U	1 U	2.5 U	2 U
Chloromethane (Methyl chloride)	100 U	1 U	1 U	1 U	2.5 U	2 U
cis-1,2-Dichloroethene	2800	1 U	74	1 U	7.4	6.9
Methylene chloride (Dichloromethane)	100 U	1 U	1 U	1 U	2.5 U	2 U
Tetrachloroethene (PCE)	4700	2.7	190	4.4	2.5 U	2 U
trans-1,2-Dichloroethene	100 U	1 U	2	1 U	2.5 U	2 U
Trichloroethene (TCE)	13000	3.7	360	7.1	2.9	2.2
Vinyl Chloride	110	1 U	6.9	1 U	2.5 U	2 U
Aromatic Compounds						
1,2,4-Trichlorobenzene	170	9.3	250	1 U	390	360
1,2-Dichlorobenzene	120	1 U	9.8	1 U	9.9	9.8
1,3-Dichlorobenzene	100 U	1 U	64	1 U	270	290
1,4-Dichlorobenzene	150	1 U	45	1 U	140	130
Benzene	100 U	1 U	7.9	1 U	2.5 U	2 U
Chlorobenzene	100 U	1 U	19	1 U	40	33
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	8.9	0.94 J	25	0.047 J	1.6 J	1.5 J
beta-BHC	2.7	22	17	0.074	0.62	0.6
delta-BHC	1.2	0.94 U	2.3	0.047 U	0.094 U	0.047 U
gamma-BHC (Lindane)	6.2	0.94 U	20	0.047 U	0.094 U	0.047 U
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	2.22 J	5.51	0.76	0.20 U	0.20 U

Notes:
U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample OBA-24B 7/2/2013	Sample OBA-25B 7/2/2013	Sample PN-1A 7/3/2013	Sample PN-3A 7/3/2013	Sample PN-4A 7/3/2013	Sample PN-4B 7/3/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	50 U	1 U	1 U	1 U	1 U	5 U
1,1,2,2-Tetrachloroethane	230	1 U	1 U	1 U	1 U	17
1,1,2-Trichloroethane	57	1 U	1 U	1 U	1 U	5 U
1,1-Dichloroethene	50 U	1 U	1 U	1 U	1 U	5 U
Carbon tetrachloride	50 U	1 U	1 U	1 U	1 U	5 U
Chloromethane (Methyl chloride)	50 U	1 U	1 U	1 U	1 U	5 U
cis-1,2-Dichloroethene	1300	15	5	1.4	1 U	99
Methylene chloride (Dichloromethane)	50 U	1 U	1 U	1 U	1 U	5 U
Tetrachloroethene (PCE)	400	1 U	1 U	1.3	1 U	82
trans-1,2-Dichloroethene	69	1 U	1 U	1 U	1 U	5 U
Trichloroethene (TCE)	7500	1 U	1.6	2.5	1 U	140
Vinyl Chloride	780	35	6.3	1 U	1 U	16
Aromatic Compounds						
1,2,4-Trichlorobenzene	700	1 U	1.4	1 U	1 U	1900 J
1,2-Dichlorobenzene	850	10	1 U	1 U	1 U	40
1,3-Dichlorobenzene	160	12	2.5	1.8	1 U	280
1,4-Dichlorobenzene	660	25	1.9	2.5	1 U	210
Benzene	8200	2	1.6	1 U	1 U	12
Chlorobenzene	1200	44	2.9	5.1	1 U	68
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	33 J	0.047 J	0.047 U	0.47 U	0.047 U	61
beta-BHC	8.8	0.047 U	0.074	12	0.82	8.6
delta-BHC	25	0.047 U	0.047 U	0.47 U	0.047 U	8.9
gamma-BHC (Lindane)	56	0.047 U	0.047 U	0.47 U	0.047 U	72
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	0.20 U	5.42	1.38	0.20 U	6.26

Notes:
U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample PN-5A 7/3/2013	Sample PN-5B 7/3/2013	Sample PN-6A 7/3/2013	Sample PN-6B 7/3/2013	Duplicate PN-6B 7/3/2013	Sample PN-7A 7/3/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	1 U	100 U	1 U	10 U	10 U	1 U
1,1,2,2-Tetrachloroethane	1 U	2200	1 U	44	45	1 U
1,1,2-Trichloroethane	1 U	100 U	1 U	10 U	10 U	1 U
1,1-Dichloroethene	1 U	100 U	1 U	10 U	10 U	1 U
Carbon tetrachloride	1 U	100 U	1 U	10 U	10 U	1 U
Chloromethane (Methyl chloride)	1 U	100 U	1 U	10 U	10 U	1 U
cis-1,2-Dichloroethene	1 U	660	1 U	290	300	1 U
Methylene chloride (Dichloromethane)	1 U	100 U	1 U	10 U	U	1 U
Tetrachloroethene (PCE)	1 U	3600	4.5	290	310	20
trans-1,2-Dichloroethene	1 U	100 U	1 U	10 U	10 U	1 U
Trichloroethene (TCE)	1 U	2600	4.8	250	270	22
Vinyl Chloride	1 U	100 U	1 U	330	350	1 U
Aromatic Compounds						
1,2,4-Trichlorobenzene	1 U	11000	1 U	2600	2800	1 U
1,2-Dichlorobenzene	1 U	890	2.3	190	190	1 U
1,3-Dichlorobenzene	2.5	660	59	200	190	1 U
1,4-Dichlorobenzene	1.5	460	110	250	250	1 U
Benzene	1 U	1700	2.7	390	400	1 U
Chlorobenzene	4.4	1200	170	280	10 U	1 U
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	0.24 U	870	0.047 U	170	180	1.9 U
beta-BHC	6.1	94 U	0.48	24 U	9.4 U	37
delta-BHC	0.24 U	620	0.047 U	27	30	1.9 U
gamma-BHC (Lindane)	0.24 U	2000	0.047 U	210	220	1.9 U
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.43

Notes:
U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample PN-7B 7/3/2013	Sample PN-11A 7/3/2013	Sample PN-11B 7/3/2013	Sample PN-12A 7/3/2013	Sample PN-12B 7/3/2013	Sample PN-14A 7/2/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	20 U	1 U	500 U	1 U	200 U	10 U
1,1,2,2-Tetrachloroethane	20 U	1 U	3400	1 U	330	10 U
1,1,2-Trichloroethane	20 U	1 U	500 U	1 U	200 U	10 U
1,1-Dichloroethene	20 U	1 U	500 U	1 U	200 U	10 U
Carbon tetrachloride	20 U	1 U	500 U	1 U	200 U	10 U
Chloromethane (Methyl chloride)	20 U	1 U	500 U	1 U	200 U	10 U
cis-1,2-Dichloroethene	530	6.7	3800	2.8	7400	10 U
Methylene chloride (Dichloromethane)	20 U	1 U	500 U	1.8 B	200 U	10 U
Tetrachloroethene (PCE)	40	1.1	14000	4.2	12000	11
trans-1,2-Dichloroethene	20 U	1 U	500 U	1 U	200 U	10 U
Trichloroethene (TCE)	36	4.9	89000	5.6	23000	10 U
Vinyl Chloride	560	3.9	1400	1.4	370	10 U
Aromatic Compounds						
1,2,4-Trichlorobenzene	2300	3.4	7400	9.7	15000	170
1,2-Dichlorobenzene	280	1 U	2800	1 U	510	10 U
1,3-Dichlorobenzene	340	1.4	570	10	1100	10 U
1,4-Dichlorobenzene	230	3.2	2700	9.2	430	10 U
Benzene	2100	2.1	500 U	10	550	10 U
Chlorobenzene	470	1 U	560	20	320	10 U
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	110	0.45	360	0.094 U	240	0.47 J
beta-BHC	18	0.22	33	2.1	36	5.5
delta-BHC	5.8	0.12	24 U	0.094 U	9.4 U	0.47 U
gamma-BHC (Lindane)	130	0.99	350	0.094 U	74	0.47 U
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.20 U	0.20 U	0.20 U	0.20 U	2.27	1.68

Notes:

U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample PN-14B 7/2/2013	Sample PN-15A 7/5/2013	Sample PN-15B 7/5/2013	Duplicate PN-15B 7/5/2013	Sample PN-17A 7/5/2013	Sample PN-17B 7/5/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	50 U	2.5 U	50 U	100 U	1 U	100 U
1,1,2,2-Tetrachloroethane	50 U	2.5 U	50 U	100 U	1 U	100 U
1,1,2-Trichloroethane	50 U	2.5 U	50 U	100 U	1 U	100 U
1,1-Dichloroethene	50 U	2.5 U	50 U	100 U	1 U	100 U
Carbon tetrachloride	50 U	2.5 U	50 U	100 U	1 U	100 U
Chloromethane (Methyl chloride)	50 U	2.5 U	50 U	100 U	1 U	100 U
cis-1,2-Dichloroethene	50 U	2.5 U	200	210	1 U	3600
Methylene chloride (Dichloromethane)	50 U	2.5 U	50 U	100 U	1 U	100 U
Tetrachloroethene (PCE)	50 U	2.5 U	850	690	1 U	200
trans-1,2-Dichloroethene	50 U	2.5 U	50 U	100 U	1 U	100 U
Trichloroethene (TCE)	50 U	2.5 U	1800	1500	3.7	3400
Vinyl Chloride	50 U	2.5 U	95	100 U	1 U	310
Aromatic Compounds						
1,2,4-Trichlorobenzene	9400	2.5 U	16000	16000	1.6	10000
1,2-Dichlorobenzene	520	7.3	330	290	3.2	930
1,3-Dichlorobenzene	1800	310	2700	2200	200	1400
1,4-Dichlorobenzene	4900	380	490	370	41	800
Benzene	50 U	8	68	100 U	7.9	220
Chlorobenzene	940	410	55	100 U	8.7	640
Pesticide Concentrations - SW846 8081 ug/L						
alpha-BHC	100	0.16	130	130	0.14	9.4
beta-BHC	9.6	0.099	22	23	0.62	10
delta-BHC	4.7 U	0.047 U	4.7 U	4.7 U	0.047 U	0.47 U
gamma-BHC (Lindane)	4.7 U	0.047 U	6.5	5.9	0.047 U	0.47 U
Total Metal Concentrations - SW846 7470 ug/L						
Total Mercury	0.57	0.20 U	0.89	0.85	170	3.24

Notes:
U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

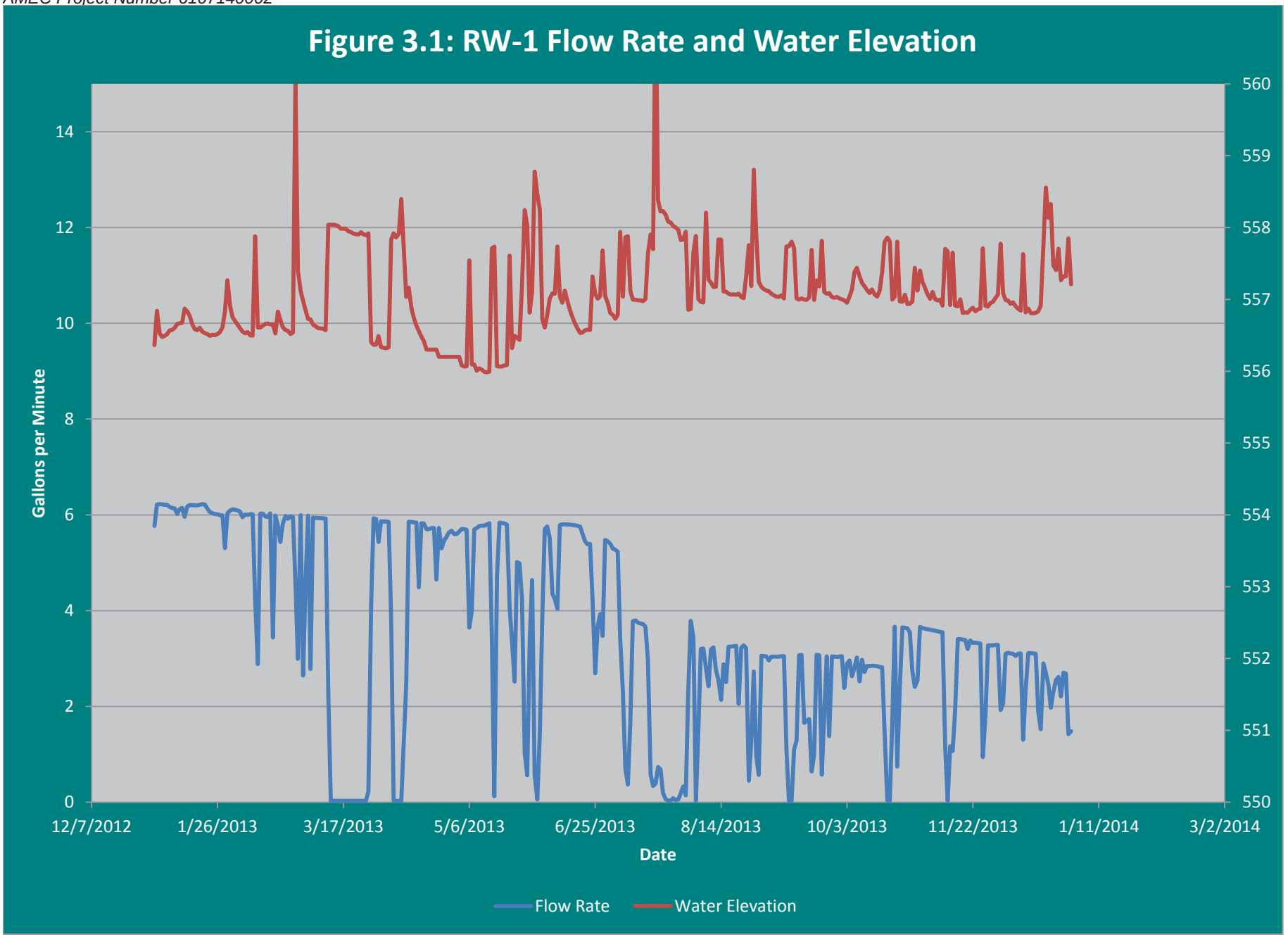
Table 5.1: 2013 Site Groundwater Analytical Results

Well ID: / Sample Date:	Sample PN-18A 7/5/2013	Sample PN-20A 7/5/2013	Sample PN-20B 7/5/2013
Volatile Organic Compound Concentrations - SW846 8260C µg/L			
Aliphatic Compounds			
1,1,1-Trichloroethane	1 U	1 U	100 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1400
1,1,2-Trichloroethane	1 U	1 U	100 U
1,1-Dichloroethene	1 U	1 U	100 U
Carbon tetrachloride	1.3	1 U	100 U
Chloromethane (Methyl chloride)	1 U	1 U	100 U
cis-1,2-Dichloroethene	1 U	1 U	680
Methylene chloride (Dichloromethane)	1 U	1 U	100 U
Tetrachloroethene (PCE)	7.8	9.8	14000
trans-1,2-Dichloroethene	1 U	1 U	100 U
Trichloroethene (TCE)	17	15	7700
Vinyl Chloride	1 U	1 U	10 U
Aromatic Compounds			
1,2,4-Trichlorobenzene	1 U	1 U	120
1,2-Dichlorobenzene	1 U	1 U	270
1,3-Dichlorobenzene	1 U	1 U	100 U
1,4-Dichlorobenzene	1 U	1 U	170
Benzene	1 U	1 U	100 U
Chlorobenzene	1 U	1 U	100 U
Pesticide Concentrations - SW846 8081 ug/L			
alpha-BHC	4.7 U	0.047 U	0.71
beta-BHC	62	0.39	0.32
delta-BHC	4.7 U	0.047 U	0.17
gamma-BHC (Lindane)	4.7 U	0.047 U	0.35
Total Metal Concentrations - SW846 7470 ug/L			
Total Mercury	164	0.20 U	0.20 U

Notes:
U - constituent not detected - reporting limit shown.
J - consituent dectected below method reporting limit - concentration estimated.
ug/L - micrograms per liter
mg/L - milligrams per liter

Prepared By: CC 2/10/2014
Checked By: AWE 2/10/2014

FIGURES



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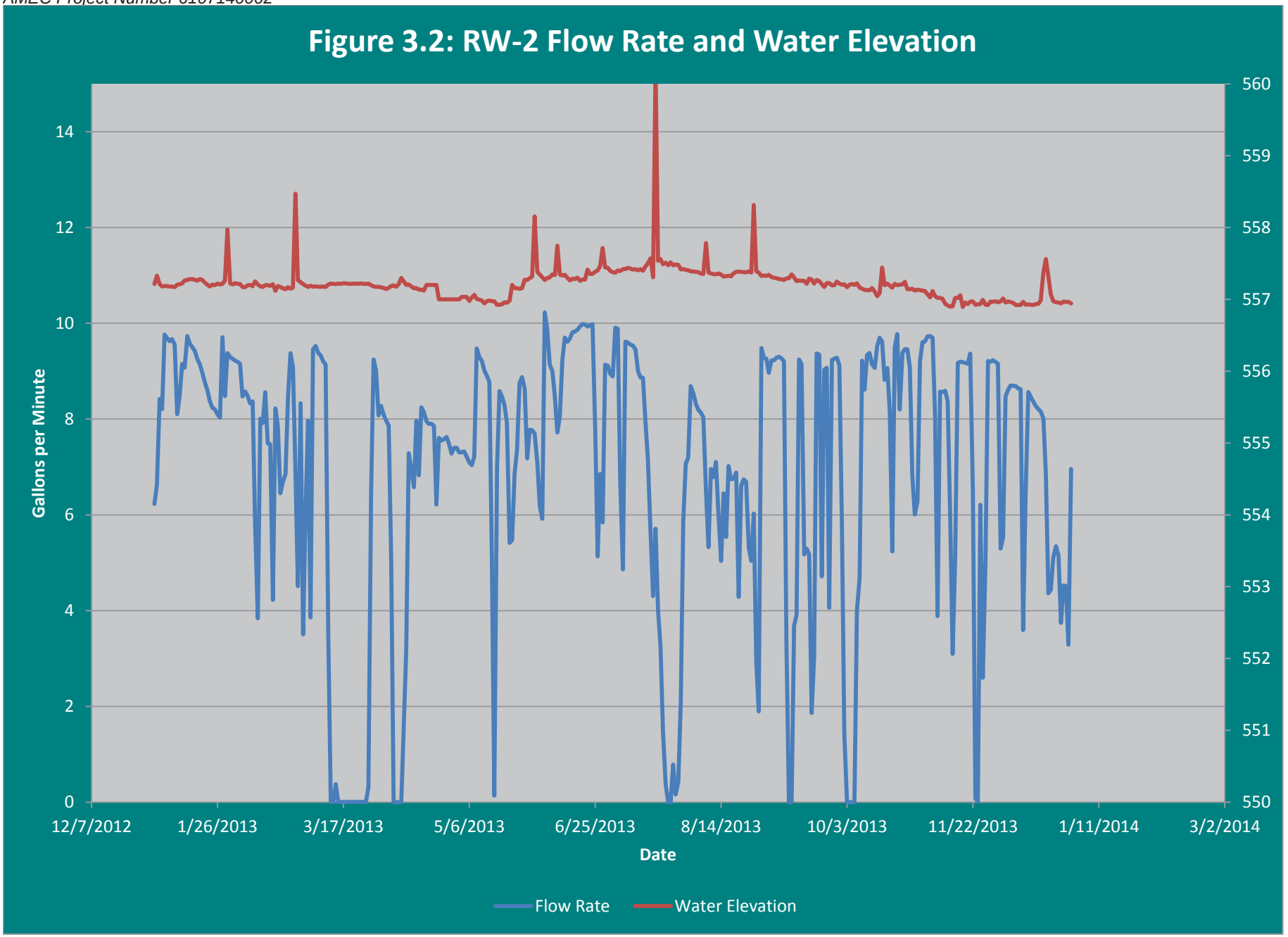
Checked by: JDD 02/06/14



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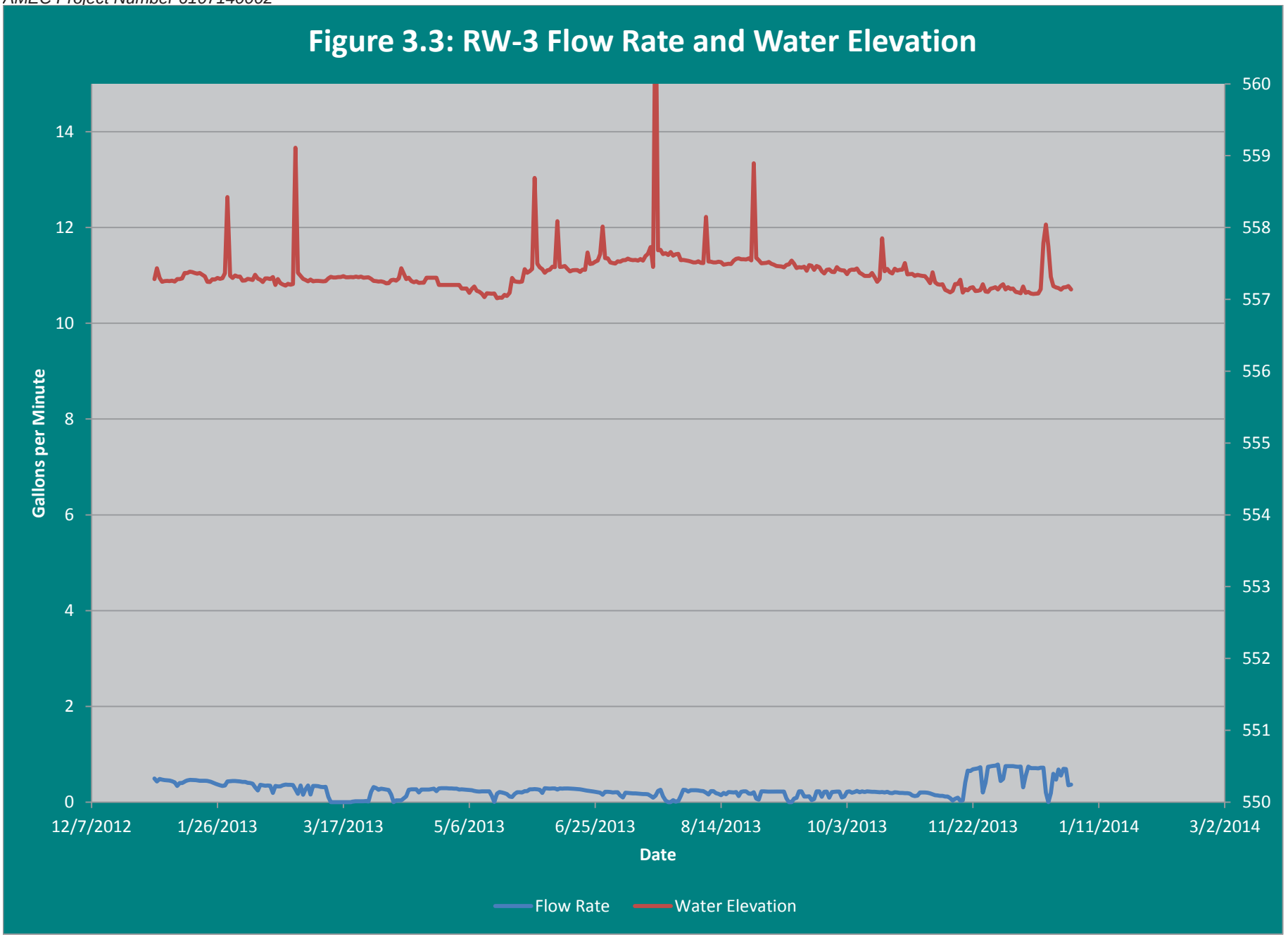

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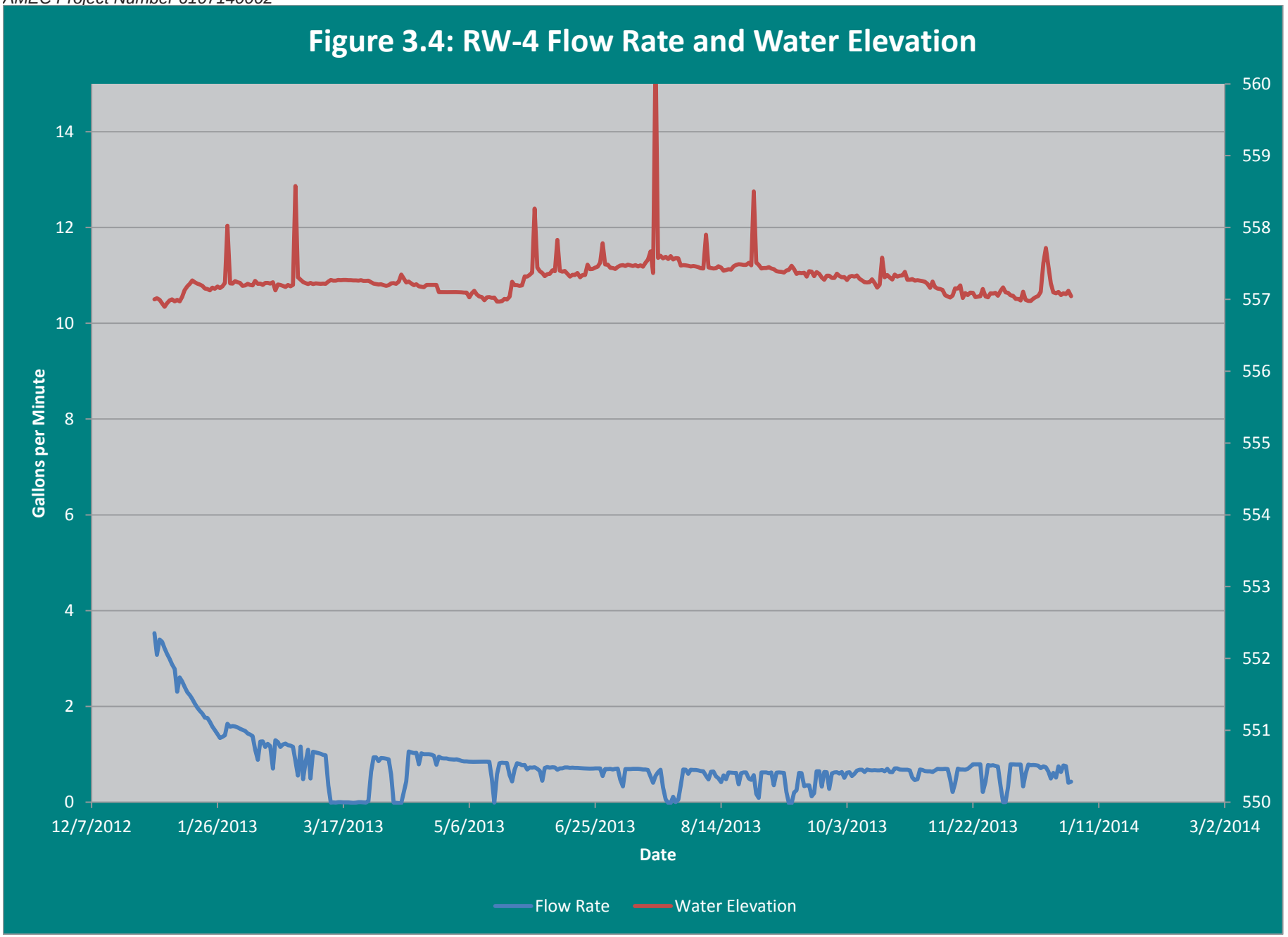

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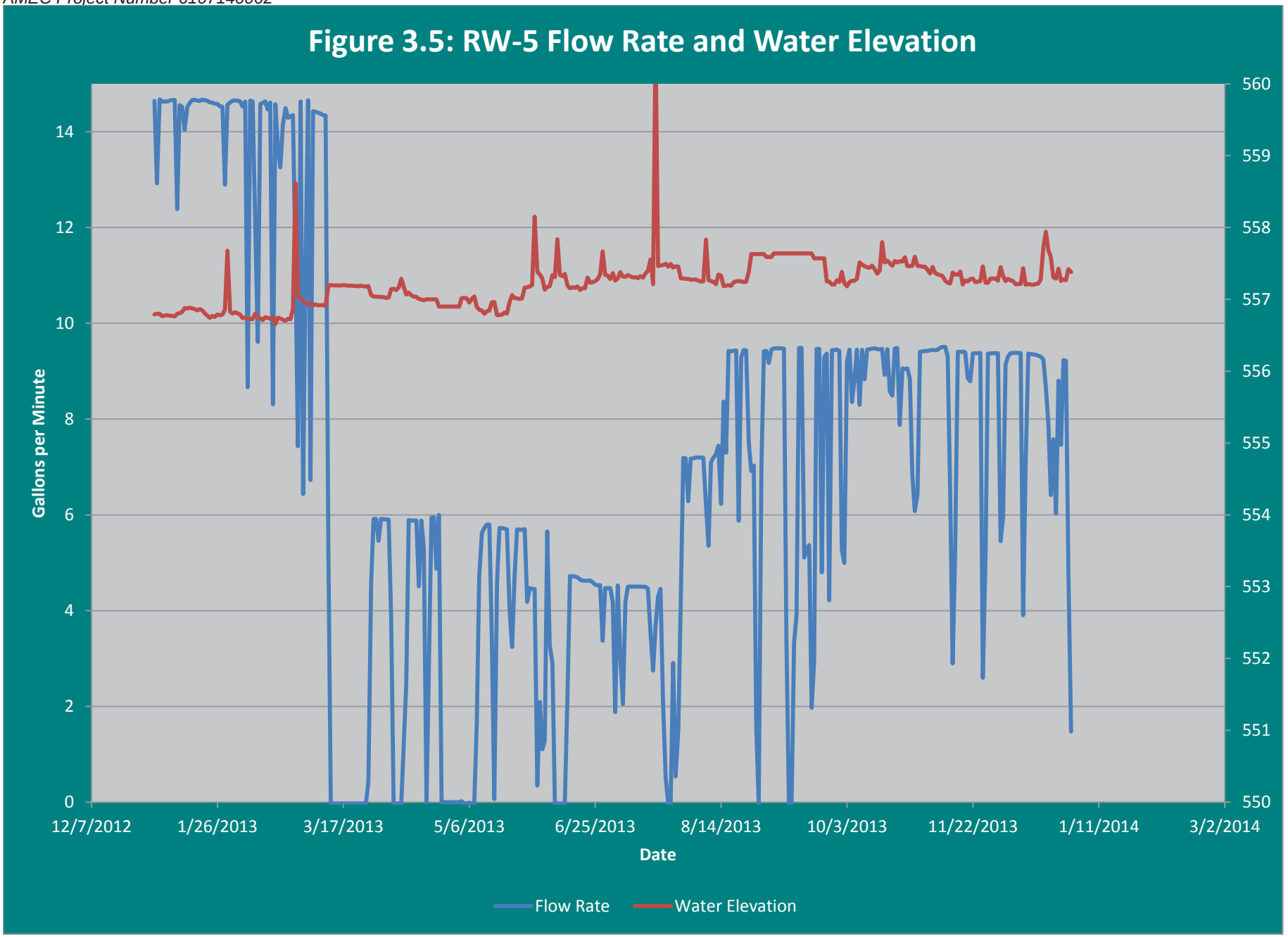

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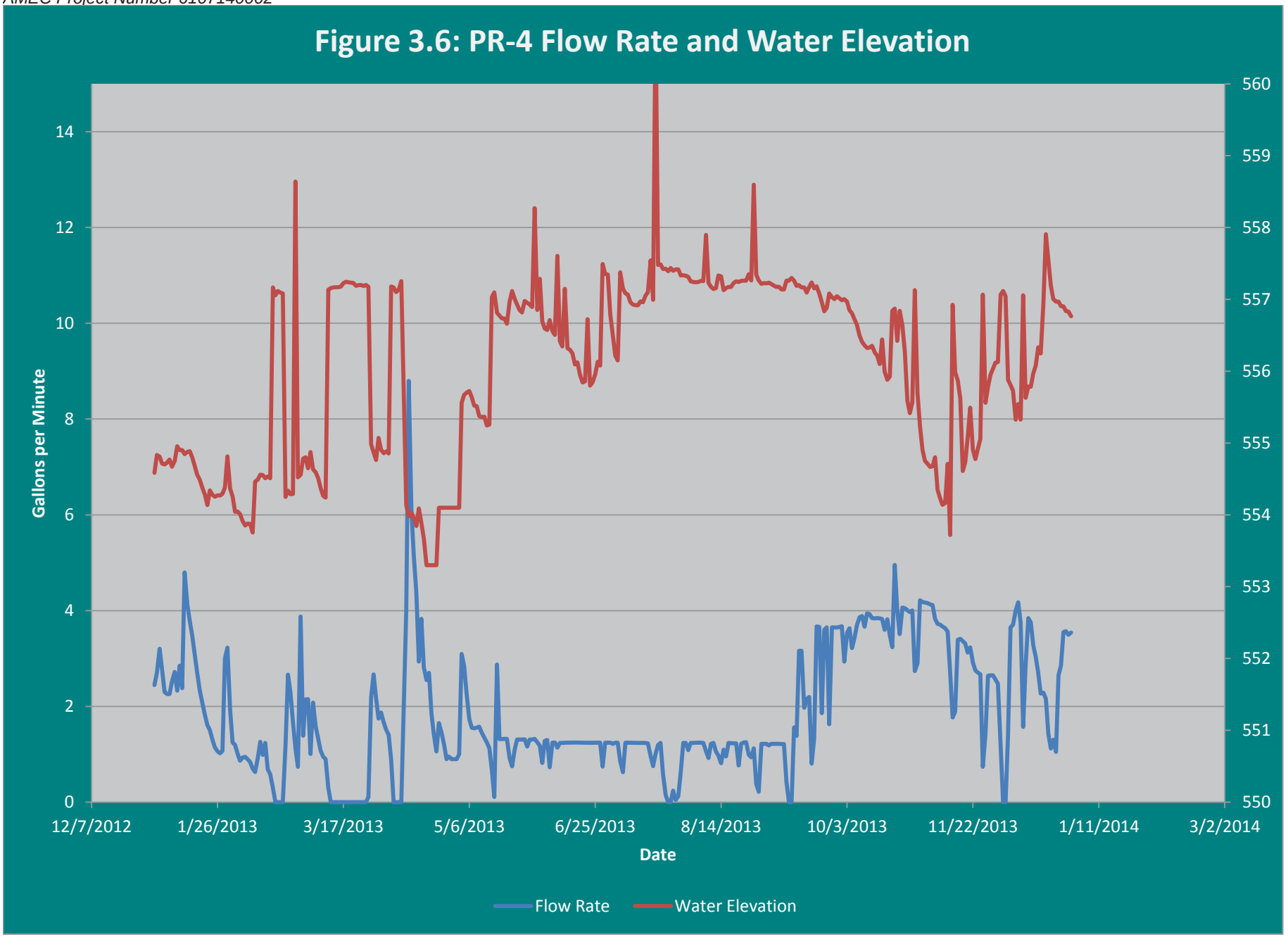

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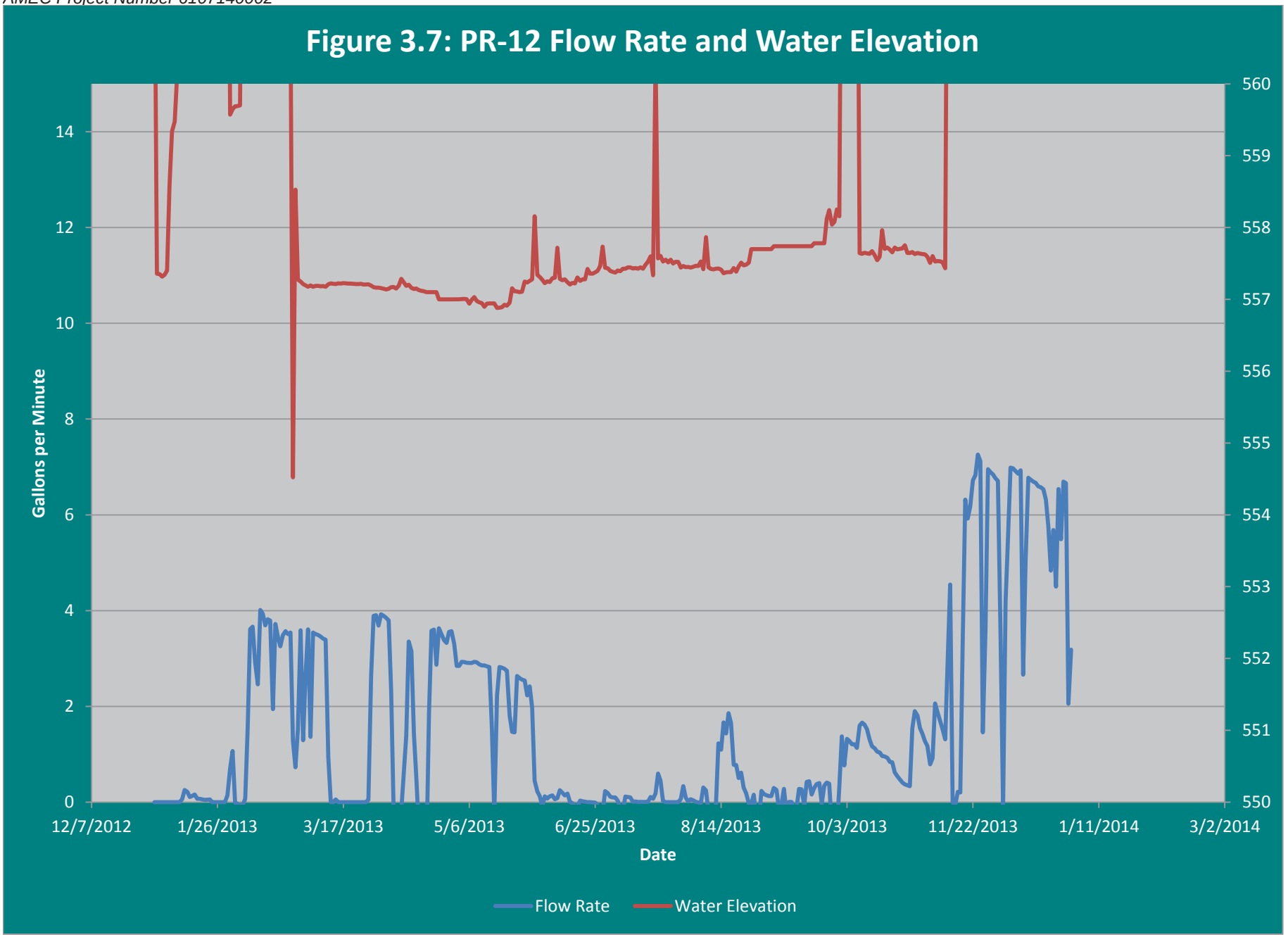
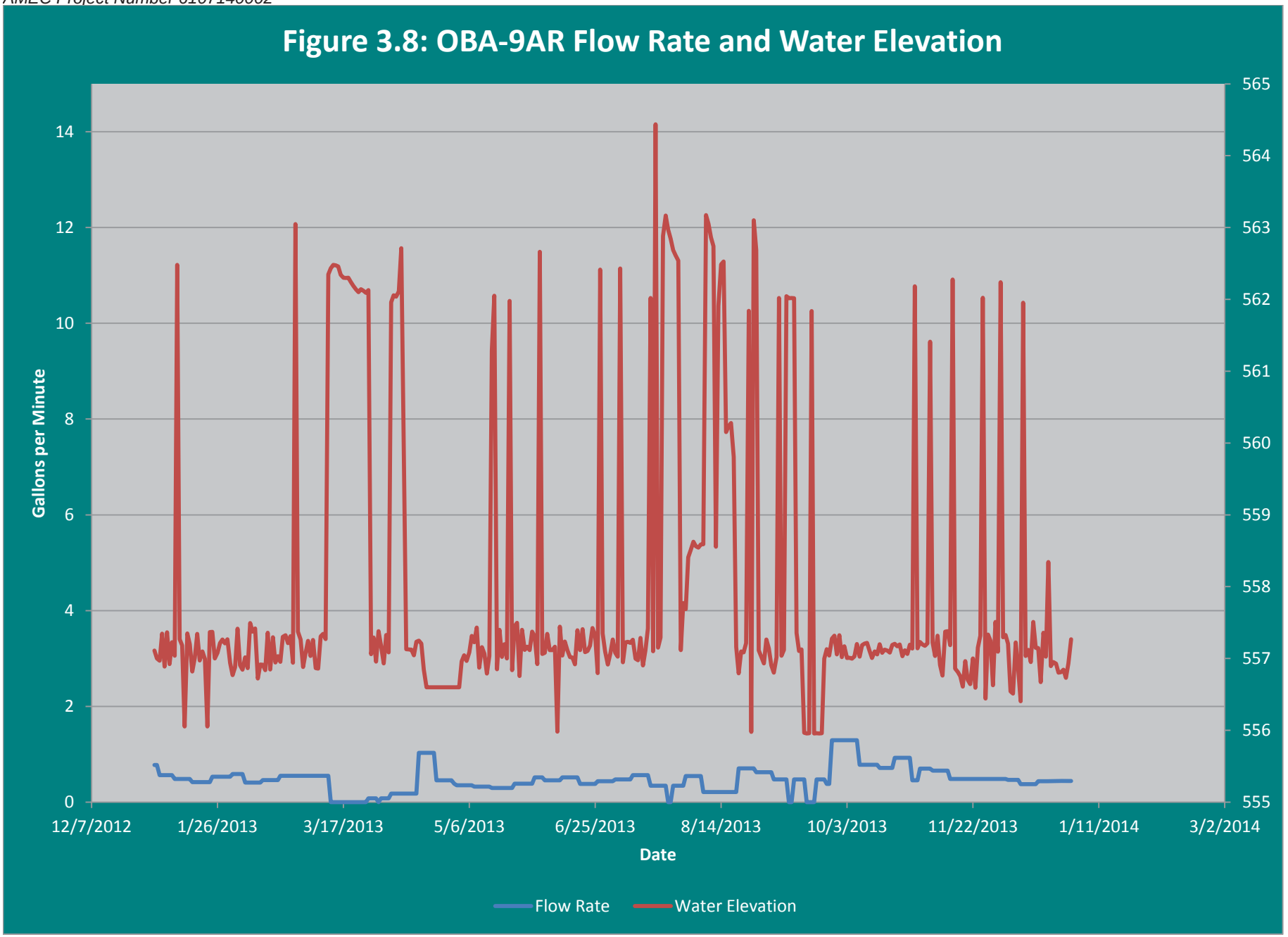
Checked by: JDD 02/06/14



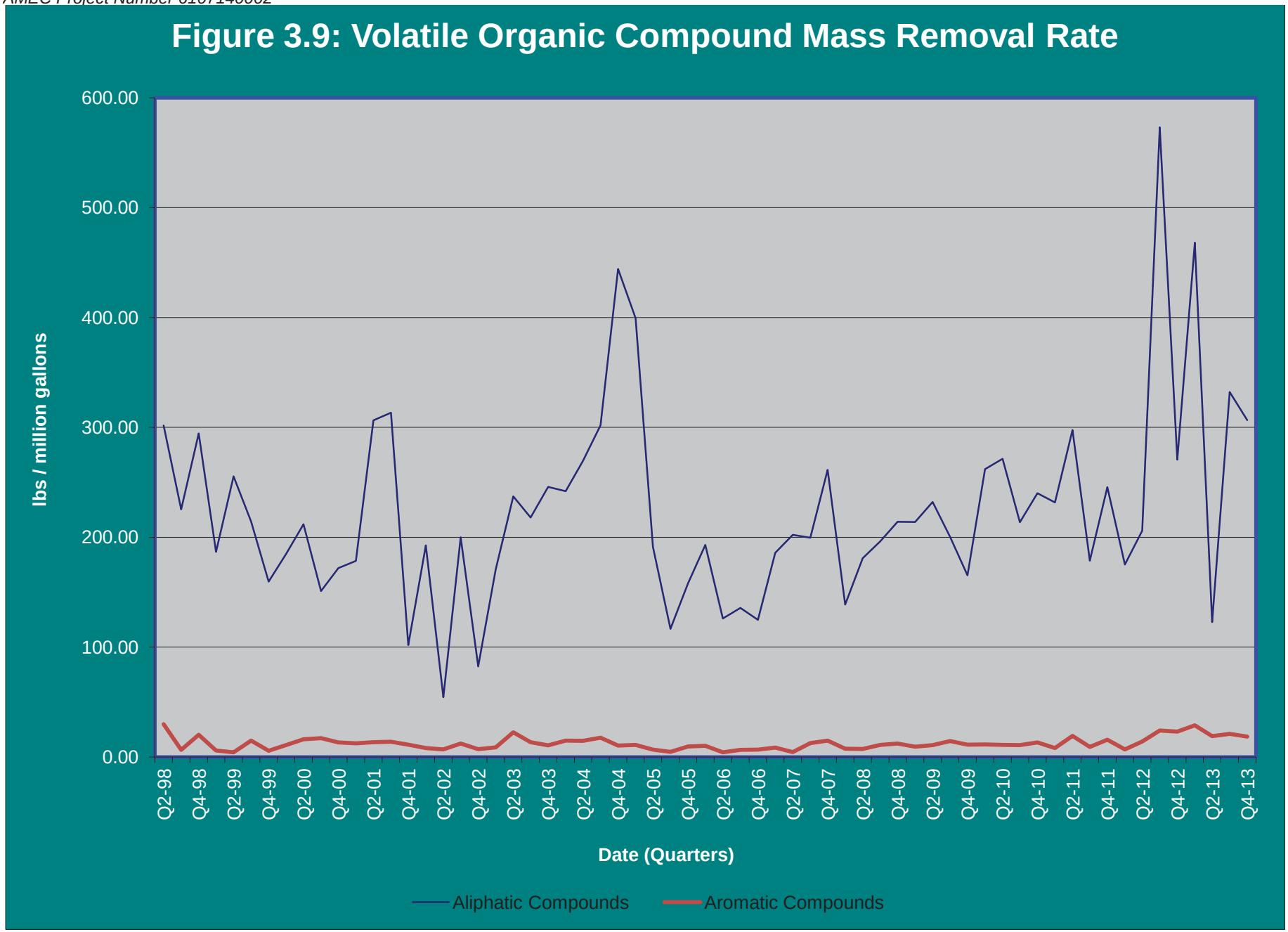
Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Figure 3.8: OBA-9AR Flow Rate and Water Elevation



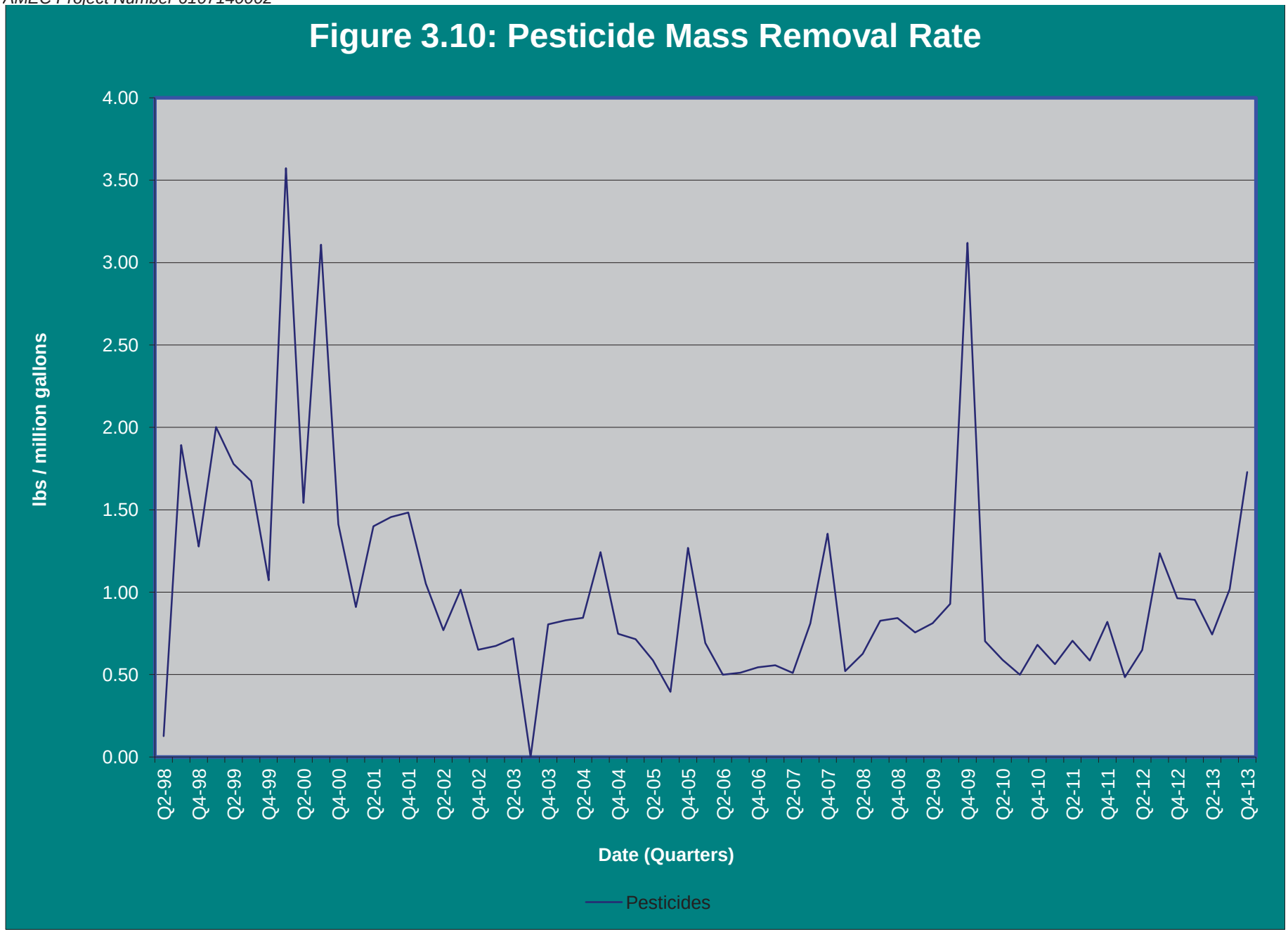
Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Figure 3.9: Volatile Organic Compound Mass Removal Rate



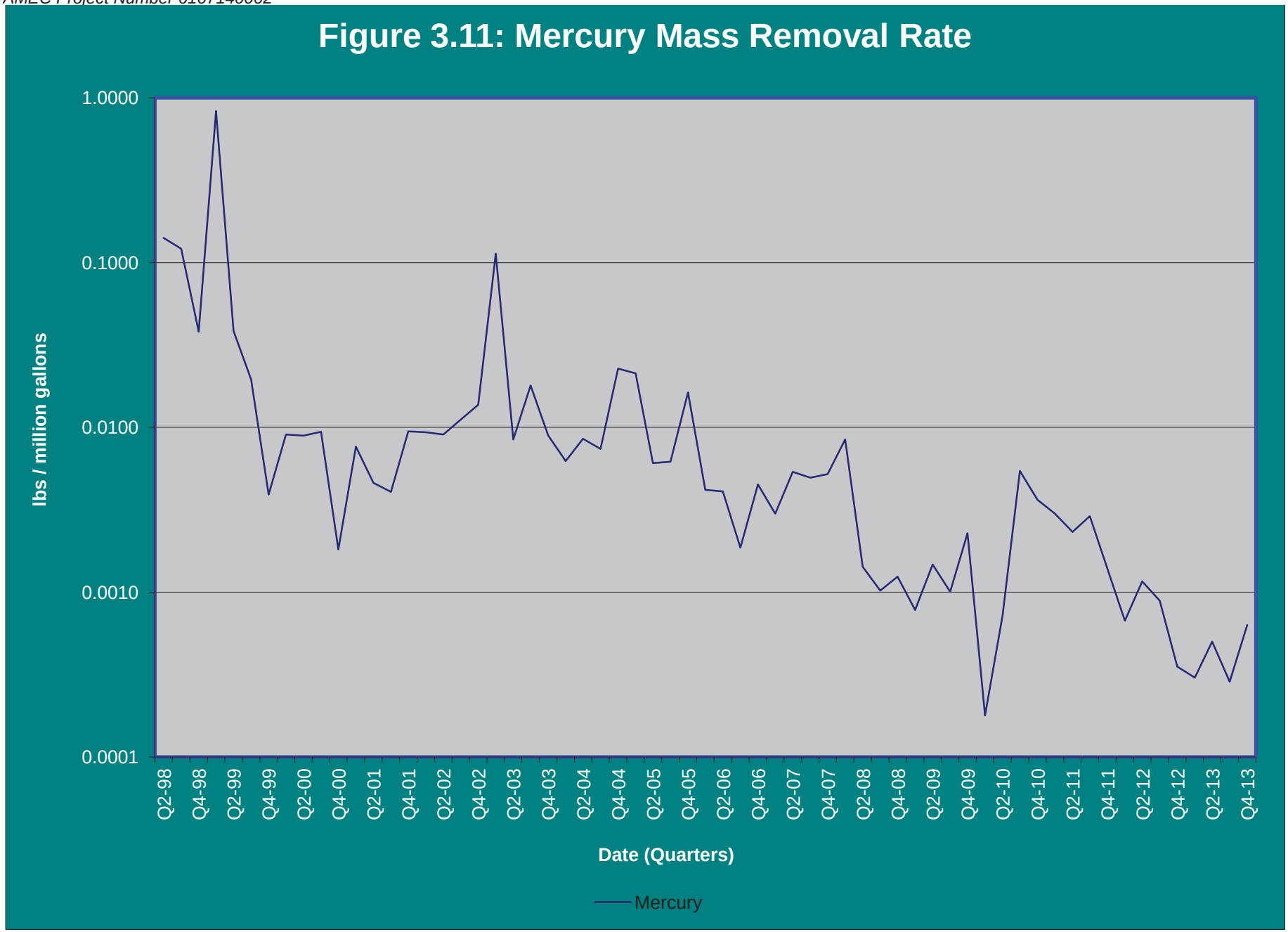
Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Figure 3.10: Pesticide Mass Removal Rate



Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Figure 3.11: Mercury Mass Removal Rate



Prepared by: AWE 02/06/14
Checked by: JDD 02/06/14

Buffalo Avenue

Buffalo Avenue

OBA-11A 560.26

OBA-18A 560.71

OBA-19A 561.99

OBA-1A 566.28

OBA-7A 566.37

OBA-8A 562.63

OBA-2A 561.6

PN-10A 561.83

PN-20A 562.66

PN-9A 560.53

RW-2-PZ 557.43

OBA-23A 562.08

PR-2 561.7

PN-2A 562

PR-3 558.2

RW-3-PZ 557.51

RW-1-PZ 561.2

PN-19A 563.92

PN-18A 562.74

OBA-16A 562.65

PN-3A 561.42

PN-1A 564.54

PN-4A 560.03

PN-17A 564.89

PN-16A 562.44

PR-1 562.43

PR-4-PZ 556.7

PN-5A 562.09

PR-13 559.4

PR-6 559.7

PN-15A 564.24

RW-4-PZ 557.4

PR-7 561.53

PN-14A 564.98

OBA-6A 565.61

PN-6A 562.72

PR-8 562.45

PN-13A 564.79

PR-5 559.1

PR-9 561.93

PN-7A 562.82

PR-10 560.44

RW-5-PZ 557.4

PN-21A 565.13

PN-8A 564.27

PR-12 558.9

OBA-5A 564.85

PN-11A 563.85

OBA-9A 561.52

OBA-9AR 557.9

Gill Creek Stilling Well 562.82

Gill Creek

0 50 100 Feet

0 200 400 Feet

Notes:
1. The Gill Creek elevation is continuously monitored (1 hr intervals) using a data logging transducer installed in the Gill Creek Stilling well. The average daily elevation is used to extrapolate the levels along the creek and create a breakline in the contouring model.
2. Highlighted wells are dry or have water level elevations below the bottom of the A-Zone. Bottom of A-Zone elevation used in contouring for these wells.

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Olin Surface Water Monitoring Location
- April 2013 Potentiometric Contour
- Gill Creek
- Approximate Olin Boundary
- Interpreted A Zone Dewatered Area (WL < 0.5 feet)
- Groundwater Flow Direction

Recovery Well	Average Flow Rate (gpm)
RW-1	5.86
RW-2	8.08
RW-3	0.27
RW-4	0.92
RW-5	5.91
PR-4	1.67
PR12	3.89
OBA-9AR	0.08

Olin Chemicals Plant

Niagara Falls, NY

A Zone Potentiometric Contours April 2, 2013

Prepared By-Date: CLS - 02/27/2014

Checked By-Date: AWE - 02/27/2014

Project Number: 6107140002

amec

Figure: 4.1

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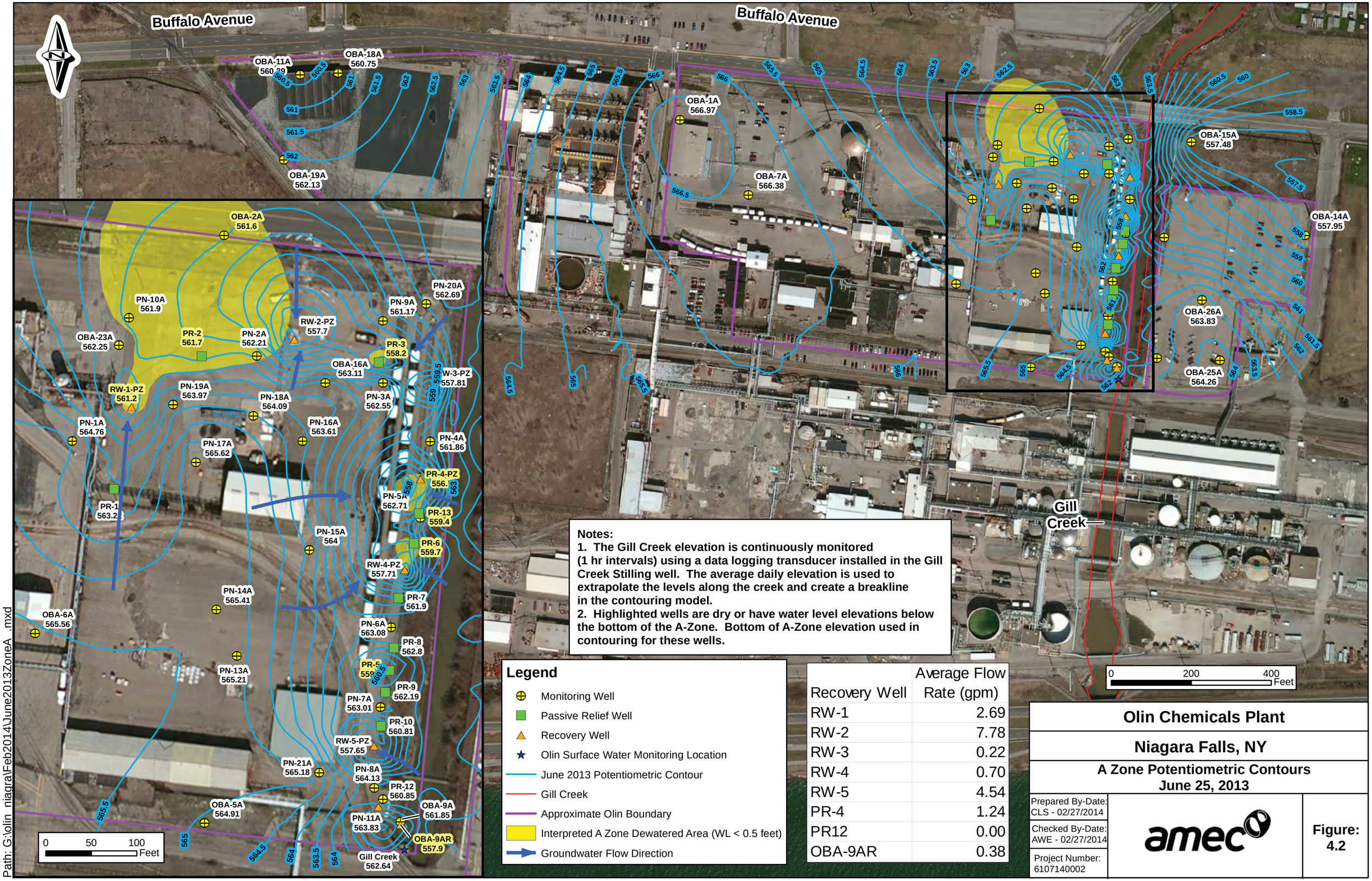

Notes:
1. The Gill Creek elevation is continuously monitored (1 hr intervals) using a data logging transducer installed in the Gill Creek Stilling well. The average daily elevation is used to extrapolate the levels along the creek and create a breakline in the contouring model.
2. Highlighted wells are dry or have water level elevations below the bottom of the A-Zone. Bottom of A-Zone elevation used in contouring for these wells.

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Olin Surface Water Monitoring Location
- June 2013 Potentiometric Contour
- Gill Creek
- Approximate Olin Boundary
- Interpreted A Zone Dewatered Area (WL < 0.5 feet)
- Groundwater Flow Direction

Recovery Well	Average Flow Rate (gpm)
RW-1	2.69
RW-2	7.78
RW-3	0.22
RW-4	0.70
RW-5	4.54
PR-4	1.24
PR12	0.00
OBA-9AR	0.38

Olin Chemicals Plant

Niagara Falls, NY

A Zone Potentiometric Contours June 25, 2013

Prepared By-Date: CLS - 02/27/2014

Checked By-Date: AWE - 02/27/2014

Project Number: 6107140002

amec

Figure: 4.2

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Buffalo Avenue

Buffalo Avenue

OBA-11A 560.25
OBA-18A 560.7
OBA-19A 561.63
OBA-1A 566.75
OBA-7A 566.04
OBA-15A 557
OBA-14A 558.01
OBA-26A 563.66
OBA-25A 564.1
OBA-2A 561.6
PN-10A 561.8
PN-9A 560.95
PN-20A 562.49
RW-2-PZ 557.71
OBA-23A 561.84
PR-2 561.7
PR-3 558.2
PN-2A 562
RW-3-PZ 557.78
PN-19A 563.92
OBA-16A 562.67
PN-3A 562.27
RW-1-PZ 561.2
PN-18A 563.23
PN-1A 564.5
PN-17A 565.15
PN-16A 563.05
PN-4A 561.81
PR-1 563.01
PR-4-PZ 557.72
PR-13 559.4
PN-5A 562.68
PN-15A 564.18
PR-6 559.7
RW-4-PZ 557.79
PN-14A 565.28
PR-7 561.81
OBA-6A 565.47
PN-6A 562.96
PN-13A 565.04
PR-8 562.69
PR-5 559
PR-9 562.05
PN-7A 562.9
PR-10 560.76
RW-5-PZ 557.88
PN-21A 565.1
PN-8A 564.04
PR-12 558.9
OBA-5A 564.88
PN-11A 563.79
OBA-9A 561.31
OBA-9AR 557.9
Gill Creek 562.73

Gill Creek

0 50 100 Feet

0 200 400 Feet

Notes:
1. The Gill Creek elevation is continuously monitored (1 hr intervals) using a data logging transducer installed in the Gill Creek Stilling well. The average daily elevation is used to extrapolate the levels along the creek and create a breakline in the contouring model.
2. Highlighted wells are dry or have water level elevations below the bottom of the A-Zone. Bottom of A-Zone elevation used in contouring for these wells.

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Olin Surface Water Monitoring Location
- September 2013 Potentiometric Contours
- Gill Creek
- Approximate Olin Boundary
- Interpreted A Zone Dewatered Area (WL < 0.5 feet)
- Groundwater Flow Direction

Recovery Well	Average Flow Rate (gpm)
RW-1	3.04
RW-2	9.30
RW-3	0.22
RW-4	0.62
RW-5	9.48
PR-4	1.22
PR12	0.00
OBA-9AR	0.47

Olin Chemicals Plant

Niagara Falls, NY

A Zone Potentiometric Contours September 6, 2013

Prepared By-Date: CLS - 02/27/2014

Checked By-Date: AWE - 02/27/2014

Project Number: 6107140002

amec

Figure: 4.3

Path: G:\olin_niagra\Feb2014\Sept2013ZoneA_.mxd

Buffalo Avenue

Buffalo Avenue

OBA-11A 560.24
OBA-18A 560.66
OBA-19A 563.23
OBA-8A 563.182
OBA-1A 567.91
OBA-7A 566.75
OBA-2A 561.6
PN-10A 562.18
OBA-23A 562.76
PR-2 561.7
PN-2A 562.78
RW-2-PZ 557.3
PN-9A 559.47
PR-3 558.2
PN-20A 560.76
OBA-16A 563.38
RW-1-PZ 561.2
PN-19A 563.83
PN-18A 564.34
PN-3A 562.67
RW-3-PZ 557.39
PN-1A 564.58
PN-16A 564.02
PN-17A 566.01
PN-4A 561.69
PR-1 563.91
PR-4-PZ 556.7
PN-5A 562.46
PR-13 559.4
PR-6 559.7
PN-15A 564.23
RW-4-PZ 557.3
PN-14A 565.21
PR-7 561.7
OBA-6A 565.65
PN-6A 562.95
PR-8 562.65
PN-13A 565.1
PR-5 559.1
PR-9 562.14
PN-7A 562.87
PR-10 560.35
RW-5-PZ 557.3
PN-21A 565.13
PN-8A 564.43
PR-12 558.9
OBA-5A 564.85
PN-11A 563.9
OBA-9A 561.47
OBA-9AR 557.9
Gill Creek Stilling Well 562.49

Gill Creek

0 50 100 Feet

0 200 400 Feet

Notes:
1. The Gill Creek elevation is continuously monitored (1 hr intervals) using a data logging transducer installed in the Gill Creek Stilling well. The average daily elevation is used to extrapolate the levels along the creek and create a breakline in the contouring model.
2. Highlighted wells are dry or have water level elevations below the bottom of the A-Zone. Bottom of A-Zone elevation used in contouring for these wells.

Legend

- OLIN Monitoring Well Location
- OLIN Passive Relief Well Location
- OLIN Recovery Well Location
- OLIN Surface Water Monitoring Location
- Gill Creek
- A Zone Potentiometric Surface Contour
- Approximate Olin Boundary
- Groundwater Flow Direction
- Interpreted A Zone Dewatered Area (WL < 0.5 feet)

Extraction Well	Average Flow Rate (gpm)
RW-1	1.9
RW-2	5.3
RW-3	0.4
RW-4	0.3
RW-5	5.5
PR-12	1.2
OBA-9AR	0.5

Olin Chemicals Plant

Niagara Falls, NY

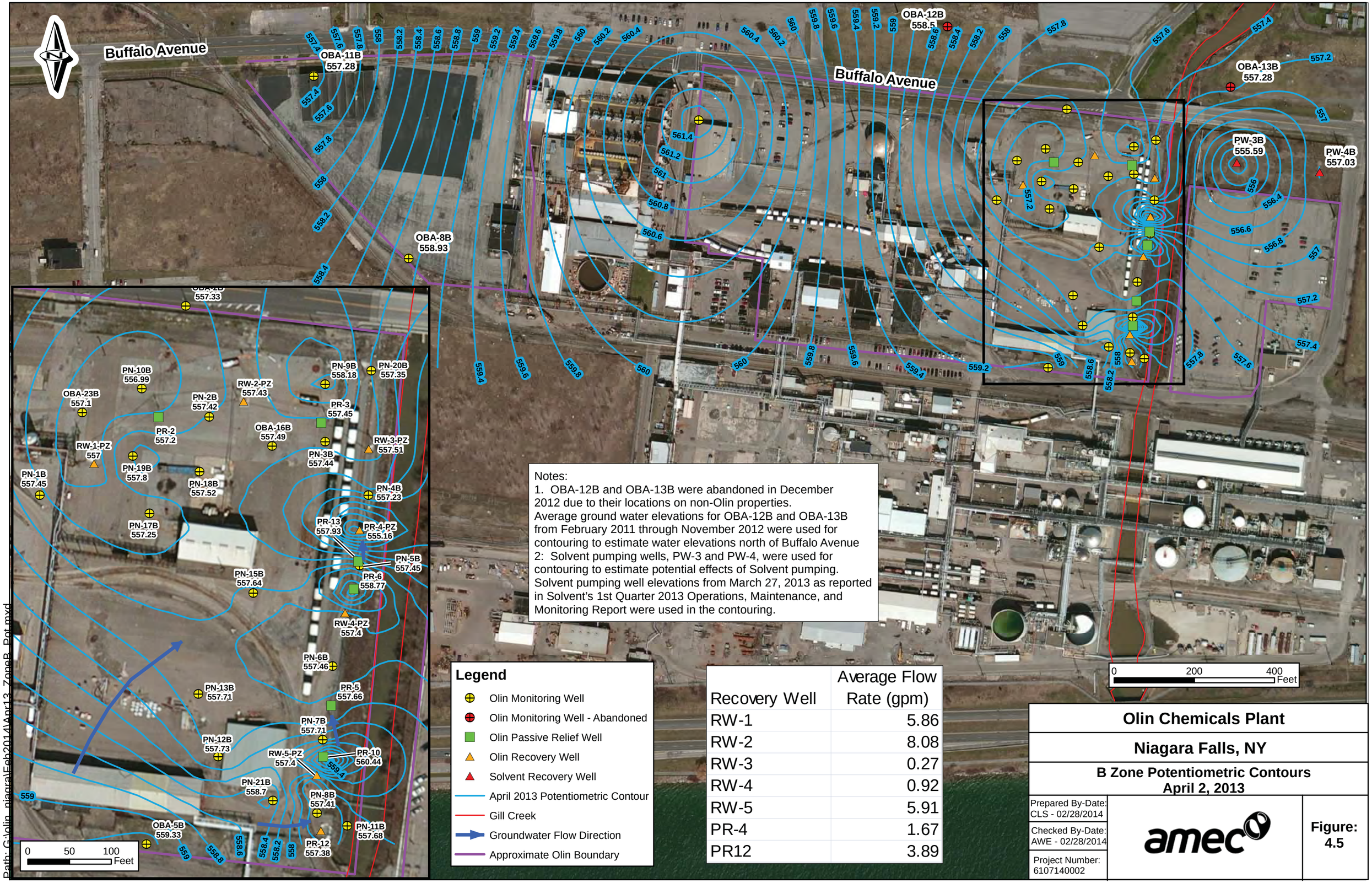
A Zone Potentiometric Contours December 3, 2013

Prepared By-Date: JRM - 02/04/2014
Checked By-Date: AWE - 02/04/2014
Project Number: 6107140002

amec

Figure: 4.4

Path: G:\olin_niagra\Dec2013ZoneA\Feb3 2014 Updates\mxds\Dec2013ZoneA JM Update.mxd



Notes:
1. OBA-12B and OBA-13B were abandoned in December 2012 due to their locations on non-Olin properties. Average ground water elevations for OBA-12B and OBA-13B from February 2011 through November 2012 were used for contouring to estimate water elevations north of Buffalo Avenue
2: Solvent pumping wells, PW-3 and PW-4, were used for contouring to estimate potential effects of Solvent pumping. Solvent pumping well elevations from March 27, 2013 as reported in Solvent's 1st Quarter 2013 Operations, Maintenance, and Monitoring Report were used in the contouring.

Legend

- Olin Monitoring Well
- Olin Monitoring Well - Abandoned
- Olin Passive Relief Well
- Olin Recovery Well
- Solvent Recovery Well
- April 2013 Potentiometric Contour
- Gill Creek
- Groundwater Flow Direction
- Approximate Olin Boundary

Recovery Well	Average Flow Rate (gpm)
RW-1	5.86
RW-2	8.08
RW-3	0.27
RW-4	0.92
RW-5	5.91
PR-4	1.67
PR12	3.89

Olin Chemicals Plant

Niagara Falls, NY

B Zone Potentiometric Contours
April 2, 2013

Prepared By-Date: CLS - 02/28/2014

Checked By-Date: AWE - 02/28/2014

Project Number: 6107140002

amec

Figure: 4.5

Path: G:\olin_niagara\Feb2014\Apr13_ZoneB_Pot.mxd

Buffalo Avenue

Buffalo Avenue

OBA-11B 557.55

OBA-12B 558.5

OBA-13B 557.28

OBA-8B 559.19

OBA-2B 557.62

OBA-4B 558.49

OBA-14B 557.59

OBA-24B 558.01

OBA-25B 558.01

PW-3B 555.81

PW-4B 556.72

PN-10B 557.87

PN-9B 558.45

PN-20B 557.62

OBA-23B 558.01

RW-2-PZ 557.7

PR-3 557.64

PR-2 557.87

PN-2B 557.75

PN-19B 559.96

RW-3-PZ 557.81

RW-1-PZ 557.8

OBA-16B 557.81

PN-3B 557.7

PN-4B 557.45

PN-18B 558.03

PN-1B 558.22

PR-13 558.17

PR-4-PZ 556.22

PN-17B 557.98

PN-5B 557.73

PN-15B 557.93

PR-6 558.9

RW-4-PZ 557.71

PN-6B 557.73

PN-13B 558.12

PR-5 557.97

PN-7B 557.98

RW-5-PZ 557.65

PR-10 560.81

PN-12B 558.09

PN-21B 559.3

PN-8B 557.63

OBA-5B 559.54

PN-11B 557.88

PR-12 560.85

Notes:
1. OBA-12B and OBA-13B were abandoned in December 2012 due to their locations on non-Olin properties. Average ground water elevations for OBA-12B and OBA-13B from February 2011 through November 2012 were used for contouring to estimate water elevations north of Buffalo Avenue
2: Solvent pumping wells, PW-3 and PW-4, were used for contouring to estimate the potential effects of Solvent pumping. Solvent pumping well elevations from June 14, 2013 as reported in Solvent's 2nd Quarter 2013 Operations, Maintenance, and Monitoring Report were used in the contouring.

Legend

- Olin Monitoring Well
- Olin Monitoring Well - Abandoned
- Olin Passive Relief Well
- Olin Recovery Well
- Solvent Recovery Well
- June 2013 Potentiometric Surface Contour
- Gill Creek
- Groundwater Flow Direction
- Approximate Olin Boundary

Recovery Well	Average Flow Rate (gpm)
RW-1	2.69
RW-2	7.78
RW-3	0.22
RW-4	0.70
RW-5	4.54
PR-4	1.24
PR12	0.00

0 50 100 Feet

0 200 400 Feet

Olin Chemicals Plant

Niagara Falls, NY

B Zone Potentiometric Contours June 25, 2013

Prepared By-Date: CLS - 02/28/2014

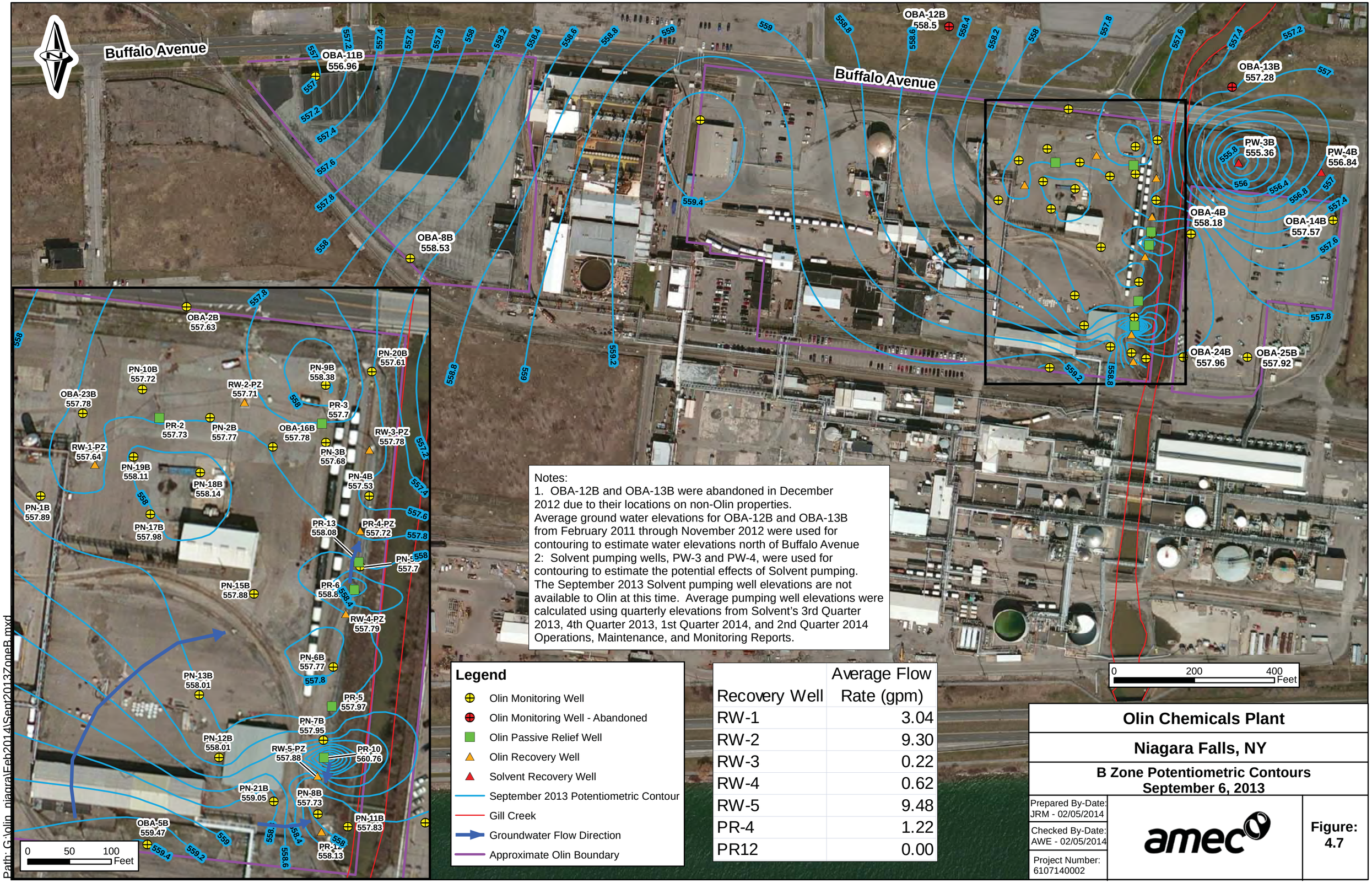
Checked By-Date: AWE - 02/28/2014

Project Number: 6107140002

amec

Figure: 4.6

Path: G:\olin_niagra\Feb2014\June13_ZoneB_Pot.mxd



Notes:
1. OBA-12B and OBA-13B were abandoned in December 2012 due to their locations on non-Olin properties. Average ground water elevations for OBA-12B and OBA-13B from February 2011 through November 2012 were used for contouring to estimate water elevations north of Buffalo Avenue
2: Solvent pumping wells, PW-3 and PW-4, were used for contouring to estimate the potential effects of Solvent pumping. The September 2013 Solvent pumping well elevations are not available to Olin at this time. Average pumping well elevations were calculated using quarterly elevations from Solvent's 3rd Quarter 2013, 4th Quarter 2013, 1st Quarter 2014, and 2nd Quarter 2014 Operations, Maintenance, and Monitoring Reports.

Legend

- Olin Monitoring Well
- Olin Monitoring Well - Abandoned
- Olin Passive Relief Well
- Olin Recovery Well
- Solvent Recovery Well
- September 2013 Potentiometric Contour
- Gill Creek
- Groundwater Flow Direction
- Approximate Olin Boundary

Recovery Well	Average Flow Rate (gpm)
RW-1	3.04
RW-2	9.30
RW-3	0.22
RW-4	0.62
RW-5	9.48
PR-4	1.22
PR12	0.00

Olin Chemicals Plant

Niagara Falls, NY

B Zone Potentiometric Contours September 6, 2013

Prepared By-Date: JRM - 02/05/2014

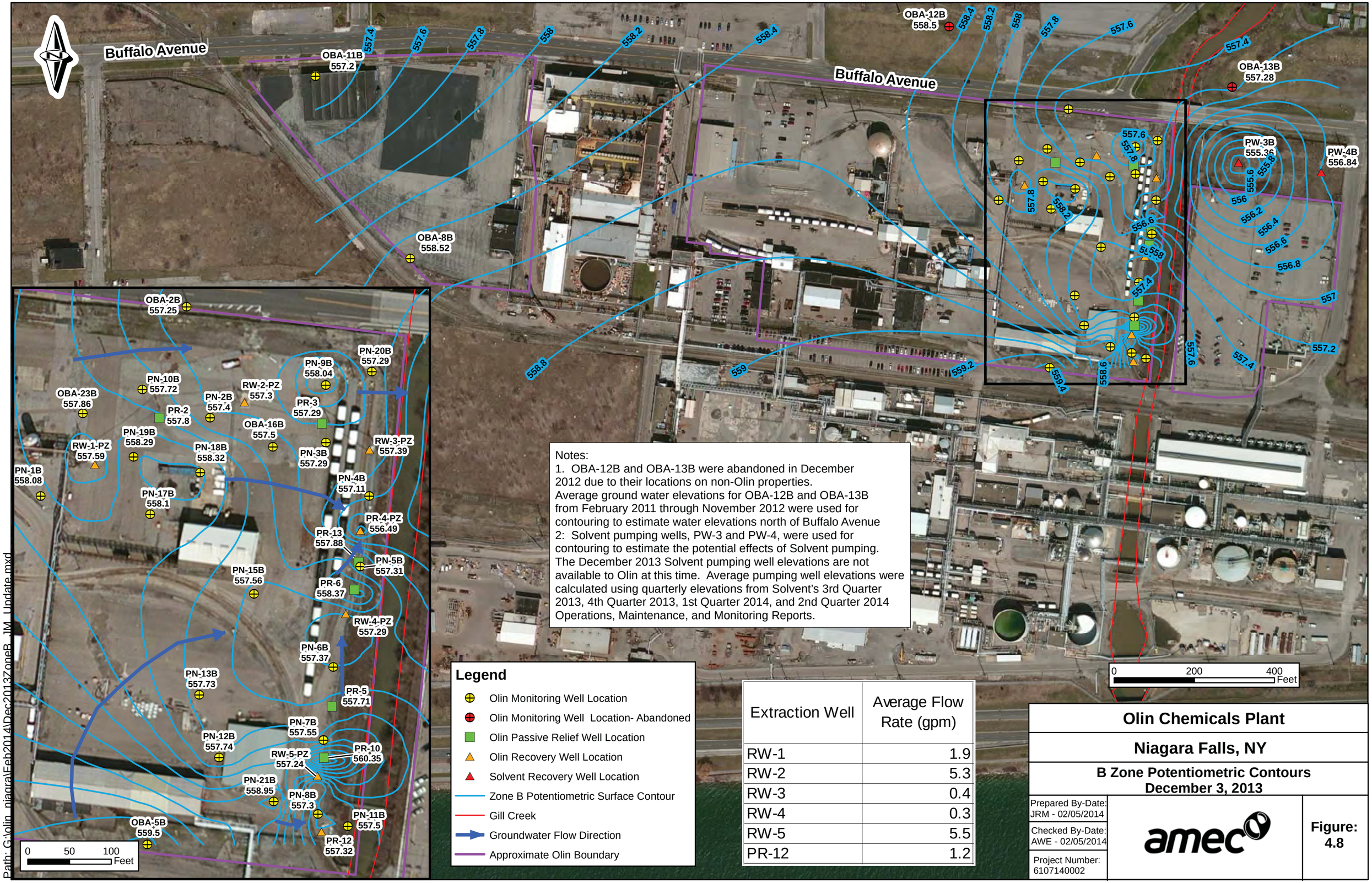
Checked By-Date: AWE - 02/05/2014

Project Number: 6107140002

amec

Figure: 4.7

Path: G:\olin_niagra\Feb2014\Sept2013ZoneB.mxd



Extraction Well	Average Flow Rate (gpm)
RW-1	1.9
RW-2	5.3
RW-3	0.4
RW-4	0.3
RW-5	5.5
PR-12	1.2

Olin Chemicals Plant

Niagara Falls, NY

B Zone Potentiometric Contours December 3, 2013

Prepared By-Date: JRM - 02/05/2014

Checked By-Date: AWE - 02/05/2014

Project Number: 6107140002

amec

Figure: 4.8

Path: G:\olin_niagara\Feb2014\Dec2013ZoneB_JM_Update.mxd

Buffalo Avenue

OBA-1C
555.99

OPW-1
554.9

OBA-7C
555.47

OBA-15B
557.35

OBA-4C
557.36

OBA-14C
555.72

Gill Creek

555.2 555.4 555.6 555.8 555 555 555.2 555.4

556 556.2 556.4 556.6 556.8 557 557.2 557 556.8 556.6 556.4 556.2 556 555.8

557 556.8 556.6 556.4 556.2 556 557.2 557 556.8 556.6 556.4 556.2 556 555.8

0 150 300 Feet

Legend

- Olin Monitoring Well Location
- Olin Production Well Location
- April 2013 Potentiometric Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	504

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

C Zone Potentiometric Contours
April 2, 2013

Prepared By-Date: CLS - 02/20/2014

Checked By-Date: AWE - 02/20/2014

Project Number: 6107140002

amec

Figure: 4.9

Path: G:\olin_niagra\Feb2014\April13_ZoneC_Pot.mxd

Buffalo Avenue

OBA-1C
556.46

OBA-7C
556.17

OBA-15B
557.61

OBA-4C
557.66

OBA-14C
556.08

OPW-1
554.9

Gill Creek

555.2 555.4 555.6 555.8 556 556.2 556.4 556.6 556.8 557 557.2 557.4 557.6 557.4 557.2 557 556.8 556.6 556.4 556.2 556.4 556.6 556.8 557 557.2 557.4 555 555.2 555.4 555.6 555.8 556 556.2 556.4 556.6 556.8 557 557.2 557.4

0 150 300 Feet

Legend

- Olin Monitoring Well Location
- Olin Production Well Location
- June 2013 Potentiometric Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	493

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

C Zone Potentiometric Contours
June 25, 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	amec
Project Number: 6107140002	Figure: 4.10

Path: G:\olin_niagra\Feb2014\June13_ZoneC_Pot.mxd

Buffalo Avenue

OBA-1C
556.27

OBA-7C
555.96

OBA-15B
557.62

OBA-4C
557.66

OBA-14C
556.08

OPW-1
554.5

Gill Creek

0 150 300 Feet

Legend

- Olin Monitoring Well Location
- Olin Production Well Location
- September 2013 Potentiometric Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	570

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

C Zone Potentiometric Contours
September 6, 2013

Prepared By-Date: CLS - 02/20/2014

Checked By-Date: AWE - 02/20/2014

Project Number: 6107140002

amec

Figure: 4.11

Path: G:\olin_niagra\Feb2014\Sept13_ZoneC_Pot.mxd

OBA-1C
556.07

OBA-7C
555.06

OPW-1
554.8

OBA-15B
557.26

OBA-4C
557.24

OBA-14C
555.44

0 150 300 Feet

Legend

- OLIN Monitoring Well Location
- OLIN Production Well Location
- Gill Creek
- December 2013 Potentiometric Contour
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	515

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

C Zone Potentiometric Contours
December 3, 2013

Prepared By-Date: JRM - 02/06/2014

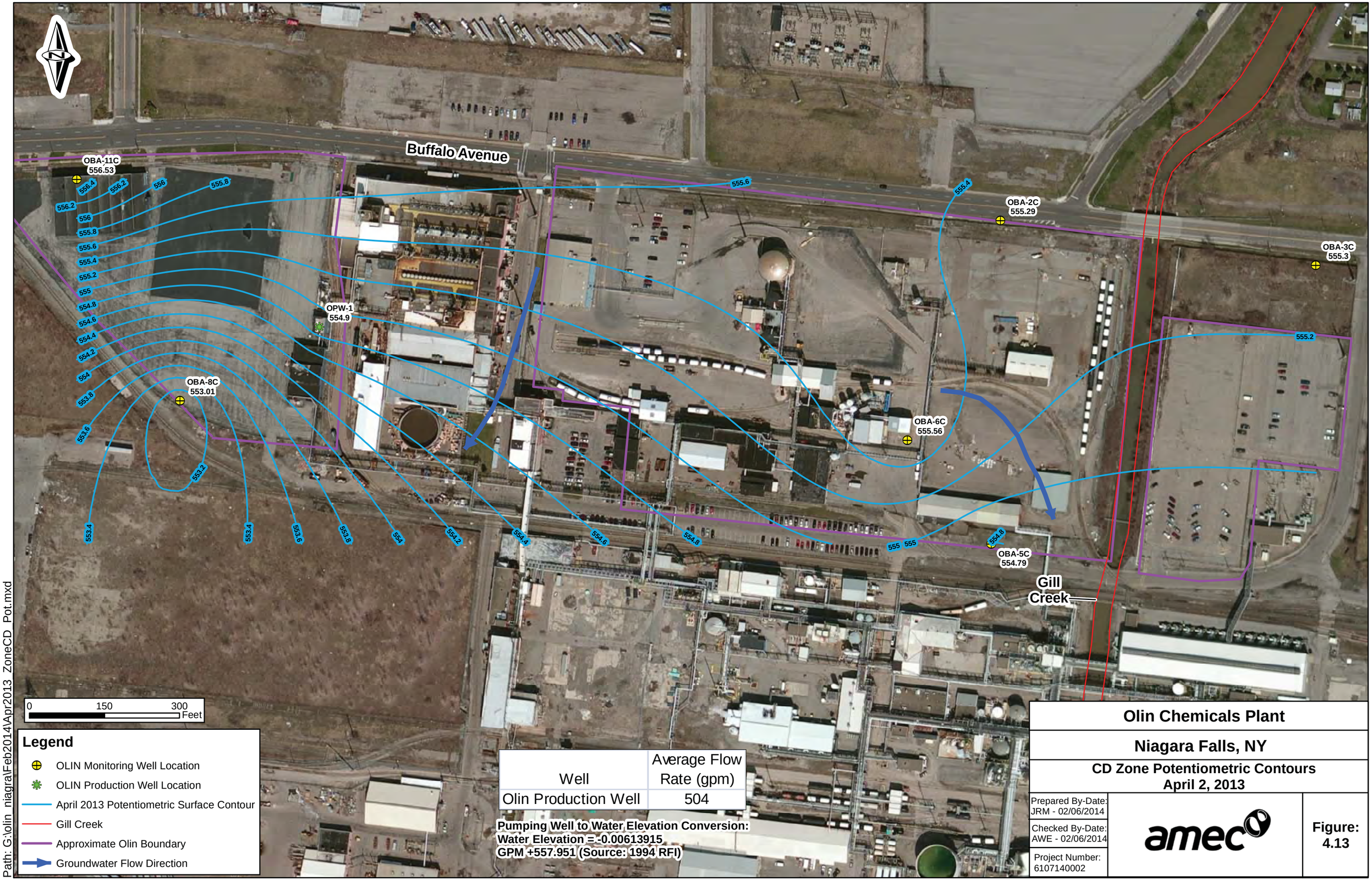
Checked By-Date: AWE - 02/06/2014

Project Number: 6107140002

amec

Figure: 4.12

Path: G:\olin_niagra\Dec2013ZoneC\mxds\Dec2013ZoneC_JM.mxd



Legend

- OLIN Monitoring Well Location
- OLIN Production Well Location
- April 2013 Potentiometric Surface Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	504

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

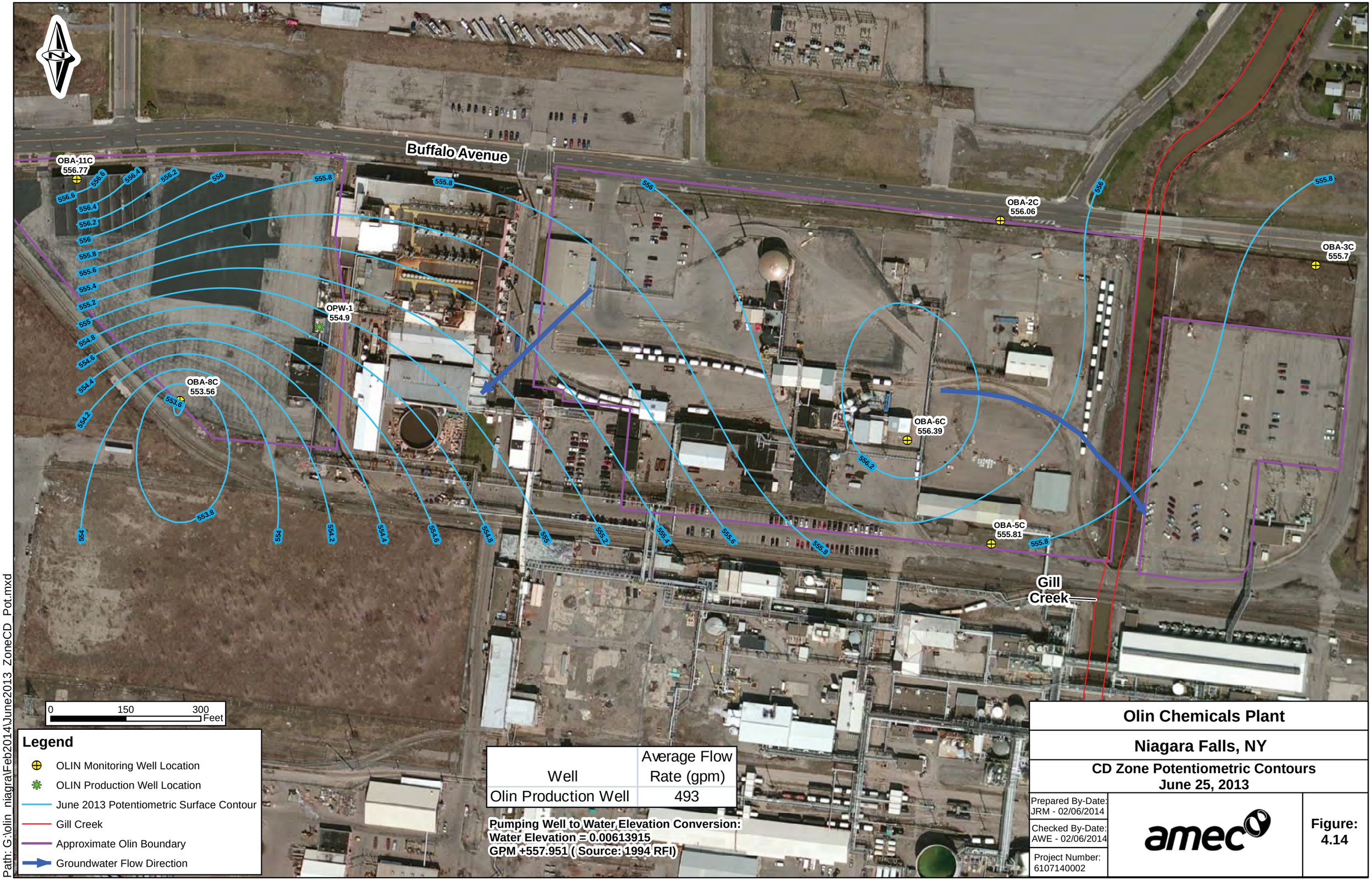
Olin Chemicals Plant

Niagara Falls, NY

CD Zone Potentiometric Contours
April 2, 2013

Prepared By-Date: JRM - 02/06/2014	amec	Figure: 4.13
Checked By-Date: AWE - 02/06/2014		
Project Number: 6107140002		

Path: G:\olin_niagra\Feb2014\Apr2013_ZoneCD_Pot.mxd



Legend

- OLIN Monitoring Well Location
- OLIN Production Well Location
- June 2013 Potentiometric Surface Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	493

Pumping Well to Water Elevation Conversion:
Water Elevation = 0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

CD Zone Potentiometric Contours
June 25, 2013

Prepared By-Date: JRM - 02/06/2014

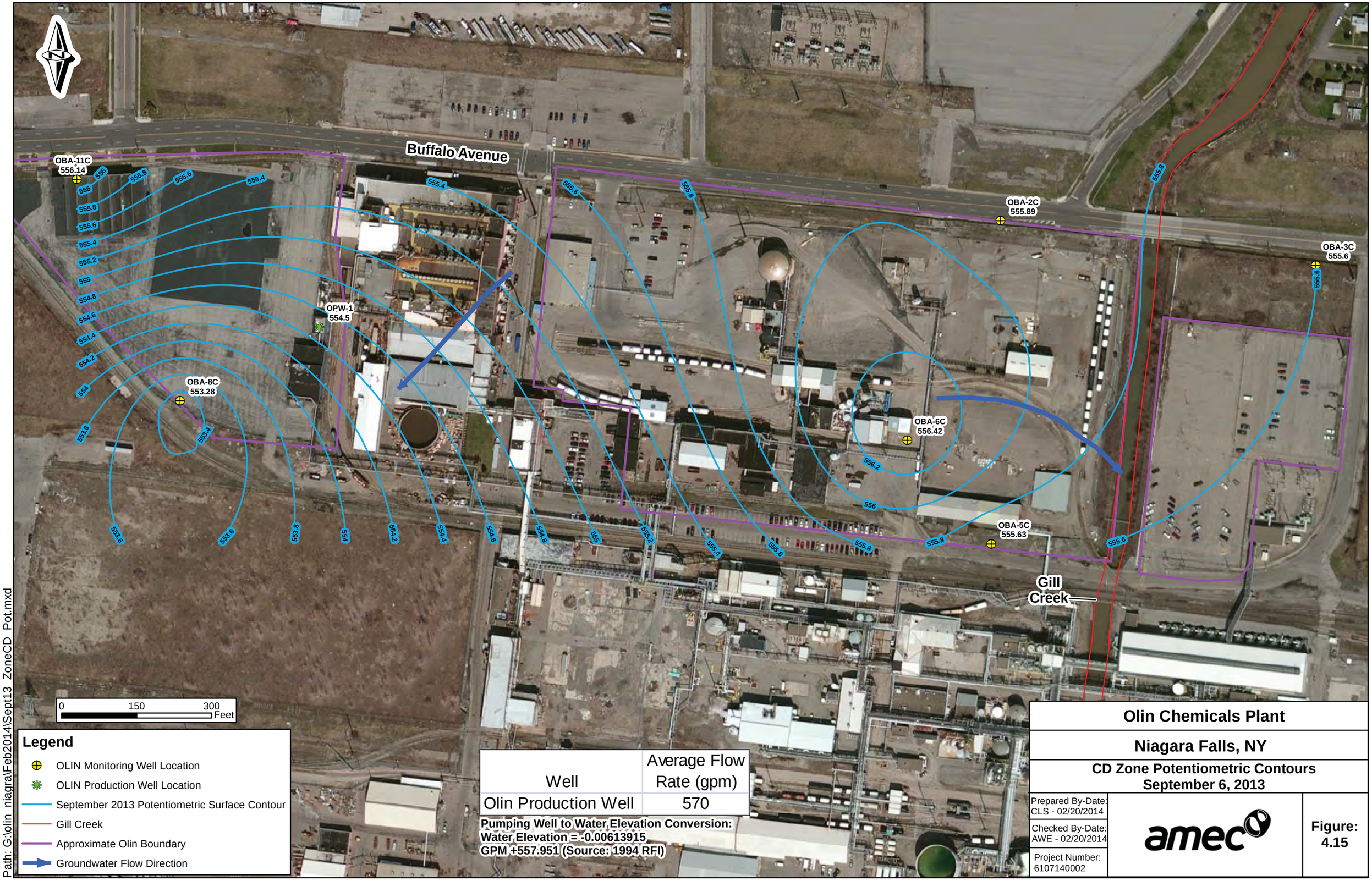
Checked By-Date: AWE - 02/06/2014

Project Number: 6107140002

amec

Figure: 4.14

Path: G:\olin_niagra\Feb2014\June2013_ZoneCD_Pot.mxd



Legend

- OLIN Monitoring Well Location
- OLIN Production Well Location
- September 2013 Potentiometric Surface Contour
- Gill Creek
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	570

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Olin Chemicals Plant

Niagara Falls, NY

CD Zone Potentiometric Contours
September 6, 2013

Prepared By-Date: CLS - 02/20/2014	amec	Figure: 4.15
Checked By-Date: AWE - 02/20/2014		
Project Number: 6107140002		

Path: G:\olin_niagra\Feb2014\Sept13_ZoneCD_Pot.mxd

Buffalo Avenue

OBA-11C
556.45

OPW-1
554.8

OBA-8C
552.23

OBA-2C
555.42

OBA-3C
555.05

OBA-6C
555.85

OBA-5C
554.88

Gill Creek

556.4 556.2 556 555.8 556.2 556 555.8 555.6 555.4 555.2 555 554.8 554.6 554.4 554.2 554 553.8 553.6 553.4 553.2 553 552.8 552.6 552.4 552.8 553 553.2 553.4 553.6 553.8 554 554.2 554.4 554.6 554.8 555 555 555.6 555.4 555.2 555.8 555 554.8 554.8

0 200 400 Feet

Legend

- OLIN Monitoring Well Location
- OLIN Production Well Location
- Gill Creek
- December 2013 Potentiometric Contours
- Approximate Olin Boundary
- Groundwater Flow Direction

Well	Average Flow Rate (gpm)
Olin Production Well	515

Pumping Well to Water Elevation Conversion:
Water Elevation = -0.00613915
GPM +557.951 (Source: 1994 RFI)

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS

Olin Chemicals Plant

Niagara Falls, NY

CD Zone Potentiometric Contours
December 3, 2013

Prepared By-Date:
JRM - 02/06/2014

Checked By-Date:
AWE - 02/06/2014

Project Number:
6107140002

amec

Figure: 4.16

Path: G:\olin_niagra\Dec2013\ZoneCD\mxds\Dec2013ZoneCD_JM.mxd

Buffalo Avenue

OBA-1A <1
OBA-8A <1
OBA-23A <1
OBA-16A 9.3
OBA-6A 1.1
OBA-5A 8500
PN-1A 1.4
PN-17A 1.6
PN-18A <1
PN-15A <2.5
PN-14A 170
PN-12A 9.7
PN-20A <1
PN-3A <1
PN-4A <1
PN-5A <1
PN-6A <1
PN-7A <1
PN-11A 3.4

0 200 400 Feet

Legend

1,2,4-trichlorobenzene µg/L

- 0.5-5
- 5-50
- 50-500
- 500-5000
- 5000 - 50000
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie Chart-AromaticsZoneA.mxd

Olin Chemicals Plant

Niagara Falls, NY

1,2,4-Trichlorobenzene Concentrations - A-Zone June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	amec
Project Number: 6107140002	Figure: 5.1

Buffalo Avenue

OBA-11B
280

OBA-1B
<1

OBA-2B
360

PN-20B
120

OBA-23B
390

OBA-16B
250

PN-4B
1900

PN-17B
10000

OBA-8B
3700

PN-15B
16000

PN-5B
11000

OBA-4B
<1

OBA-14B
170

PN-14B
9400

OBA-6B
120

PN-6B
2800

PN-12B
15000

PN-7B
2300

OBA-25B
<1

PN-11B
7400

OBA-5B
12000

OBA-24B
700

0 200 400 Feet

Legend

1,2,4-trichlorobenzene µg/L

- 0.5-5
- 5-50
- 50-500
- 500-5000
- 5000-50000
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie Chart-AromaticsZoneB.mxd

Olin Chemicals Plant

Niagara Falls, NY

1,2,4-Trichlorobenzene Concentrations -B-Zone June/July 2013

Prepared By-Date: CLS - 02/19/2014	
Checked By-Date: AWE - 02/19/2014	amec
Project Number: 6107140002	Figure: 5.2

Buffalo Avenue

OBA-1A <1
OBA-8A 3.8
OBA-23A 7.1
OBA-16A 3.7
OBA-6A <1
OBA-5A 230
PN-1A 1.6
PN-18A 17
PN-17A 3.7
PN-15A <2.5
PN-14A 5
PN-20A 15
PN-3A 1.3
PN-4A <1
PN-5A <1
PN-6A 4.8
PN-7A 22
PN-12A 5.6
PN-11A 4.9

0 200 400 Feet

Legend

Trichloroethene µg/L

- 0.5-5
- 5-50
- 50-500
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie Chart-TrichloroetheneZoneA.mxd

Olin Chemicals Plant

Niagara Falls, NY

Trichlorethene Concentrations - A-Zone June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	
Project Number: 6107140002	amec

Figure: 5.3

Legend

Trichloroethene

- 0.5 - 5
- 5 - 50
- 50 - 500
- 500 - 5000
- 5000 - 50000
- >50000
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Olin Chemicals Plant

Niagara Falls, NY

Trichlorethene Concentrations - B-Zone June/July 2013

Prepared By-Date: CLS - 02/20/2014	amec	Figure: 5.4
Checked By-Date: AWE - 02/20/2014		
Project Number: 6107140002		

Path: G:\olin_niagra\mxds\Pie Chart-TrichloroetheneZoneB.mxd

Buffalo Avenue

OBA-1A
0.47

OBA-23A
<0.047

PN-20A
<0.047

PN-3A
<0.47

OBA-16A
<0.94

PN-18A
<4.7

PN-4A
<0.047

PN-1A
<0.047

PN-17A
<0.047

PN-15A
<0.047

PN-5A
<0.24

OBA-8A
<0.047

PN-14A
<0.47

PN-6A
0.0235

OBA-6A
<0.047

PN-7A
<14

PN-12A
<0.094

OBA-5A
150

PN-11A
0.99

0 200 400 Feet

Legend

Gamma BHC µg/L

- 0.005-0.05
- 0.05-0.5
- 0.5-5
- 5-500
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie Chart-GammaZoneA.mxd

Olin Chemicals Plant

Niagara Falls, NY

Gamma-BHC Concentrations - A-Zone
June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	amec
Project Number: 6107140002	Figure: 5.5

Buffalo Avenue

OBA-11B <0.24
OBA-1B <0.047
OBA-2B 0.06
PN-20B 0.35
OBA-23B <0.094
OBA-16B 20
PN-4B 72
PN-17B <0.047
OBA-14B 6.2
OBA-4B <0.047
PN-15B 6.5
PN-5B 2000
OBA-8B <0.047
PN14B <4.7
OBA-6B <0.047
PN-6B 220
PN-12B 74
PN-7B 130
OBA-24B 56
OBA-25B <0.047
PN-11B 350
OBA-5B 600

0 200 400 Feet

Legend

Gamma BHC µg/L

- 0.005-0.05
- 0.05-0.5
- 0.5-5
- 5-500
- 500-5000
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie Chart-GammaZoneB.mxd

Olin Chemicals Plant

Niagara Falls, NY

Gamma-BHC Concentrations - B-Zone
June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	amec
Project Number: 6107140002	Figure: 5.6

Buffalo Avenue

OBA-1A <0.2
OBA-23A 0.76
PN-20A <0.2
PN-18A 164
OBA-16A 2.22
PN-3A 1.38
PN-17A 170
PN-1A 5.42
PN-4A <0.2
PN-15A <0.2
PN-5A <0.2
OBA-8A <0.2
PN-14A 1.68
PN-6A <0.2
OBA-6A <0.2
PN-7A 0.43
PN-12A <0.2
PN-11A <0.2
OBA-5A <0.2

0 200 400 Feet

Legend

Total Mercury µg/L

- 0.2-2
- 2-20
- 20 - 200
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie ChartTotMercZoneA.mxd

Olin Chemicals Plant

Niagara Falls, NY

Total Mercury Concentrations - A-Zone
June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	
Project Number: 6107140002	

amec

Figure: 5.7

Buffalo Avenue

OBA-11B 0.27
OBA-1B 23.1
OBA-2B <0.2
PN-20B <0.2
OBA-23B <0.2
OBA-16B 5.51
PN-4B 6.26
PN-17B 3.24
PN-15B 0.89
PN-5B <0.2
OBA-14B <0.2
OBA-4B <0.2
OBA-8B <0.2
PN-6B <0.2
PN-14B 0.57
OBA-6B 3.43
PN-7B <0.2
PN-12B 2.27
OBA-24B <0.2
PN-11B <0.2
OBA-25B <0.2
OBA-5B <0.2

0 200 400 Feet

Legend

Total Mercury µg/L

- 0.2-2
- 2-20
- 20-200
- Flagged as Non-Detect
- Gill Creek
- Approximate Olin Boundary

Path: G:\olin_niagra\mxds\Pie ChartTotMercZoneB.mxd

Olin Chemicals Plant

Niagara Falls, NY

Total Mercury Concentrations - B-Zone
June/July 2013

Prepared By-Date: CLS - 02/20/2014	
Checked By-Date: AWE - 02/20/2014	amec
Project Number: 6107140002	**Figure: 5.8**

APPENDIX A

NYSDEC CORRESPONDENCE

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
625 Broadway, Albany, New York 12233-7017
Phone: (518) 402-9814 • **Fax:** (518) 402-9819
Website: www.dec.ny.gov

Joe Martens
Commissioner

January 30, 2014

Mr. Richard W. McClure
Olin Corp., Environmental Remediation Group
3855 N. Ocoee Street, Suite 200
Cleveland, Tennessee 37312

RE: Groundwater Treatment System O&M Plan, Revision 6
Olin Chemicals, Buffalo Avenue Facility, Niagara Falls, New York
AOC Index No. R9-4171-94-08, NYSDEC Site No. 932051A and B

Dear Mr. McClure:

The New York State Department of Environmental Conservation has reviewed the above-referenced O&M plan dated October 28, 2013. The document provides the operation and maintenance plan for the groundwater treatment system at Olin's Niagara Falls facility. The referenced O&M plan is approved. If you have any questions regarding this letter, please call me at (518) 402-9813.

Sincerely,

Alex G. Czuhanich
Project Manager
Remedial Section B, Remedial Bureau E
Division of Environmental Remediation

ec: D. Weiss, NYSDEC, Region 9
A. Everett, USEPA, Region 2
M. Cruden
D. Radtke

APPENDIX B

WEEKLY O&M REPORTS

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 55	CONTRACT NO. **1094 Div 4**	DATE: 1/2/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: Cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 20**	**Max: 24**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Last week the air stripper blower went down, Olin staff replaced the motor and now the unit is operational.

Item 072412.02: The Carbon Feed Pump #has been replaced, there was water leaking from the piping that goes to the pump and apparently it was not holding its prime. An Olin worker was there and he was going to contact maintenance about fixing the leak. He also noted that the "high Pressure Alarm" light was always "on". He speculated that it was a wiring problem inside the panel. .

Item 082812.02: Sevenson has received the new inspection port and is in the process of scheduling installation. Sevenson has had their welder at the site this week to take a look at the situation and prepare for the task. Walker will contact Christine M. for scheduling the operation.

Item 082812.03: Sevenson has brought in Camtech to look at the intake plenum on the air stripper and give us a quote on the repairs. Camtech is now in the process of getting its contractor approval from Olin recertified. When this goes thru, they will be scheduled for the repair work.

Item 112012.01: Danforth has completed the repairs to the pH tank supports. The caution tape on the ladders has been removed.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.96	16.92	556.28	6.55
RW-2	557.2	14.83	14.95	557.03	8.17
RW-3	557.3	12.63	12.67	557.12	0.58
PR-4	554.8	14.97	15.23	554.89	4.30
RW-4	557.1	12.60	12.60	557.21	5.45
RW-5	556.8	12.61	12.67	556.82	15.58
PR-12	561.2		8.64	561.27	2.37

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1	40	30	10
	SP#3	SP#4	
GAC #2	27	16	11
TOTAL GAC SYSTEM	29.91	Diff,Pr	
FLOW RATE	82	GPM	
OBA-9AR TOTALIZER	685971		

OBA-9AR	557.3	12.83	13.01	557.35	2.30

PH Readings:				
RW-1	8.69			At 35%
RW-2	7.72			
PH Adj. Tanks	6.68	7.02	7.12	Acid tote 70% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 56	CONTRACT NO. **1094 Div 4**	DATE: 1/8/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 32**	**Max: 34**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Chris jones had spoken with an Olin worker regarding this issue. Has anyone put in a work order for the repair? It had been noted that the High Pressure alarm light on the GAC pump control panel is always on. Can an Olin E&I person take a look at it?

Item 082812.02: Sevenson has received the new inspection port and is in the process of scheduling installation. Sevenson now has the parts needed to do the job. Walker will contact Christine about hot work permits, and other job details then nail down a start date.

Item 082812.03: Sevenson has brought in Camtech to look at the intake plenum on the air stripper and give us a quote on the repairs. Camtech is now in the process of getting its contractor approval from Olin recertified. When this goes thru, they will be scheduled for the repair work. Walker has talked to Christine to find out if the approval has gone through. She is checking.

Item 010813.01: The acid drum in the shed at PR-4 is empty and needs to be changed out. Chris mentioned that there is a buildup of snow in the area leading to the shed, making it difficult for the forklift to get the new drum out there. He will add acid manually until the snow can be removed and the drum changed out. Typically the snow removal and the drum change out is done by the Olin personnel.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.82	16.77	556.30	6.11
RW-2	557.2	15.50	14.82	557.04	9.68
RW-3	557.3	12.54	12.54	557.10	0.45
PR-4	554.8	14.99	15.90	554.84	2.49
RW-4	557.0	12.38	12.60	557.19	2.87
RW-5	556.8	12.71	12.64	556.83	14.76
PR-12	559.2		10.44	559.37	2.32
OBA-9AR	557.3	13.29	12.47	556.83	2.30

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	44	29	15
	SP#3	**SP#4**	
GAC #2	26	15	11
TOTAL GAC SYSTEM	31.88	**Diff,Pr**	
FLOW RATE	81	**GPM**	
OBA-9AR TOTALIZER	690311		

PH Readings:				
RW-1	7.19			At 35%
RW-2	7.19			
PH Adj. Tanks	7.06	7.10	7.00	Acid tote 60% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 57	CONTRACT NO. **1094 Div 4**	DATE: 1/15/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 28**	**Max: 31**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Chris from Sevenson has capped several tubes and pipes in bldg. 73 (see Pictures) as per the action items list. He has resampled the composited GAC in the Spent GAC drumsat the request of Christine M. He has also inspected other items on the list and emailed Rick McClure with the results. Sevenson will continue to complete tasks on the list.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Chris jones had spoken with an Olin worker regarding this issue. Has anyone put in a work order for the repair? It had been noted that the High Pressure alarm light on the GAC pump control panel is always on. Can an Olin E&I person take a look at it?

Item 082812.02: Sevenson has received the new inspection port and is in the process of scheduling installation.

Item 082812.03: Sevenson has brought in Camtech to look at the intake plenum on the air stripper and give us a quote on the repairs. Camtech is now approved to do the work at Olin; We expect to do the task next week.

Item 010813.01: The acid drum in the shed at PR-4 is empty and needs to be changed out. Chris will add acid manually until the drum is changed out.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.8	15.65	16.56	556.55	6.15
RW-2	557.3	14.84	15.00	557.07	9.64
RW-3	557.4	12.53	12.56	557.14	0.47
PR-4	554.9	14.98	17.90	554.91	3.60
RW-4	557.2	12.42	12.31	557.32	2.25
RW-5	556.9	12.59	12.70	556.86	14.64
PR-12	560.3		12.35	560.42	2.32
OBA-9AR	556.5	13.54	13.76	556.50	2.30

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	30	10
	SP#3	**SP#4**	
GAC #2	25	16	9
TOTAL GAC SYSTEM	27.54	**Diff,Pr**	
FLOW RATE	86	**GPM**	
OBA-9AR TOTALIZER	695209		

PH Readings:				
RW-1	6.88			At 35%
RW-2	7.30			
PH Adj. Tanks	7.43	7.27	7.30	Acid tote 50% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 58	CONTRACT NO. **1094 Div 4**	DATE: 1/23/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly sunny, COLD	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 5**	**Max: 8**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Chris Noticed that a snow plow has damaged the well cap on well# PN-12B. He put an orange safety cone over it to mark it until repairs can be done.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Chris jones had spoken with an Olin worker regarding this issue. Has anyone put in a work order for the repair? It had been noted that the High Pressure alarm light on the GAC pump control panel is always on. Can an Olin E&I person take a look at it?

Item 082812.02: Sevenson has received the new inspection port and is in the process of scheduling installation. The Olin Safety orientation was cancelled last Monday, so the orientation for the Sevenson crew that was going to do the installation had to postpone for a week.

Item 082812.03: Sevenson has brought in Camtech to look at the intake plenum on the air stripper and give us a quote on the repairs. Camtech is now approved to do the work at Olin; The Olin Safety orientation was cancelled last Monday, so the orientation for the Camtech workers that was going to do the repairs had to postpone for a week. They are rescheduled for the Orientation for this Monday.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.82	16.75	556.33	6.03
RW-2	557.2	14.84	15.20	557.00	8.35
RW-3	557.2	12.76	12.60	557.02	0.43
PR-4	554.1	15.44	17.82	554.61	3.20
RW-4	557.1	12.59	12.63	557.20	1.88
RW-5	556.7	12.69	12.80	556.76	14.68
PR-12	563.3		9.32	563.49	2.46
OBA-9AR	556.8	13.20	13.43	556.86	2.30

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	43	31	12
	SP#3	**SP#4**	
GAC #2	26	15	11
TOTAL GAC SYSTEM	30.20	**Diff,Pr**	
FLOW RATE	83	**GPM**	
OBA-9AR TOTALIZER	700010		

PH Readings:				
RW-1	6.59			At 35%
RW-2	7.65			
PH Adj. Tanks	6.95	6.97	6.97	Acid tote 50% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 59	CONTRACT NO. **1094 Div 4**	DATE: 1/29/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy, sporadic rain	**RAINFALL INCHES: .10"**	**TEMP (Deg F)**	**Min: 35**	**Max: 40**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. It looks like Olin E&I (Dan?) has selected replacements for the secondary containment piping leak detectors. They are similar to the original ones, but do not contain Mercury as part of the switching device. Work on installation should begin within the month.

Chis noticed that when he shut down the air stripper for the ductwork maintenance that the DCS screen continued to indicate that the system was "On". This coincides with a report from the night before from and Olin operator that the stripper had shut down during the night and the DCS screen had not indicated the shut down, but looked as if it was still running. Both times the system was restarted without incedent. Christine and Rick have been notified of the situation.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Chris jones had spoken with an Olin worker regarding this issue. Has anyone put in a work order for the repair? It had been noted that the High Pressure alarm light on the GAC pump control panel is always on. Can an Olin E&I person take a look at it?

Item 082812.02: Sevenson has been in contact with Christine Markham regarding the installation of the inspection port I the air stripper sump. It looks like that task will be executed next week.

Item 082812.03: The damper valves on the air stripper intake duct work have been replaced. There are also new support brackets for the ductwork. Action Item complete.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.32	16.26	556.80	5.89
RW-2	557.2	14.81	14.98	557.04	9.45
RW-3	557.3	12.56	12.60	557.08	0.47
PR-4	554.6	15.30	17.37	554.84	1.70
RW-4	557.2	12.42	12.44	557.35	1.88
RW-5	556.8	12.70	12.76	556.76	14.50
PR-12	562.5		7.21	562.59	2.40
OBA-9AR	556.7	13.80	13.63	556.70	2.30

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	45	30	15
	SP#3	**SP#4**	
GAC #2	25	15	10
TOTAL GAC SYSTEM	32.11	**Diff,Pr**	
FLOW RATE	81	**GPM**	
OBA-9AR TOTALIZER	704603		

PH Readings:				
RW-1	7.10			At 35%
RW-2	7.35			
PH Adj. Tanks	6.84	7.13	7.12	Acid tote 40% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 60	CONTRACT NO. **1094 Div 4**	DATE: 2/05/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: N/A**	**TEMP (Deg F)**	**Min: 15**	**Max: 19**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. The purchase of the new bases for the acid totes in building 73 has been cancelled. The new bases are not tall enough to allow the forklift to pull out of the skids once it has delivered the acid. Walker met onsite with Christine to rethink the situation. They are looking into a mobile stair unit with a platform and safety rails built into it as an option. Walker has delivered a new air pressure gauge for the air stripper. Christine said she would write a work order to have it swapped out with the one that was damaged last time the stripper flooded. Christine has inspected the new air damper valves in the air stripper and approved of them.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Chris jones had spoken with an Olin worker regarding this issue. Has anyone put in a work order for the repair? It had been noted that the High Pressure alarm light on the GAC pump control panel is always on. Can an Olin E&I person take a look at it?

Item 082812.02: Sevenson has been in contact with Christine Markham regarding the installation of the inspection port I the air stripper sump. It looks like that task will be executed this week.

Item 020613.01: The well pump and motor at PR-12 has stopped pumping. This is the new unit that Chris installed on 1/31/13. Attempts to restart have been unsuccessful. Olin staff had been notified and Christine had asked an Olin electrician to troubleshoot the situation.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.76	16.81	556.35	5.98
RW-2	557.2	14.86	15.03	556.98	8.47
RW-3	557.3	12.61	12.64	557.04	0.48
PR-4	553.9	14.61	16.35	553.91	1.10
RW-4	557.2	12.46	12.34	557.33	1.53

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	37	31	6
	SP#3	**SP#4**	
GAC #2	25	18	7
TOTAL GAC SYSTEM	23.24	**Diff,Pr**	

RW-5	556.7	12.70	12.80	556.75	14.74
PR-12	559.7		12.43	559.77	0
OBA-9AR	556.8	13.17	13.30	556.95	2.40

FLOW RATE	91	**GPM**		
OBA-9AR TOTALIZER	710529			

PH Readings:				
RW-1	6.80			At 35%
RW-2	7.37			
PH Adj. Tanks	6.98	7.09	7.05	Acid tote 25% full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 61	CONTRACT NO. **1094 Div 4**	DATE: 2/12/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy	**RAINFALL INCHES: N/A**	**TEMP (Deg F)**	**Min: 30**	**Max: 31**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Items noted during this week's inspection: The high level pressure alarm light for the carbon vessels no longer remains on at all times. Chris talked with an Olin Operator about the air stripper going down. He noticed that it went down a couple of times this week, and was easily restarted

Chris also moved the drums of spent GAC into the Haz waste storage area until they can be shipped off site.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1.

Item 082812.02: Sevenson has been in contact with Christine Markham regarding the installation of the inspection port I the air stripper sump. It looks like that task will be executed on Tuesday 2/19/13. The system will be down for 8 hrs or less during this maintenance activity.

Item 020613.01: The well pump and motor at PR-12 has been repaired by Olin Electricians and is running fine. Thank you.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.74	16.84	556.33	6.00
RW-2	557.2	14.86	15.10	556.97	7.97
RW-3	557.2	12.63	12.65	557.02	0.44
PR-4	554.5	15.16	17.10	554.49	1.20
RW-4	557.2	12.49	12.42	557.32	1.27
RW-5	556.7	12.75	12.80	556.71	14.60
PR-12	561.4		13.12	561.07	4.38
OBA-9AR	557.4	12.62	12.76	557.45	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1	42	30	12
	SP#3	SP#4	
GAC #2	25	16	9
TOTAL GAC SYSTEM	30.92	Diff,Pr	
FLOW RATE	86	GPM	
OBA-9AR TOTALIZER	714646		

PH Readings:				
RW-1	6.76			At 40%
RW-2	7.60			
PH Adj. Tanks	7.18	7.29	7.24	Acid tote 1/8 full There is a back-up

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 62	CONTRACT NO. **1094 Div 4**	DATE: 2/19/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy, rain	**RAINFALL INCHES: .5"**	**TEMP (Deg F)**	**Min: 32**	**Max: 36**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Water levels were high this week , most likely due to a large rain event. An Olin operator mentioned that 7S sump (which receives our treated water) was not running at 100%, and a work order has been placed. Sevenson has installed a new pipe support bracket on the incoming air ductwork for the air stripper. This completes the action item regarding pipe supports inspections. Sevenson has installed a new pump and motor in the PR-4 well. It is running fine at 3.5 gpm as of 1:30 pm Friday 2/22/13.
Nothnagle Drilling will be onsite Monday 2/25/13 to rehabilitate well PR-12.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Mike Walker is searching to find exact replacement valves for the piping to pump #2.

Item 082812.02: The air stripper inspection port installation had been postponed pending the arrival of the proper welding wire at Sevenson's fabrication shop. Expected this week.

Item 022213.01: The acid feed line in the GW treatment building 73 needs to be switched to the other tote.

Item 022213.02: The eyewash/ safety shower inside the containment zone in B-73 is leaking. The shower valve needs to be replaced. Chris Jones was told by George S. that a work order has been created for repair. Water leaking from the shower collects in the sump inside the containment zone and gets pumped thru the treatment system.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.7	14.60	15.53	557.50	5.98
RW-2	558.0	14.00	14.28	557.79	8.38
RW-3	558.6	11.31	11.35	558.30	0.38
PR-4					0
RW-4	558.1	11.59	11.54	558.18	1.41
RW-5	557.7	11.75	11.80	557.70	14.71
PR-12	562.1		12.31	562.05	4.30
OBA-9AR	556.9	13.18	13.35	556.90	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	30	10
	SP#3	**SP#4**	
GAC #2	21	18	3
TOTAL GAC SYSTEM	28.13	**Diff,Pr**	
FLOW RATE	89	**GPM**	
OBA-9AR TOTALIZER	719279		

PH Readings:				
RW-1	6.28			At 40%
RW-2	7.28			
PH Adj. Tanks	7.14	7.31	7.25	Acid tote will need to be changed anyday now

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 63	CONTRACT NO. **1094 Div 4**	DATE: 2/26/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 30**	**Max: 38**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. Nothnagle Drilling was onsite Monday 2/25/13 and Tuesday 2/26/13 to rehabilitate well PR-12. All went well and the pump is now operating at 4 gpm.

Item 072412.02: The polishing pump #2 has been installed and is operational. However, the piping that feeds pump #2 leaks when the pump is in operation causing air to get into the suction line, which causes the pump to lose its prime and fail. The system is currently running fine off of pump #1. Mike Walker is still searching to find exact replacement valves for the piping to pump #2.

Item 082812.02: The air stripper inspection port installation had been postponed pending the arrival of the proper welding wire at Sevenson's fabrication shop. Delivery of the wire to Sevenson is expected on Friday 3/1/13. We will mobilize and install the port ASAP after receiving the wire.

Item 022213.02: The eyewash/ safety shower inside the containment zone in B-73 is still leaking. The shower valve needs to be replaced. Chris Jones was told by George S. that a work order has been created for repair. Water leaking from the shower collects in the sump inside the containment zone and gets pumped thru the treatment system.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.5	15.83	16.84	556.31	5.90
RW-2	557.1	14.90	15.14	556.96	8.94
RW-3	557.2	12.61	12.59	557.00	0.34
PR-4	554.3	14.95	17.90	554.34	1.40
RW-4	557.2	12.45	12.41	557.34	1.10
RW-5	556.8	12.59	12.70	556.85	14.73
PR-12	557.1		12.45	556.65	4.25
OBA-9AR	556.8	13.45	13.58	556.65	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1	41	31	10
	SP#3	SP#4	
GAC #2	25	16	9
TOTAL GAC SYSTEM	30.30	Diff,Pr	
FLOW RATE	86	GPM	
OBA-9AR TOTALIZER	724805		

PH Readings:				
RW-1	6.56			At 40%
RW-2	7.35			
PH Adj. Tanks	8.46	6.83	6.94	Full

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 64	CONTRACT NO. **1094 Div 4**	DATE: 3/05/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 31**	**Max: 36**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson reviewed the Olin operator notes. An email has been received from Olin E&I that they have repaired and recalibrated the air flow gauge on the air stripper. Therefore the new one that was ordered has been put into stock as a backup. The air stripper had gone down on Monday morning. *Olin Maintenance crews responded quickly and replaced the drive motor (and possibly the blower unit) and restarted the system.* **A new spare motor may need to be ordered to keep future response time as timely and effective as this one**. If the blower unit had also been replaced, can the one that was removed be repaired and used as a spare, or should we order a new back up unit? Please advise.

Item 072412.02: The 2 ball valves for the line feeding GAC polishing pump @ have arrived at Sevenson. M. Walker will deliver them to the site today (Friday 3/8/13) and make sure they are the proper replacements for the leaking ones.

Item 082812.02: The installation of the air stripper inspection port has been scheduled for Tuesday 3/12/13 at 0800. It is anticipated that the system will be shut down for this maintenance for approximately 8 hours.

Item 022213.02: The eyewash/ safety shower inside the containment zone in B-73 is still leaking. The shower valve needs to be replaced. Chris Jones was told by George S. that a work order has been created for repair. Water leaking from the shower collects in the sump inside the containment zone and gets pumped thru the treatment system.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

Item 030513.02: The damper that controls the air flow into the air stripper has a stripped retaining bolt on it and the damper cannot be properly adjusted. . Someone has installed a temporary fix using duct tape. an email requesting a work order for the repair has been issued by Olin E&I.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.7	15.69	16.63	556.44	5.91
RW-2	557.2	14.86	15.05	556.99	9.43
RW-3	557.3	12.58	12.61	557.04	0.41
PR-4	554.7	14.35	17.85	554.72	2.40
RW-4	557.2	12.45	12.41	557.37	1.07
RW-5	556.9	12.53	12.62	556.93	14.64
PR-12	557.2		12.43	557.21	4.06
OBA-9AR	557.6	12.46	12.65	557.60	-----

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	25	15
	SP#3	**SP#4**	
GAC #2	20	15	5
TOTAL GAC SYSTEM	27.72	**Diff,Pr**	
FLOW RATE	82	**GPM**	
OBA-9AR TOTALIZER	------		

PH Readings:				
RW-1	6.50			At 40%
RW-2	7.44			
PH Adj. Tanks	6.76	7.04	7.10	70%

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 65	CONTRACT NO. **1094 Div 4**	DATE: 3/12/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 31**	**Max: 36**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. However the system had been shut down pending an investigation as to why the last round of sampling showed high levels of TCE at the outfall of 7S. Sevenson did not take the well level measurements this week. Sevenson has a crew there this week to install the inspection port on the stripper. Sevenson has also been asked to collect samples of the process water from 3 different points in the system for TCE analysis. The results are pending.

Item 072412.02: The 2 ball valves for the line feeding GAC polishing pump have been delivered to the site. Walker has talked with Olin personnel about the replacement of the old ones; we may take advantage of the system being down to do this maintenance also this week.

Item 082812.02: The air stripper inspection port has been installed. Sevenson must come back next week to do some final grinding on the new welds.

Item 022213.02: The eyewash/ safety shower inside the containment zone in B-73 has been repaired. Thank you.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

Item 030513.02: The damper that controls the air flow into the air stripper has a stripped retaining bolt on it and the damper cannot be properly adjusted. . Someone has installed a temporary fix using duct tape an email requesting a work order for the repair has been issued by Olin E&I.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1					
RW-2					
RW-3					
PR-4					
RW-4					
RW-5					
PR-12					
OBA-9AR					

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1			
	SP#3	SP#4	
GAC #2			
TOTAL GAC SYSTEM		Diff,Pr	
FLOW RATE		GPM	
OBA-9AR TOTALIZER	------		

PH Readings:				
RW-1				
RW-2				
PH Adj. Tanks				

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 66	CONTRACT NO. **1094 Div 4**	DATE: 3/21/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 31**	**Max: 36**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. However the system is still shut down pending an investigation as to why the last round of sampling showed high levels of TCE at the outfall of 7S. Sevenson did not take the well level measurements this week. Sevenson and Olin are working on resolving maintenance issues while the system is down. On the list are the repair of the air flow damper control, testing of the air flow gauge, and replacement if necessary. Possibly reconfiguring the air duct piping between the blower and the stripper. Finish grinding the welds on the stripper inspection port. Replace leaking ball valves near the standby polishing pump. Working with Olin E&I to replace the leak detection switches at the pumping wells.

Item 072412.02: The 2 ball valves for the line feeding GAC polishing pump have been delivered to the site. Walker has talked with Olin personnel about the replacement of the old ones; we may take advantage of the system being down to do this maintenance also this week.

Item 082812.02: The air stripper inspection port has been installed. Sevenson welder will be back on site Monday 3/25/13 to do some minor finish work and touch up welding to repair an air leak on one of the welds..

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

Item 030513.02: The damper that controls the air flow into the air stripper has a stripped retaining bolt and a cracked handle on it, the damper cannot be properly adjusted. . Someone has installed a temporary fix using duct tape. An email requesting a work order for the repair has been issued by Olin E&I.

Item 032113.01: While changing the leak detection switch in Well OBA-9AR, Andy Mill of Olin E&I detected a yellow liquid in the secondary containment pipe. Analysis has shown it to be a low pH acidic liquid, most likely residual from a broken HCl tubing that was used in the past to adjust the pH in that G/W well. Chris Jones of Sevenson has removed about 2 gallons of the acid and placed it in a bucket for reuse within the system, then flushed out the secondary containment piping with water. At the request of E&I, he has also removed the leak detention sensors from the rest of the GW pumping wells so E&I can

replace them with the new ones.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1					
RW-2					
RW-3					
PR-4					
RW-4					
RW-5					
PR-12					
OBA-9AR					

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1			
	SP#3	SP#4	
GAC #2			
TOTAL GAC SYSTEM		Diff,Pr	
FLOW RATE		GPM	
OBA-9AR TOTALIZER	------		

PH Readings:				
RW-1				
RW-2				
PH Adj. Tanks				

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 67	CONTRACT NO. **1094 Div 4**	DATE: 3/28/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 35**	**Max: 40**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The system was down for the first part of the week for repairs and maintenance items. It was restarted on Thursday 3/28/13 at 0815. The flow rate at RW-5 has been throttled back to 6.0 gpm to accommodate the ground water level at that well below 557.5 while using the lowest flow rate possible. The flow rate of the GAC polishing pumps has been reduced accordingly (Balanced), to allow for maximum contact time with the carbon and reduce the number of On/Off cycles of the pumps. The damaged well box that covered GW well 0BA-6A has been removed and replaced with a new one. Olin E&I has installed a new air flow gauge in the air stripper, it is now functional.

Item 072412.02: The 2 ball valves for the line feeding GAC polishing pump #2 have been replaced.

Item 082812.02: The air stripper inspection port has been installed. There was some warping of the side wall of the stainless steel stripper sump. Likely caused by the heat of the welding that was done on the tank. This had caused some air/water leakage. Sevenson has temporarily stopped the leakage with a ½ clamp at the leak point, and used silicone and an epoxy to supplement the gasket material. A more permanent solution will be installed when the system is down for the upcoming GAC change out.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

Item 030513.02: The damper that controls the air flow into the air stripper has been repaired and is on line and functional.

Item 032113.01: While changing the leak detection switch in Well OBA-9AR, Andy Mill of Olin E&I detected a yellow liquid in the secondary containment pipe. Analysis has shown it to be a low pH acidic liquid, most likely residual from a broken HCl tubing that was used in the past to adjust the pH in that G/W well. Chris Jones of Sevenson has removed about 2 gallons of the acid and placed it in a bucket for reuse within the system, then flushed out the secondary containment piping with water. At the request of E&I, he has also removed the leak detention sensors from the rest of the GW pumping wells so E&I can replace them with the new ones.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.6	15.81	16.75	556.30	5.90
RW-2	557.2	14.80	14.96	557.02	9.51
RW-3	557.3	12.54	12.58	557.07	0.45
PR-4	555.0	14.85	17.51	555.05	3.40
RW-4	557.2	12.40	12.41	557.39	0.91
RW-5	557.0	12.42	12.48	557.02	6.20
PR-12	557.2		12.45	557.21	3.82
OBA-9AR	556.5	13.45	13.69	556.55	1.7

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	20	12	8
	SP#3	**SP#4**	
GAC #2	10	7	3
TOTAL GAC SYSTEM	14.89	**Diff,Pr**	
FLOW RATE	46	**GPM**	
OBA-9AR TOTALIZER	725591		

PH Readings:				
RW-1	7.91			
RW-2	7.19			
PH Adj. Tanks	7.63	7.97	8.02	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 68	CONTRACT NO. **1094 Div 4**	DATE: 4/12/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: approx 1'' in past 24 hours.**	**TEMP (Deg F)**	**Min: 36**	**Max: 40**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The system was Shut down on Friday4/12/13. The air flow meter had not been working properly and actual air flow could not be ascertained. The decision was made to shut down the system and investigate the problem until Olin E&I could fix the air flow gauge, rather than run the system with a malfunctioning gauge.

While the system was down Sevenson performed a scheduled GAC change out, removing the spent GAC and installing 1,000#'s of GAC in each vessel. Spent GAC has been drummed and sampled. Analytical results will determine the ultimate disposition of the spent GAC.

Sevenson also performed maintenance on the air stripper unit that included taking the unit apart and cleaning out the sludge and scale. The sludge has been containerized in salvage drums for off-site disposal. Samples of the sludge have been collected and are stored in the refrigerator at MS#2 at the request of Christine Markham.

Sevenson also straightened the warped sump wall and replaced all of the leaking gaskets between the trays when reassembling the unit.

An Olin E&I technician was also on site working on the damper system. He welded the cracked damper lever back together allowing the damper to be locked in place once adjusted properly, and he installed a pair of "moisture taps" to allow for the draining of any water that accumulates in the tubing that runs between the air blower and the air flow gauge.

As of Thursday 4/11/13 at 3:00 pm, the system has been restarted and is functioning properly. The air flow is able to reach its target rate of 900 cfm while all the GW pumps are producing.

Item 082812.02: The air stripper tray gaskets have been replaced, the warped wall has been repaired and the stripper is functioning without leakage.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.5	14.82	15.77	557.29	5.85
RW-2	557.5	14.48	14.62	557.38	7.30
RW-3	557.8	11.91	11.94	557.66	0.48
PR-4	554.2	15.60	16.97	554.39	10.40
RW-4	557.6	11.96	12.00	557.83	1.08
RW-5	557.5	11.91	11.98	557.53	5.99
PR-12	557.6		11.96	557.69	3.22
OBA-9AR	556.6	13.79	13.59	556.69	1.7

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	18	15	3
	SP#3	**SP#4**	
GAC #2	11	10	3
TOTAL GAC SYSTEM	8.65	**Diff,Pr**	
FLOW RATE	65	**GPM**	
OBA-9AR TOTALIZER	765391		

PH Readings:				
RW-1	6.79			
RW-2	7.47			
PH Adj. Tanks	7.23	7.16	6.91	

Air influent temp 15.7 C
Ambient air temp 6 C
Water temp before stripper 13.9 C
Water temp after stripper 14.7 C

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 69	CONTRACT NO. **1094 Div 4**	DATE: 4/16/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: .10 “**	**TEMP (Deg F)**	**Min: 38**	**Max: 48**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

On Tuesday 4/16/13, There was a site visit from both Tony Englund of AMEC and Bob Bergsgaard of Carbonair. The purpose was to perform an inspection of the WWT system, particularly the air stripper portion of the system and evaluate the operations to determine if the system is functioning properly and/or can operations be made more efficient. Also attending the meeting were Mike Walker and Chris Jones from Sevenson and Andy Mills from Olin E&I dept. Work performed included testing of air flow. Instrumentation testing, (high level switch, low pressure switch, etc.), the LP switch was found faulty and has been replaced. There will be a written report from Carbonair with other findings and suggestions.

Rick McClure has instructed Sevenson to perform Daily monitoring of the system as of 4/18/13. This monitoring will include manually shutting down well pump RW-5 in the evening and restarting it in the morning. Upon arrival on Friday morning, RW-5 had already been restarted, presumed by an Olin operator doing his night rounds.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is not working properly. Chris Jones has inspected it and tried to troubleshoot, however has not had any luck, we have requested that the Olin E&I department have a look at it. Rick, Christine and Tony have been notified of the situation.

Item 041913.01: During the morning inspection, it was observed that the pump at PR-12 was running, but the flow meter was indicating 0 flow. Chris will pull the pump and investigate the situation.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.5	15.81	16.75	556.32	5.81
RW-2	557.1	14.97	15.13	556.89	8.96
RW-3	557.2	12.67	12.71	556.96	0.36
PR-4	553.8	16.06	17.27	553.87	3.50
RW-4	557.1	12.48	12.50	557.27	1.06
RW-5	557.0	12.48	12.54	556.97	5.99
PR-12	557.1		12.51	557.11	2.35
OBA-9AR	557.4	12.67	12.81	557.44	1.7

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	20	19	1
	SP#3	**SP#4**	
GAC #2	14	11	3
TOTAL GAC SYSTEM	7.69	**Diff,Pr**	
FLOW RATE	46	**GPM**	
OBA-9AR TOTALIZER	735869		

PH Readings:				Acid level: 6” left in tote.
RW-1	6.98			
RW-2	7.32			
PH Adj. Tanks	7.03	7.00	6.76	

Air influent temp 60.9 F
Ambient air temp 62.4 F
Water temp before stripper 59.9 F
Water temp after stripper 61.5 F

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 70	CONTRACT NO. **1094 Div 4**		DATE: 4/23/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 48**	**Max: 53**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Rick McClure has instructed Sevenson to perform daily monitoring of the system as of 4/18/13. This monitoring has included manually shutting down well pump RW-5 in the evening and restarting it in the morning. Of note during these inspections is that the airflow through the stripper seems to fluctuate between 800-900 cfm at times during the day. Chris has been making the adjustment with the air flow damper to keep it at 900 as much as possible.

There seems to be an issue with how the APACS reports are showing their data to Alycia at AMEC. Alycia, Christine, and Rick McDonnell are troubleshooting the issues.

We are still waiting on the results of the analytical testing on the spent GAC and the stripper sludge that is in drums in bldg. 73.

Item 030513.01: The inline magnetic flow meter at the OBA-9AR well head is now working properly.

Item 041913.01: During the morning inspection, on 04/19/13 it was observed that the pump at PR-12 was running, but the flow meter was indicating 0 flow. Chris has pulled the pump, inspected it and cleaned it. After reinstallation, the pump began operating as normal.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.3	16.02	16.95	556.07	7.19
RW-2	557.2	14.78	14.95	556.96	7.69
RW-3	557.3	12.60	12.62	557.05	0.32
PR-4	553.3	16.52	17.18	553.44	1.20
RW-4	557.2	12.43	12.44	557.35	0.96
RW-5	557.0	12.41	12.48	557.03	5.99
PR-12	557.1		12.46	557.12	3.40
OBA-9AR	556.6	13.81	13.59	557.44	1.7
PH				Acid level: 4" left in	

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	20	11	9
	SP#3	**SP#4**	
GAC #2	7	4	3
TOTAL GAC SYSTEM	12.26	**Diff,Pr**	
FLOW RATE	48	**GPM**	
OBA-9AR TOTALIZER	740471		

Readings:				tote.
RW-1	6.71			35
RW-2	7.28			
PH Adj. Tanks	6.88	6.93	6.70	

Air influent temp 56.3 F
Ambient air temp 51.2 F
Water temp before stripper 59.4 F
Water temp after stripper 59.7 F

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 71	CONTRACT NO. **1094 Div 4**	DATE: 4/30/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 55**	**Max: 61**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson also continued to perform the daily site visits to manually stop/start RW-5 and record air flows of the stripper.
Acid tote on the stand at the pH adjust area is empty and needs to be changed over.
We are still having some issues with the APACS read out according to AMEC's remote viewing. Olin/AMEC technicians are working on the problem.

Item 043013.01: The acid tote in the pH adjust area is empty and needs to be changed over.

Item 043013.02: Christine Markham has requested that Sevenson move the drums containing spent GAC into the Caged waste holding area.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.2	16.16	17.10	555.91	5.66
RW-2	557.0	14.97	15.12	556.87	7.45
RW-3	557.2	12.70	12.71	556.94	0.28
PR-4	554.1	15.78	16.84	554.08	0.90
RW-4	557.1	12.53	12.55	557.25	0.88
RW-5	556.9	12.51	12.57	556.93	5.99
PR-12	557.0		12.53	557.05	3.23
OBA-9AR	556.6	13.81	13.59	557.44	1.8

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	19	11	8
	SP#3	**SP#4**	
GAC #2	5	4	1
TOTAL GAC SYSTEM	12.28	**Diff,Pr**	
FLOW RATE	49	**GPM**	
OBA-9AR TOTALIZER	744343		

PH Readings:				Acid level: >.5" left in tote.
RW-1	6.65			35
RW-2	7.64			
PH Adj. Tanks	6.71	6.83	6.62	

Air influent temp 69.0 F

Ambient air temp 63.5 F
Water temp before stripper 61.1 F
Water temp after stripper 63.5 F

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 72	CONTRACT NO. **1094 Div 4**	DATE: 5/07/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 50**	**Max: 65**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson has been instructed by Rick McClure to cease the daily inspections of the air stripper and cycling on/off of the RW-5 groundwater pump. Sevenson has also been instructed to cease the weekly recording of water and air stripper temperatures.

During this week's inspection, it was noticed that the shed that houses well PR-4 has been damaged. It looks like it had been hit by a piece of machinery. There was no damage to the well itself or the acid injection system inside the shed. Repairs will have to be made for the doors to close properly.

The air louvers on the air stripper intake ductwork have been removed, dirt and debris have been removed from the heating unit in the ductwork, and the louvers have been inspected and re-installed.

Reminder: All leak detection switches for the pumping wells have been removed at the request of Olin E&I. They have been placed next to their respective standpipes.

Item 043013.01: The acid tote in the pH adjust area has been changed over to the full one and put back on line. Thank you.

Item 043013.02: Sevenson has moved the drums containing spent GAC into the caged waste holding area.

Item 050713.01: The acid drum inside the shed at PR-4 is empty and needs to be replaced.

Item 050713.02: The ground water pump at RW-5 has failed. Sevenson has removed it inspected and cleaned it and tried to trouble shoot the problem. The piping that runs back to bldg. 73 has been flushed out and cleaned. The pump is still not working under pressure. A new pump has been ordered. The replacement should be installed on Thursday 5/9/13.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.5	14.74	15.68	557.33	5.63
RW-2	557.0	15.02	15.18	556.81	7.02
RW-3	557.1	12.75	12.77	556.88	0.24
PR-4	555.6	14.21	15.16	555.61	1.70
RW-4	557.0	12.59	12.60	557.19	0.84
RW-5					Pulled for service
PR-12	557.0		12.60	556.97	3.18
OBA-9AR	556.6	13.81	13.59	557.44	1.8

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	20	10	10
	SP#3	**SP#4**	
GAC #2	5	4	1
TOTAL GAC SYSTEM	14.47	**Diff,Pr**	
FLOW RATE	48	**GPM**	
OBA-9AR TOTALIZER	747896		

PH Readings:				Acid level: FULL Changed over today
RW-1	6.09			
RW-2	7.57			
PH Adj. Tanks	7.23	7.51	7.30	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 73	CONTRACT NO. **1094 Div 4**	DATE: 5/14/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 39**	**Max: 45**

Work performed this week:
Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson has replaced the acid pump in the PR-4 shed. It leaking from the valve threads. At the request of Tony Englund, Sevenson has re-adjusted the air intake valves on the air stripper intake manifold.

Item 050713.01: The acid drum inside the shed at PR-4 has been replaced. Thank you.

Item 050713.02: The ground water pump at RW-5 has been replaced and the well is back on line

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.2	16.17	17.12	555.90	5.79
RW-2	557.1	14.96	15.15	556.89	8.81
RW-3	557.1	12.74	12.78	556.87	0.22
PR-4	554.2	15.76	16.59	554.10	1.30
RW-4	557.1	12.52	12.53	557.25	0.85
RW-5	556.9	12.52	12.59	556.94	5.90
PR-12	557.0		12.52	557.05	3.07
OBA-9AR	557.3	12.83	13.01	557.35	1.8

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	32	14	18
	SP#3	**SP#4**	
GAC #2	10	10	0
TOTAL GAC SYSTEM	30.79	**Diff,Pr**	
FLOW RATE	54	**GPM**	
OBA-9AR TOTALIZER	751163		

PH Readings:				Acid level: 75%
RW-1	6.50			
RW-2	7.70			
PH Adj. Tanks	6.77	6.92	6.65	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 74	CONTRACT NO. **1094 Div 4**	DATE: 5/21/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 62**	**Max: 67**

Work performed this week:
Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Item 052113.01: The back pressure at the GAC units was at 41.32 psi. A backwash of the units is due.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.1	16.20	17.16	555.83	5.79
RW-2	557.0	15.05	15.25	556.80	7.89
RW-3	557.1	12.71	12.73	556.87	0.31
PR-4	556.8	13.32	13.06	556.78	1.30
RW-4	557.0	12.58	12.50	557.18	0.84
RW-5	556.8	12.60	12.60	556.88	5.81
PR-12	557.0		12.61	556.97	2.92
OBA-9AR	557.2	12.70	13.05	557.27	1.8

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	49	11	38
	SP#3	**SP#4**	
GAC #2	4	4	0
TOTAL GAC SYSTEM	41.32	**Diff,Pr**	
FLOW RATE	43	**GPM**	
OBA-9AR TOTALIZER	754125		

PH Readings:				Acid level: 60%
RW-1	6.59			
RW-2	7.58			
PH Adj. Tanks	6.24	6.31	6.38	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 75	CONTRACT NO. **1094 Div 4**	DATE: 5/28/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: Rain	**RAINFALL INCHES: .58"**	**TEMP (Deg F)**	**Min: 56**	**Max: 60**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The acid system and the acid pump to RW-1 were turned off upon arrival. Chris jones met with the Olin operators to see why. Apparently over the weekend, the pH in the adjustment tanks was running lower than normal and they wanted to avoid a low pH alarm/shut off condition. The system continues to operate normally at the present time. The acid addition has been restarted. Onsite this week were David Share, Rick McClure, and Tony Englund for a site inspection and Meetings with local Olin staff and Sevenson. Recommendations are listed below as action items.

Item 052913.01: A "**Confined Space Permit Required**" sticker is needed on the new inspection port on the air stripper.

Item 052913.02: The 8x8 wood beams near the pH adjust tanks should be removed to outside the building.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also.

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	558.3	14.06	15.01	558.00	1.79
RW-2	557.6	14.50	14.68	557.34	8.56
RW-3	557.9	12.02	12.05	557.58	0.27
PR-4	557.5	12.42	12.89	557.43	1.30
RW-4	557.6	12.05	12.08	557.72	0.78
RW-5	557.5	12.02	12.10	557.42	5.79
PR-12	557.6		12.05	557.50	2.83
OBA-9AR	557.3	12.81	13.00	557.33	1.70

PH Readings:				Acid level: 50%

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	30	15	15
	SP#3	**SP#4**	
GAC #2	14	10	4
TOTAL GAC SYSTEM	21.05	**Diff,Pr**	
FLOW RATE	62	**GPM**	
OBA-9AR TOTALIZER	758002		

RW-1	6.89			
RW-2	7.00			
PH Adj. Tanks	6.28	6.34	6.17	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 76	CONTRACT NO. **1094 Div 4**		DATE: 6/04/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: Sunny, clear	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 58**	**Max: 62**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. It was noticed that there was a liquid pooled on the acid pump table, Chris Jones will clean it up and check for leaks in the piping.

Item 052913.01: A "**Confined Space Permit Required**" sticker has been installed on the new inspection port on the air stripper. Done.

Item 052913.02: The 8x8 wood beams near the pH adjust tanks have been removed to outside the building. Done.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank.

Item060513.01: Ground water pump RW-5 has been shutting down intermittently for no apparent reason. Sevenson tried to troubleshoot the problem., could not fix it. Olin E&I was called in to take a look at it, the next morning the pump was up and running. Not sure what the problem was yet.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.8	15.50	16.40	556.56	5.88
RW-2	557.3	14.72	14.89	557.15	6.26
RW-3	557.4	12.41	12.43	557.19	0.31
PR-4	556.8	13.06	13.26	556.78	1.20
RW-4	557.4	12.22	12.17	557.72	0.90
RW-5	557.2	12.20	12.20	557.23	4.70
PR-12	557.3		12.39	557.28	2.31
OBA-9AR	557.0	13.10	13.59	556.97	1.70

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	15	25
	SP#3	**SP#4**	
GAC #2	14	10	4
TOTAL GAC SYSTEM	29.22	**Diff,Pr**	
FLOW RATE	56	**GPM**	
OBA-9AR TOTALIZER	763195		

PH Readings:				Acid level: 50%
RW-1	6.85			

RW-2	7.04			
PH Adj. Tanks	6.56	6.62	6.41	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 77	CONTRACT NO. **1094 Div 4**	DATE: 6/11/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: Cloudy, light rain	**RAINFALL INCHES: >.5”**	**TEMP (Deg F)**	**Min: 50**	**Max: 61**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson was onsite this week to trouble shoot and eventually replace the pump motor at well RW-5.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also. *I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank. Christine has developed a work order for this task.

Item060513.01: Ground water pump RW-5 has stopped operating. Sevenson had pulled it and discovered an electrical problem that seemed to short out the motor. A new motor was installed on the pump and the pump will be reinstalled in the well by Friday 6/14/13, 4:00 pm.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.2	15.12	16.05	556.90	5.75
RW-2	557.4	14.62	14.81	557.19	8.04
RW-3	557.5	12.32	12.34	557.29	0.40
PR-4	556.5	13.29	13.71	556.43	1.20
RW-4	557.4	12.19	12.21	557.57	0.74
RW-5					0
PR-12	557.3		12.19	557.34	1.95
OBA-9AR	556.7	13.78	13.61	556.70	2.00

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	29	19	10
	SP#3	**SP#4**	
GAC #2	15	11	4
TOTAL GAC SYSTEM	17.20	**Diff,Pr**	
FLOW RATE	45	**GPM**	
OBA-9AR TOTALIZER	767807		

PH Readings:				Acid level: 50%
RW-1	7.88			
RW-2	6.99			

PH Adj. Tanks	7.07	7.27	7.04	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 79	CONTRACT NO. **1094 Div 4**	DATE: 6/25/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 71**	**Max: 78**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank. Christine has developed a work order for this task.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.3	14.97	15.90	557.04	3.68
RW-2	557.3	14.62	14.78	557.15	9.98
RW-3	557.5	12.35	12.37	557.27	0.31
PR-4	555.9	13.88	14.19	555.97	1.20
RW-4	557.4	12.20	12.22	557.55	0.74
RW-5	557.2	12.17	12.25	557.26	4.65
PR-12	557.3		12.22	557.36	2.25
OBA-9AR	556.8	13.20	13.43	556.86	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	10	30
	SP#3	**SP#4**	
GAC #2	10	9	1
TOTAL GAC SYSTEM	30.61	**Diff,Pr**	
FLOW RATE	46	**GPM**	
OBA-9AR TOTALIZER	776856		

PH Readings:				Acid level: 50%
RW-1	6.61			
RW-2	8.32			
PH Adj. Tanks	6.75	6.99	6.80	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 80	CONTRACT NO. **1094 Div 4**		DATE: 7/02/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 64**	**Max: 71**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank. Christine has developed a work order for this task.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.8	15.51	16.47	556.51	5.34
RW-2	557.4	14.60	14.74	557.20	8.87
RW-3	557.5	12.30	12.35	557.31	0.21
PR-4	556.6	13.17	13.70	556.66	1.20
RW-4	557.4	12.19	12.24	557.59	0.75
RW-5	557.3	12.12	12.20	557.32	4.56
PR-12	557.3		12.22	557.35	2.87
OBA-9AR	556.8	13.20	13.43	556.86	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	45	19	26
	SP#3	**SP#4**	
GAC #2	15	11	4
TOTAL GAC SYSTEM	35.21	**Diff,Pr**	
FLOW RATE	61	**GPM**	
OBA-9AR TOTALIZER	781271		

PH Readings:				Acid level: 20%
RW-1	6.89			
RW-2	7.95			
PH Adj. Tanks	6.79	6.97	6.73	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 81	CONTRACT NO. **1094 Div 4**	DATE: 7/09/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy/muggy	**RAINFALL INCHES: 0.05**	**TEMP (Deg F)**	**Min: 69**	**Max: 73**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

The 7th tray for the air stripper unit was delivered on Friday. Sevenson will schedule the installation asap.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank. Christine has developed a work order for this task.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.9	14.38	15.30	557.64	0.30
RW-2	557.5	14.49	14.70	557.29	9.53
RW-3	557.6	12.19	12.23	557.40	0.21
PR-4	557.1	12.68	12.76	557.16	1.20
RW-4	557.5	12.05	11.81	557.68	0.71
RW-5	557.4	12.02	12.03	557.44	4.59
PR-12	557.5		12.05	557.52	1.99
OBA-9AR	557.2	12.46	13.05	557.15	2.0

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	37	15	22
	SP#3	**SP#4**	
GAC #2	14	11	3
TOTAL GAC SYSTEM	27.00	**Diff,Pr**	
FLOW RATE	60	**GPM**	
OBA-9AR TOTALIZER	786066		

PH Readings:				Acid level: 20%
RW-1	10.31			
RW-2	8.08			
PH Adj. Tanks	6.80	7.04	6.78	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 82	CONTRACT NO. **1094 Div 4**		DATE: 7/16/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: 0.00**	**TEMP (Deg F)**	**Min: 71**	**Max: 84**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The power was lost to the building on Wednesday night, there was some difficulty in restarting the system after power was restored early Thursday morning. Sevenson and the Olin electricians, with the help of the Olin plant staff corrected the situation and restarted the system about 11:00am on Thursday. For some reason the DCS was not sending the start signal to the motor starter for the air stripper. Rick McDonnell corrected the signal and then it worked OK.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also. *I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Insert a blind flange downstream of the ball valve that shuts off the flow from the influent manifold to the now offline settling tank, to prevent any accidental flow to that tank. Christine has developed a work order for this task. Mike Walker has marked the location of the needed blind flange with red tape and a black paint stick.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.0	15.22	16.19	556.80	3.59
RW-2	557.5	14.47	14.68	557.29	7.21
RW-3	557.6	12.19	12.22	557.41	0.17
PR-4	557.1	12.71	12.81	557.11	1.20
RW-4	557.5	12.08	11.80	557.65	0.70
RW-5	557.4	12.03	12.05	557.42	4.58
PR-12	557.5		12.06	557.49	1.88
OBA-9AR	556.6	12.81	13.55	556.55	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	21	19
	SP#3	**SP#4**	
GAC #2	19	15	4
TOTAL GAC SYSTEM	27.20	**Diff,Pr**	
FLOW RATE	74	**GPM**	
OBA-9AR TOTALIZER	791743		

PH Readings:				Acid level: 20%
RW-1	9.57			
RW-2	7.64			

PH Adj. Tanks	7.30	7.18	7.13	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 83	CONTRACT NO. **1094 Div 4**	DATE: 7/30/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 65**	**Max: 75**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson was on site to perform maintenance tasks on the system, including: removing the broken well box and cover from PN-12A (near bldg. 94) and replacing it with a new one. Changing the acid delivery piping so that the acid adjustment now injects the acid into pH adjust tank #2.

There were issues this week with the air stripper system shutting down. Olin Staff and Chris jones from Sevenson were working to trouble shoot the problems. One of the problems discovered was that the drain valve to the 7S sump was partially open and the air stripper sump would not fill up enough to trigger the GAC pumps to turn on. When that was corrected it was discovered that the GAC units were in need of a thorough back washing. After that was done, the system began to perform properly. Even after that was done, the "High DP Alarm" and "High Pressure" shut down indicator lights stayed on at the Carbon Polishing control panel. Rob and George (Olin) have been notified of this.

Pump RW-1 had shut down, Olin Staff had removed it from the well and Sevenson had replaced it and restarted the pump. The flow has returned to normal. A new spare will be ordered to replace to one taken out of stock.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 052913.03: Olin Staff has completed the insertion of the blind flange to block any flow from the influent manifold into the offline settling tank. Done.

Item 073013.01: The heaters in Bldg 73 are still on constantly. Can someone look at it and see if the thermostats work? Thank you.

Item 073013.02: Sevenson attempted to install the new CFM gauge on the air stripper, but could not get it to work properly. So they put the old one back on for the time being. Can Olin E&I take a look at the new gauge and install it properly? The new gauge is on the desk in the DCS office in b-73. Thank you.

Item 073012.03: a small leak was detected in the PVC fitting on the suction side of one of the acid pumps. Sevenson will replace the fitting.

Item 073013.04: The new air stripper blower and 7th tray have been delivered, Olin staff will install the new blower and then Sevenson will install the 7th air stripper tray. Is there a schedule for the blower installation?

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.8	14.39	15.30	557.60	2.78
RW-2	557.4	14.54	14.68	557.23	3.96
RW-3	557.5	12.22	12.25	557.33	0.27
PR-4	557.3	12.42	12.87	557.36	1.20
RW-4	557.5	12.11	12.13	557.62	0.70
RW-5	557.3	12.05	12.17	557.38	7.33
PR-12	557.5		11.05	557.48	1.78
OBA-9AR	556.6	12.80	13.57	556.54	1.20

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	26	16	19
	SP#3	**SP#4**	
GAC #2	14	11	4
TOTAL GAC SYSTEM	15.68	**Diff,Pr**	
FLOW RATE	61	**GPM**	
OBA-9AR TOTALIZER	798685		

PH Readings:				Acid level: 20%
RW-1	9.71			
RW-2	7.25			
PH Adj. Tanks	7.03	7.11	6.96	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 84	CONTRACT NO. **1094 Div 4**		DATE: 8/6/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 60**	**Max: 77**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The pump at RW-1 was operating intermittently, Sevenson has removed the pump, cleaned and adjusted it and replaced the pump. It is now running fine. This was done in conjunction with the work on the RW-1 acid pump. We now have proper acid flow to Well RW-4 which should keep the well pump operating smoothly. The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.01: The heaters in Bldg. 73 have been turned off, thank you.

Item 073013.02: Sevenson attempted to install the new CFM gauge on the air stripper, but could not get it to work properly. So they put the old one back on for the time being. An Olin Work order has been started to complete this item by Christine M.

Item 073012.03: a small leak was detected in the PVC fitting on the suction side of one of the acid pumps. Sevenson has replaced the fitting to stop the leak and also replaced "O" rings in the piping. Then readjusted the acid flow rate to RW-1.

Item 073013.04: The new air stripper blower and 7th tray have been delivered, Olin staff will install the new blower and then Sevenson will install the 7th air stripper tray.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.0	15.25	16.19	556.76	3.18
RW-2	557.4	14.51	14.69	557.24	8.14
RW-3	557.6	12.21	12.23	557.36	0.35
PR-4	557.3	12.56	13.11	557.35	1.20
RW-4	557.5	12.09	12.13	557.64	1.11
RW-5	557.3	12.08	12.15	557.44	7.32

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	31	12	19
	SP#3	**SP#4**	
GAC #2	10	9	1
TOTAL GAC SYSTEM	22.12	**Diff,Pr**	
FLOW RATE	50	**GPM**	

PR-12	557.5		12.10	557.54	0.63
OBA-9AR	556.6	13.79	13.58	556.69	0.60

OBA-9AR TOTALIZER	804169			

PH Readings:				Acid level: 20%
RW-1	6.30			
RW-2	7.52			
PH Adj. Tanks	7.05	7.04	6.95	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 85	CONTRACT NO. **1094 Div 4**		DATE: 8/13/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: P/C	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 64**	**Max: 75**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. There was decreased flow coming from OBA-9AR this week. Sevenson was onsite to trouble shoot. They replaced a 90 degree elbow fitting in the pipe where it was kinked. This helped somewhat, but inspection of the pump showed that the pumping rate was very low, even under no back pressure. A new pump will be installed next week.

The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: Sevenson attempted to install the new CFM gauge on the air stripper, but could not get it to work properly. So they put the old one back on for the time being. An Olin Work order has been started to complete this item by Christine M.

Item 073013.04: The new air stripper blower and 7th tray have been delivered, Olin staff will install the new blower and then Sevenson will install the 7th air stripper tray.

Item 081313.01: The digital readout located in the well box at RW-5 needs to be replaced. Tony, do you recal where we got these from? Let me know and I will order a new one.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.2	15.04	15.96	556.94	3.20
RW-2	557.4	14.55	14.68	557.19	7.71
RW-3	557.5	12.24	12.27	557.34	0.22
PR-4	557.2	12.59	13.13	557.22	1.20
RW-4	557.4	12.11	12.16	557.62	0.66

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	35	16	19
	SP#3	**SP#4**	
GAC #2	15	11	4
TOTAL GAC SYSTEM	23.27	**Diff,Pr**	

RW-5	557.2	12.12	12.19		9.61
PR-12	557.4		12.08	557.50	1.66
OBA-9AR	558.7	12.01	11.45	558.74	0.60

FLOW RATE	59	**GPM**		
OBA-9AR TOTALIZER	806279			

PH Readings:				Acid level: 20%
RW-1	6.19			
RW-2	7.18			
PH Adj. Tanks	7.02	7.04	6.92	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 86	CONTRACT NO. **1094 Div 4**	DATE: 8/20/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: Sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 72**	**Max: 82**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Sevenson has replaced the pump in OBA9AR, and it is pumping normally. They also acid washed the well and cleaned the pump at PR-12, which is now pumping normally.

The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also. *I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: Sevenson attempted to install the new CFM gauge on the air stripper, but could not get it to work properly. So they put the old one back on for the time being. An Olin Work order has been started to complete this item by Christine M.

Item 073013.04: The new air stripper blower and 7th tray have been delivered, Olin staff will install the new blower and then Sevenson will install the 7th air stripper tray.

Item 081313.01: The digital readout located in the well box at RW-5 needs to be replaced. Sevenson has ordered a new one. It should be delivered in 7-10 days.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.17	16.10	556.82	3.23
RW-2	557.4	14.50	14.68	557.21	6.55
RW-3	557.6	12.22	12.24	557.36	0.21
PR-4	557.3	12.38	12.64	557.29	1.20
RW-4	557.5	12.09	12.13	557.64	0.64
RW-5	557.3	12.12	12.20		9.52
PR-12	557.4		12.04	557.52	0

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	40	19	21
	SP#3	**SP#4**	
GAC #2	17	11	6
TOTAL GAC SYSTEM	27.69	**Diff,Pr**	
FLOW RATE	60	**GPM**	
OBA-9AR TOTALIZER	808407		

OBA-9AR	556.8	13.28	13.45	556.80	1.60

PH Readings:				Acid level: 90%
RW-1	6.31			
RW-2	7.17			
PH Adj. Tanks	7.00	7.04	6.92	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 87	CONTRACT NO. **1094 Div 4**	DATE: 8/27/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: P/C Humid	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 74**	**Max: 80**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Sevenson worked with Olin staff to troubleshoot pump problems at RW-5 and PR-12. Some of the problems were determined to be caused by malfunctioning digital readout displays at the well heads. These readouts will be "by-passed" to keep things running smooth until the new units arrive.

Olin Staff was onsite this week to install the new, more powerful, blower in the air stripper system. The system was down for a couple of days while this work was being done.

The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: Sevenson attempted to install the new CFM gauge on the air stripper, but could not get it to work properly. So they put the old one back on for the time being. An Olin Work order has been started to complete this item by Christine M.

Item 073013.04: The new air stripper blower and 7th tray have been delivered, Olin staff is in the process of installing the new blower and then Sevenson will install the 7th air stripper tray.

Item 081313.01: The digital readouts located in the well box at RW-5, and PR-12 need to be replaced. Sevenson has ordered new ones. It should be delivered in 7-10 days.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.09	16.03	556.90	3.11
RW-2	557.4	14.55	14.68	557.18	6.62
RW-3	557.5	12.25	12.27	557.34	0.22
PR-4	557.3	12.49	13.10	557.29	1.20
RW-4	557.5	12.09	12.11	557.63	0.66
RW-5	543.5	12.10	12.16	OFF	9.56
PR-12	549.5		12.09	OFF	1.76
OBA-9AR	556.8	13.27	13.49	556.82	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	35	20	15
	SP#3	**SP#4**	
GAC #2	20	11	9
TOTAL GAC SYSTEM	23.62	**Diff,Pr**	
FLOW RATE	65	**GPM**	
OBA-9AR TOTALIZER	815528		

PH Readings:				Acid level: 75%
RW-1	6.10			
RW-2	7.17			
PH Adj. Tanks	7.02	7.26	7.13	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 88	CONTRACT NO. **1094 Div 4**		DATE: 9/03/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER:cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 64**	**Max: 72**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also. *I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has been installed. It seems to be reading about 2X what it should. Sevenson called Carbon air and described the situation. Carbonair seems to agree with Olin E&I and is investigating. They are In contact with the gauge manufacturer (Dwyer), and are reviewing the specs that were given . If Carbonair/Dwyer discover an error. They will expedite a new properly calibrated gauge to us ASAP.

Item 073013.04: The new blower has been installed in the air stripper system and is operational. The 7th tray for the stripper is scheduled for installation on Monday 9/9/13.

Item 081313.01: The digital readouts located in the well box at RW-5, and PR-12 need to be replaced. Sevenson has ordered new ones. It should be delivered in 7-10 days.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.14	16.10	556.83	3.01
RW-2	557.3	14.57	14.70	557.15	9.21
RW-3	557.5	12.28	12.30	557.30	0.31
PR-4	557.2	12.52	13.11	557.25	1.20
RW-4	557.4	12.12	12.15	557.58	0.64
RW-5	543.4	12.15	12.20	OFF	9.57
PR-12	549.2		12.09	OFF	1.77
OBA-9AR	556.8	13.27	13.49	556.82	1.80

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	35	22	13
	SP#3	**SP#4**	
GAC #2	20	15	5
TOTAL GAC SYSTEM	23.27	**Diff,Pr**	
FLOW RATE	77	**GPM**	
OBA-9AR TOTALIZER	821826		

PH Readings:				Acid level: 75%
RW-1	6.29			
RW-2	6.92			
PH Adj. Tanks	6.75	6.95	6.57	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 89	CONTRACT NO. **1094 Div 4**	DATE: 9/12/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 62**	**Max: 75**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. This week Sevenson was onsite with Camtech to install the 7th tray on the air stripper. The following action items have been completed or worked on this week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has been determined to be either defective or calibrated/designed wrong. The manufacturer is building us a new one and will ship it out to us ASAP.

Item 073013.04: Sevenson and Camtech have installed the 7th tray for the air stripper this week. As of Friday we are still trouble shooting some issues with the unit. Olin E&I has been called it to help with the electrical portion of the troubleshooting. It looks like a pressure switch may have malfunctioned and is not letting the blower restart. They will replace the switch and we will restart the system.

Item 081313.01: The new digital readouts for the well box at RW-5, and PR-12.have arrived. Rob has created a work order to get them installed and on line.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.2	15.03	15.94	556.92	3.11
RW-2	557.3	14.55	14.68	557.16	9.29
RW-3	557.5	12.27	12.28	557.33	0.36
PR-4	557.3	12.46	13.01	557.29	3.10
RW-4	557.4	12.11	12.15	557.61	0.71
RW-5		12.12	12.15	OFF	9.78
PR-12			12.05	OFF	1.79
OBA-9AR	556.7	13.78	13.60	556.70	1.70

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	41	25	16
	SP#3	**SP#4**	
GAC #2	22	15	7
TOTAL GAC SYSTEM	23.39	**Diff,Pr**	
FLOW RATE	61	**GPM**	
OBA-9AR TOTALIZER	827964		

PH Readings:				Acid level: 75%
RW-1	8.62			
RW-2	7.14			
PH Adj. Tanks	7.14	7.21	7.12	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 90	CONTRACT NO. **1094 Div 4**		DATE: 9/20/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 62**	**Max: 75**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73, However, the system had been shut down during daylight work hours due to the new cable trays that are being installed.
System measurements will resume next week.

Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has been determined to be either defective or calibrated/designed wrong. The manufacturer is building us a new one and will ship it out to us ASAP. We have not received it yet. Walker will call Carbonair and get a status report for next weeks report.

Item 081313.01: The new digital readouts for the well box at RW-5, and PR-12.have arrived. Rob has created a work order to get them installed and on line.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	0	0	0	0	0
RW-2	0	0	0	0	0
RW-3	0	0	0	0	0
PR-4	0	0	0	0	0
RW-4	0	0	0	0	0
RW-5		0	0	0	0
PR-12			0	0	0
OBA-9AR	0	0	0	0	0

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1	0	0	0
	SP#3	SP#4	
GAC #2	0	0	0
TOTAL GAC SYSTEM	0	Diff,Pr	
FLOW RATE	0	GPM	
OBA-9AR TOTALIZER	0		

PH Readings:				Acid level: 55

RW-1	0			
RW-2	0			
PH Adj. Tanks	0	0	0	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 91	CONTRACT NO. **1094 Div 4**	DATE: 9/24/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 54**	**Max: 65**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The system was back on line full time this week. Olin staff has begun the work to replace the leak detection switches in the secondary containment piping that goes from the WWTS out to the wells.

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Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has been shipped from the manufacturer and we expect delivery Friday or Monday.

Item 081313.01: The new digital readouts for the well box at RW-5, and PR-12.have arrived. Rob has created a work order to get them installed and on line.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.4	14.78	15.63	557.17	3.28
RW-2	557.3	14.59	14.74	557.09	9.20
RW-3	557.5	12.30	12.31	557.26	0.23
PR-4	557.0	12.73	12.89	557.03	3.70
RW-4	557.4	12.17	12.20	557.55	0.65
RW-5	---	12.19	12.22	------	9.58
PR-12	---	----	12.01	------	1.63
OBA-9AR	556.7	13.68	13.44	557.78	1.70

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	31	20	11
	SP#3	**SP#4**	
GAC #2	16	11	5
TOTAL GAC SYSTEM	22.18	**Diff,Pr**	
FLOW RATE	61	**GPM**	
OBA-9AR TOTALIZER	836167		

PH Readings:				Acid level: 55

RW-1	6.28			
RW-2	7.32			
PH Adj. Tanks	6.98	6.03	6.72	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 92	CONTRACT NO. **1094 Div 4**	DATE: 10/01/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 59**	**Max: 73**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. Olin staff has begun the work to replace the leak detection switches in the secondary containment piping that goes from the WWTS out to the wells. It has been observed that there is water and /or acid accumulated in the secondary containment piping at wells RW-2, RW-5 and PR-12. Chris jones was at the site pumping it out with a peristaltic pump. After he removed the liquid from the piping, more appeared a couple of days later. We do not know if this has been caused by a leak, or just the liquid trapped in the pipe settling down to the lowest point. Pr-12 was flushed out with water after pumping it down because that was the one with the low pH (acid) in it. Then pumped out again. We are exploring the need for hydrostatic testing and associated costs. Walker and Rob Meyer met with the mechanical subcontractor to walk thru the testing scope so he can put together an estimate.

A manifold to capture water from the sample ports on the incoming GW wells has been installed.

New sample taps have been installed on the GAC units in preparation for the new DCS configurations.

Chris Jones' findings are listed below:

WELL	AMOUNT	pH
RW1	Dry	
RW2	1 gallon	5
RW3	Dry	
RW4	1/4 gallon	5
PR4	Dry	
RW5	Dry	
PR12	1/4 gallon	2 (greenish color)
9AR	Dry	

PR12 was flushed with 5 gallons of tap water and pumped out again.

The Olin E&I staff have been replacing the water level indicators in the secondary containment piping this week.

PR-12 was off today due to an interlock issue, Olin Staff is working on it.

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Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has arrived, Rob Meyer had issued a work order for the installation by Olin staff.

Item 081313.01: The new digital readouts for the well box at RW-5, and PR-12.have been installed and are on line.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.0	15.21	16.12	556.76	3.00
RW-2	557.3	14.61	14.78	557.08	8.96
RW-3	557.5	12.31	12.33	557.26	0.23
PR-4	557.1	12.67	12.93	557.70	3.70
RW-4	557.4	12.19	12.21	557.54	0.65
RW-5	557.3	12.22	12.29	553.78	9.60
PR-12	---	----	------	------	0
OBA-9AR	557.5	13.01	12.75	557.50	1.90

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	50	25	25
	SP#3	**SP#4**	
GAC #2	21	15	6
TOTAL GAC SYSTEM	35.38	**Diff,Pr**	
FLOW RATE	79	**GPM**	
OBA-9AR TOTALIZER	843622		

PH Readings:				Acid level: 55
RW-1	6.31			
RW-2	7.36			
PH Adj. Tanks	6.88	6.65	6.61	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 93	CONTRACT NO. **1094 Div 4**	DATE: 10/08/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 55**	**Max: 70**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. More low pH liquid has collected in the secondary containment piping of PR-12. Chris has gone back to the site to pump it out again. Chris also checked the other secondary containment pipes from the other pumping wells, the results are listed below. Sevenson has been instructed to flush the line for PR-12 with water and pump the flush water out and deposit it into the sump in Bldg. 73 for treatment.

RW-2 was down over the weekend, Olin E&I corrected the situation and the pump was back on line by 11:00am Monday morning.

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Chris Jones' findings are listed below: 10/8/13

WELL	AMOUNT	pH
RW1	Dry	
RW2	500 mL	5
RW3	Dry	
RW4	Dry	
PR4	Dry	
RW5	Dry	
PR12	2 Liters	2 (greenish color)
9AR	Dry	

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Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has arrived, Rob Meyer had issued a work order for the installation by Olin staff.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.4	14.80	15.72	557.14	2.94
RW-2	557.2	14.67	14.84	557.03	9.53
RW-3	557.4	12.36	12.38	557.20	0.22
PR-4	556.5	13.18	13.71	556.57	4.00
RW-4	557.3	12.22	12.24	557.48	0.87
RW-5	557.6	12.26	12.34	557.38	9.60
PR-12	557.7	----	12.18	557.63	2.71
OBA-9AR	557.5	13.01	12.75	557.50	1.90

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	26	17	9
	SP#3	**SP#4**	
GAC #2	15	10	5
TOTAL GAC SYSTEM	16.65	**Diff,Pr**	
FLOW RATE	58	**GPM**	
OBA-9AR TOTALIZER	851505		

PH Readings:				Acid level: 55
RW-1	5.99			
RW-2	6.90			
PH Adj. Tanks	6.91	6.77	6.66	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 94	CONTRACT NO. **1094 Div 4**	DATE: 10/16/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 50**	**Max: 65**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Sevenson was on site this week to flush water thru a secondary containment pipe that has a buildup of acid in it. The pipe runs from the manifold in B-73, down to the ground water wells at PR-12 and OBA-9AR. As we were flushing water down the line from the influent manifold, we were also pumping the water from the secondary containment stand pipe into a poly tank. Once the tank was full, we would neutralize it and drain it into the sump in B-73 for treatment thru the WWTP.

We flushed about 700 gallons on Monday; the pH of the water went from -2 to 2.90 by the end of the day.

We returned to continue on Tuesday and flushed about 1000 gallons thru the pipe. The pH went from 2.9 up to the 5-6 range. At that point we had stopped flushing with the clean water and just pumped the remaining water out of the containment piping. When we got down to the last 10-20 gallons in the pipe. We tested the pH of the water and discovered it was back to 2.83. We pumped out as much as we could and disposed of it.

We will look at the standpipes again on next Tuesday and see if any more liquid has accumulated and what the pH of that liquid is. If there is more water in there we will continue pumping.

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Item 052913.03: Move the pH sensor presently located in the RW-2 piping, to the PR-4 Manifold piping re-label it at the site and notify Olin staff to reconfigure the DCS to reflect the new location and re-label it there also*. I have been informed that we will have to wait to do this task until we get notice from Olin regarding the changes to the DCS.*

Item 073013.02: The new gauge for CFM on the air stripper has arrived, Rob Meyer had issued a work order for the installation by Olin staff.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.11	16.04	556.82	2.79
RW-2	557.1	14.79	14.92	556.87	9.67
RW-3	557.3	12.52	12.56	557.05	0.21
PR-4	556.2	13.54	13.73	556.22	3.90
RW-4	557.2	12.38	12.41	557.33	0.69
RW-5	557.4	12.40	12.49	557.20	9.59
PR-12	557.6	----	12.32	557.53	1.87
OBA-9AR	557.5	13.02	12.78	557.50	1.90

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	30	15	15
	SP#3	**SP#4**	
GAC #2	11	9	2
TOTAL GAC SYSTEM	22.93	**Diff,Pr**	
FLOW RATE	50	**GPM**	
OBA-9AR TOTALIZER	859750		

PH Readings:				Acid level: 55
RW-1	6.36			
RW-2	7.52			
PH Adj. Tanks	7.24	7.44	7.35	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 95	CONTRACT NO. **1094 Div 4**	DATE: 10/22/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 40**	**Max: 48**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The ground water pump for RW-1 has stopped pumping. Sevenson pulled ythe pump and determined it needed replacement. Chris installed a new pump head from stock and a new back up was ordered. The leads that power the pump also had to be replaced, it looks as if they had been damaged by pieces of the well screen scraping the insulation off the wires as it was reinstalled. .Work continues by others to upgrade the DCS part of the WWTS.
A small amount of clear , low pH liquid id in the PR-12 secondary containment piping.

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Item 052913.03: The pH probe that was in the line for RW-2, has been moved to the PR-4 piping. This will allow a better idea of the acid injection adjustment needed for PR-4.

Item 073013.02: The new gauge for CFM on the air stripper has arrived, Rob Meyer had issued a work order for the installation by Olin staff.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.4	14.82	15.74	557.15	4.12
RW-2	557.2	14.69	14.89	557.02	9.53
RW-3	557.4	12.35	12.33	557.20	0.22
PR-4	556.5	13.18	13.73	556.58	4.00
RW-4	557.3	12.23	12.26	557.48	0.78
RW-5	557.3	12.23	12.30	557.51	9.59
PR-12	557.6	----	12.33	557.53	1.93
OBA-9AR	557.5	13.01	12.72	557.50	1.70

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	20	9	11
	SP#3	**SP#4**	
GAC #2	12	9	3
TOTAL GAC SYSTEM	15.23	**Diff,Pr**	
FLOW RATE	51	**GPM**	
OBA-9AR TOTALIZER	867750		

PH Readings:				Acid level: 55
RW-1	5.92			
RW-2	7.17			
PH Adj. Tanks	7.20	7.51	7.48	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 96	CONTRACT NO. **1094 Div 4**	DATE: 10/29/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 36**	**Max: 48**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Upon arrival on Tuesday am, all pumps were down except PR-4. Chris restarted the pumps. He checked the secondary containment piping at PR-12. It was about the same as last week. (About 1" to 1.5" of liquid). It appears that no new liquid has settled in the low part of the piping. The pH of the liquid is 1.7, about the same as last week. It is a clear, odorless and non-reactive

A spare pump inventory was taken today. We need to order a single phase and a 3 phase pump motor and electrical leads for each to replenish our stock.

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Item 073013.02: The new gauge for CFM on the air stripper has arrived, Rob Meyer had issued a work order for the installation by Olin staff.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.3	14.99	15.87	556.92	3.73
RW-2	557.2	14.70	14.88	556.96	9.29
RW-3	557.4	12.41	12.43	557.15	0.20
PR-4	555.6	14.12	14.53	555.62	4.20
RW-4	557.3	12.27	12.30	557.44	0.74
RW-5	557.5	12.29	12.35	557.32	9.57
PR-12	557.7	----	12.22	557.64	2.61
OBA-9AR	557.4	12.66	12.81	557.44	1.90

PH Readings:				Acid level: 33%

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	46	30	16
	SP#3	**SP#4**	
GAC #2	25	15	10
TOTAL GAC SYSTEM	34.50	**Diff,Pr**	
FLOW RATE	55	**GPM**	
OBA-9AR TOTALIZER	872344		

RW-1	5.40			
PR-4	6.97			
PH Adj. Tanks	7.02	7.43	7.29	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 97	CONTRACT NO. **1094 Div 4**	DATE: 11/05/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: sunny	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 45**	**Max: 55**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Sevenson was on site Monday today to flush the acid tubes that run from the WWTP building 73 to groundwater wells RW-5, PR-12 and OBA9AR, The lines were completely disconnected from their source and flushed with water that had red dye added to it, so we could tell when the lines were cleared. After the flushing, the lines were purged with air until completely empty. Then they were capped and marked as "out of service" at the acid table. Any acid/water that was purged was removed from the secondary containment piping with a peristaltic pump and was pumped into its corresponding well. Chris will continue to check the secondary containment piping for any residual liquid that flows down to the low point in the piping, and remove it when necessary

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Item 073013.02: The new gauge for CFM on the air stripper has arrived; Rob Meyer had issued a work order for the installation by Olin staff.

Item 110513.03: Chris Jones noticed that the transducer readout on well OBA-9AR was blank. And the DCS was reading a very low number which was not allowing the pump to cycle "on". He notified Rob, who will follow thru with Olin E&I for repairs.

Item 110813.02: The well pump in PR-12 has failed. Sevenson has come back out to the site to investigate and found the pump needs replacement and the check valve for that line needs to be replaced also. The pump was in stock, however the valve had to be ordered, for Tuesday 11/11/13.

Item 110813.03: The pump at RW-2 shut down due to an interlock labeled leak containment "on". Sevenson was called to the site, pulled the leak containment switch and pumped about 1 liter of liquid out of the piping. This was probably not enough to trigger the alarm, however, Chris and Rob noticed that the switch was hung up in the on position for some reason. They realigned the switch, reinstalled it and now the pump is back on line.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.0	15.16	16.10	556.78	3.58
RW-2	557.0	14.83	15.01	556.84	9.73
RW-3	557.2	12.55	12.56	557.02	0.21
PR-4	554.6	15.17	15.50	554.61	4.10
RW-4	557.2	12.35	12.38	557.34	0.66
RW-5	557.4	12.37	12.45	557.22	9.58
PR-12	557.5	----	12.32	557.54	1.85
OBA-9AR		7.52	7.71		0

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	45	20	16
	SP#3	**SP#4**	
GAC #2	20	11	9
TOTAL GAC SYSTEM	35.18	**Diff,Pr**	
FLOW RATE	63	**GPM**	
OBA-9AR TOTALIZER	879417		

PH Readings:				Acid level: 25%
RW-1	6.53			
PR-4	7.00			
PH Adj. Tanks	7.15	7.46	7.31	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 98	CONTRACT NO. **1094 Div 4**		DATE: 11/12/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 28**	**Max: 38**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The pump at RW-1 was down due to a faulty relay in the DCS. Olin E&I has fixed it, and the well is back on line.

Chris Jones checked the secondary containment piping at PR-12 to see if more residual liquid has accumulated. He extracted about .5 gallons from the containment piping; it was red in color, which is consistent with the red water that we flushed the lines with last week. He will check again next week for any more accumulation.

While inspecting the air stripper this week, it was observed that the levels in the stripper sump were higher than normal. The sump was drained and the level switches and the sight glass were removed and scrubbed. This has been done in the past, with positive results. It seems to have rectified the high level situation again this time.

Item 073013.02: The new gauge for CFM on the air stripper has arrived; Rob Meyer had issued a work order for the installation by Olin staff.

Item 110513.03: Chris Jones noticed that the transducer readout on well OBA-9AR was blank. And the DCS was reading a very low number which was not allowing the pump to cycle "on". He notified Rob, who will follow thru with Olin E&I for repairs.

Item 110813.02: The well pump in PR-12 has been replaced. The check valve for that line has also been replaced. The pump is now up and running at 7.0 gpm. A new spare will be ordered today.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.07	16.01	556.87	3.45
RW-2	557.0	14.90	15.06	556.79	8.53
RW-3	557.2	12.60	12.63	556.95	0.12
PR-4	554.9	14.62	14.80	554.94	3.60
RW-4	557.1	12.45	12.47	557.25	0.73

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	55	25	30
	SP#3	**SP#4**	
GAC #2	21	11	10
TOTAL GAC SYSTEM	44.66	**Diff,Pr**	

RW-5	557.3	12.48	12.55	557.13	9.65
PR-12	564.4	----	12.47	564.38	7.05
OBA-9AR	557.3	12.86	13.02	557.35	1.60

FLOW RATE	67	**GPM**		
OBA-9AR TOTALIZER	886070			

PH Readings:				Acid level: 10%
RW-1	5.85			
PR-4	6.80			
PH Adj. Tanks	7.15	7.53	7.35	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 99	CONTRACT NO. **1094 Div 4**	DATE: 11/19/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 37**	**Max: 45**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73. The pump at RW-1 was down due to a faulty relay in the DCS. Olin E&I has fixed it, and the well is back on line.

Chris Jones checked the secondary containment piping at PR-12 to see if more residual liquid has accumulated. There was no additional accumulation of liquid in the secondary containment piping this week. I believe that it is now clear for Olin to continue work on the leak detection switches in these lines.

Flow Rates were lower in RW-3 and RW-4. Chris acid washed the wells, the rates improved. We will continue to monitor these.

The space heater in the well box at PR-12 is not working. Sevenson has purchased a new on and will install it on Friday 11/22/13.

It was noted that the air pressure in the stripper was rising. A new air gauge was installed and seemed to be part of the problem. Further inspection revealed a need to clean the stripper trays and remove a scale build up that may be starting to clog the trays. Rob Meyer and Mike Walker will put together a plan to perform this maintenance.

Item 073013.02: The new gauge for CFM on the air stripper has arrived; Rob Meyer had issued a work order for the installation by Olin staff.

Item 110513.03: Chris Jones noticed that the transducer readout on well OBA-9AR was blank. And the DCS was reading a very low number which was not allowing the pump to cycle “on”. He notified Rob, who will follow thru with Olin E&I for repairs.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.8	15.41	16.32	556.55	3.34
RW-2	557.0	14.92	15.11	556.75	9.17
RW-3	557.1	12.61	12.68	556.91	0.74
PR-4	554.5	15.20	15.38	554.55	3.30
RW-4	557.1	12.51	12.55	557.21	0.92
RW-5	557.2	12.51	12.58	557.08	9.54
PR-12	564.4	----	12.50	564.37	6.25
OBA-9AR	556.7	13.80	13.63	557.70	0.90

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	28	20	8
	SP#3	**SP#4**	
GAC #2	19	10	9
TOTAL GAC SYSTEM	17.73	**Diff,Pr**	
FLOW RATE	55	**GPM**	
OBA-9AR TOTALIZER	890963		

PH Readings:				Acid level: 10%
RW-1	6.16			
PR-4	7.01			
PH Adj. Tanks	7.34	7.28	7.15	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 100	CONTRACT NO. **1094 Div 4**	DATE: 11/19/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 25**	**Max:30**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.
Sevenson has installed a heater in the hotbox for Well PR-12.
The air stripper was shut down on Tuesday 11/26/13 for maintenance. After the unit was drained, The inspection ports were removed and the trays were power washed to loosen scale buildup, then a cleaning fluid was applied and scrubbed in with stiff bristle brushes and allowed to work overnight. The following morning the trays were given a final power washing to remove the rest of the scale build up. The unit was reassembled and the system was started. It has been operating fine since.

Item 073013.02: The new gauge for CFM on the air stripper has arrived; Rob Meyer had issued a work order for the installation by Olin staff.

Item 110513.03: Chris Jones noticed that the transducer readout on well OBA-9AR was blank. And the DCS was reading a very low number which was not allowing the pump to cycle "on". He notified Rob, who will follow thru with Olin E&I for repairs.

No readings were taken this week due to system maintenance.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1					
RW-2					
RW-3					
PR-4					
RW-4					
RW-5					
PR-12					
OBA-9AR					

PH				Acid level: 10%

CARBON VESSEL PRESSURE READINGS			
	SP#1	SP#2	dP
GAC #1			
	SP#3	SP#4	
GAC #2			
TOTAL GAC SYSTEM		Diff,Pr	
FLOW RATE		GPM	
OBA-9AR TOTALIZER			

Readings:				
RW-1				
PR-4				
PH Adj. Tanks				

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 101	CONTRACT NO. **1094 Div 4**		DATE: 12/05/13	
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 43**	**Max:58**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

PR-12, PR-4 and RW-4 were down earlier this week due to a secondary containment interlock. Sevenson opened up the standpipes to the wells, PR-4 was Dry, RW-4 had ½" of water in it (not enough to trigger the switch), and Olin staff indicates that there is an electrical issue with these interlocks, not a leakage issue. National Vac was on site to suck the disengaged floats out of the PR-12 standpipe. . The switch was bypassed in the meantime. Olin Staff is working on these issues.

Sevenson has notified Rob that the acid tote in 73 needs to be changed out.

Olin E&I continue to work on the WWT system's telemetry, installing new float switches in the process and secondary containment sumps.

Item 073013.02: The new gauge for CFM on the air stripper will not be necessary any longer. The new electrical configuration of the air stripper includes a digital flow meter/transmitter to take the place of the previous flow gauge. Thank you.

Item 110513.03: The transducer readout at OBA-9AR has been replaced. Thank you.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.1	15.11	16.04	556.82	3.13
RW-2	557.0	14.88	15.01	556.79	8.70
RW-3	557.2	12.58	12.64	556.96	0.75
PR-4	0	0	0	0	0
RW-4	0	0	0	0	0
RW-5	557.3	12.46	12.55	557.11	9.49
PR-12	564.8		10.52	564.48	6.42
OBA-9AR	557.4	12.66	12.82	557.44	0.8

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	21	16	5
	SP#3	**SP#4**	
GAC #2	15	8	7
TOTAL GAC SYSTEM	14.31	**Diff,Pr**	
FLOW RATE	46	**GPM**	
OBA-9AR TOTALIZER	902109		

PH Readings:				Acid level: 0
RW-1	6.60			

PR-4	6.90			
PH Adj. Tanks	7.57	7.39	7.27	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 103	CONTRACT NO. **1094 Div 4**	DATE: 12/10/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: partly cloudy	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 19**	**Max: 25**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

The system was down for approximately 16 hrs. this week due to a Hi pH lockout caused by high pH water from the secondary containment sump being pumped into the pH adjust tanks. Olin staff corrected the situation and restarted the system.

No outstanding Items this week.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.9	15.30	16.25	556.62	3.06
RW-2	556.9	14.99	15.20	556.70	8.61
RW-3	557.1	12.70	12.78	556.85	0.74
PR-4	555.2	14.56	15.15	555.14	4.5
RW-4	557.0	12.57	12.56	557.13	0.78
RW-5	557.2	12.55	12.56	557.02	9.53
PR-12	564.4		12.54	564.42	7.36
OBA-9AR	557.4	12.95	13.66	556.47	0.5

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	33	21	12
	SP#3	**SP#4**	
GAC #2	20	10	10
TOTAL GAC SYSTEM	24.85	**Diff,Pr**	
FLOW RATE	53	**GPM**	
OBA-9AR TOTALIZER	905469		

PH Readings:				Acid level: 0
RW-1	6.17			
PR-4	6.95			
PH Adj. Tanks	7.27	7.48	7.11	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 2	CONTRACT NO. **1107 Div 4**	DATE: 12/17/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: light snow mix	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 12**	**Max: 21**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Item 121713.01: Sevenson was given a list of GW Monitoring wells that need maintenance /repair. Sevenson was on site to inspect, start repairs and order parts needed.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	556.8	15.37	16.30	556.56	3.07
RW-2	556.9	14.96	15.18	556.75	8.26
RW-3	557.1	12.70	12.77	566.87	0.72
PR-4	556.0	13.72	14.50	556.03	3.00
RW-4	557.0	12.53	12.45	557.18	0.78
RW-5	557.2	12.50	12.55	557.06	9.49
PR-12	564.5		12.50	564.44	7.17
OBA-9AR		13.07	13.65	556.50	0.6

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	34	21	13
	SP#3	**SP#4**	
GAC #2	20	11	9
TOTAL GAC SYSTEM	22.88	**Diff,Pr**	
FLOW RATE	66	**GPM**	
OBA-9AR TOTALIZER	909253		

PH Readings:				Acid level: 0
RW-1	6.48			
PR-4	7.05			
PH Adj. Tanks	7.17	7.51	7.20	

J. Wright

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 3	CONTRACT NO. **1107 Div 4**	DATE: 12/23/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: overcast	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 25**	**Max: 33**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.

Upon arrival, RW-3 was off (on an interlock for Secondary containment leak), There was approximately 0.5" of water in the containment piping. Chris bailed out the water and restarted the pump after the interlock corrected.

There was a problem with the acid pump in the shed at PR-4. The pump would prime and then shut down. It is now connected to the DCS. Is it set up to shut off automatically when the pH is in range? Chris also manually acid washed PR-4 today.

Well OBA-9AR water level was high this morning (on the DCS), The pump was running at a constant 0.5 gpm. Chris raised the flow to 0.9 gpm and the pump resumed it's normal cycle.

Item 121713.01: Sevenson was given a list of GW Monitoring wells that need maintenance /repair. Sevenson was on site to inspect, start repairs and order parts needed.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.9	14.28	15.21	557.67	2.80
RW-2	557.2	14.65	14.76	557.02	9.49
RW-3	557.5	12.28	12.32	557.30	0.70
PR-4	557.4	12.35	12.58	557.37	1.60
RW-4	557.3	12.21	12.25	557.49	0.73
RW-5	557.6	12.18	12.26	557.38	9.38
PR-12	564.7		12.20	564.70	6.44
OBA-9AR	556.5	13.08	13.54	556.51	0.6

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	31	20	9
	SP#3	**SP#4**	
GAC #2	16	10	6
TOTAL GAC SYSTEM	22.76	**Diff,Pr**	
FLOW RATE	58	**GPM**	
OBA-9AR TOTALIZER	913043		

PH Readings:				Acid level: 90%
RW-1	6.49			
PR-4	7.58			

PH Adj. Tanks	6.75	6.63	6.60	

Site Activities Report

Sevenson Environmental Services, Inc.
Niagara Falls, New York

REPORT NO. 4	CONTRACT NO. **1107 Div 4**	DATE: 12/31/13		
PROJECT TITLE	**OLIN CORPORATION, BUFFALO AVE. GWTP**			
LOCATION OF WORK	**BUFFALO AVENUE, NIAGARA FALLS, NEW YORK**			
DESCRIPTION	**SUPPORT O & M OF GROUND WATER TREATMENT PLANT**			
WEATHER: overcast	**RAINFALL INCHES: NA**	**TEMP (Deg F)**	**Min: 16**	**Max: 18**

Work performed this week:

Sevenson was on site this week to measure and record ground water levels in the wells that feed the WWTS in bldg. 73.
The acid pump in PR-4 needs to be replaced. Chris Manually washed the well this week.
The well pumps have been shutting down due to low air flow from the blower. When the airflow goes below 650 cfm, the well pumps shut down on interlock. After the airflow resumes above 650 cfm, the pumps need to be manually restarted. Rob is working with Olin staff on a way to correct the fluctuating airflow situation.

Item 121713.01: Sevenson was given a list of GW Monitoring wells that need maintenance /repair. Sevenson was on site to inspect, start repairs and order parts needed.

OLIN Building #73 WWTP Pumping Well Data Sheet

	APEX	PIEZ.	WELL	READOUT	FLOW
RW-1	557.4	14.85	15.79	557.12	2.63
RW-2	556.9	14.92	15.09	556.76	6.20
RW-3	557.2	12.61	12.64	556.95	0.65
PR-4	556.8	12.97	13.19	556.83	3.60
RW-4	557.1	12.49	12.54	557.21	0.76
RW-5	557.3	12.51	12.58	557.08	9.38
PR-12	564.6		12.55	564.57	6.10
OBA-9AR	556.5	13.19	13.53	556.50	3.7

CARBON VESSEL PRESSURE READINGS			
	SP#1	**SP#2**	**dP**
GAC #1	30	20	10
	SP#3	**SP#4**	
GAC #2	19	10	9
TOTAL GAC SYSTEM	22.57	**Diff,Pr**	
FLOW RATE	52	**GPM**	
OBA-9AR TOTALIZER	918775		

PH Readings:				Acid level: 90%
RW-1	6.30			
PR-4	7.04			
PH Adj. Tanks	7.20	7.42	7.32	