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

April 1, 2013

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

Re: Annual Report – Olin Chemicals
Buffalo Ave. Facility, Niagara Falls, NY

Dear Mr. Czuhanich:

This Annual Report covers the period from April 1, 2012 through December 31, 2012 as required by Olin's Administrative Order on Consent (AOC) for Olin Corporation's Niagara Falls Plant, (Index #R9-4171-94-08, Site Registry #9-32-051A, and B) and as required by New York State Department of Environmental Conservation (NYSDEC) letter dated March 13, 2012. On April 1, 2014 Olin will submit an annual report covering the period of January 1, 2013 through December 31, 2013.

Operation & Maintenance:

Olin submitted Revision 5 of the Groundwater Treatment System Operations and Maintenance Plan to NYSDEC on June 29, 2012. On July 26, 2012 NYSDEC gave conditional approval of Revision 5 upon submittal of revised Table 5.1 (***Attachment 1, on CD***). The final version of revised Table 5.1 was submitted on September 26, 2012.

In a letter dated October 18, 2012, Olin recommended the decommissioning of the following monitoring wells: OBA-12A, -12B, -12C, -13A, -13A(ob), -13B, and -13C. In a letter dated November 6, 2012 (***Attachment 1***, on CD), NYSDEC approved well decommissioning. Olin decommissioned these wells on December 5-6, 2012, in accordance with NYSDEC decommissioning regulations (CP-43) for uncontaminated overburden monitoring wells/piezometers and bedrock wells. The *Well Decommissioning Report* was submitted to NYSDEC on January 3, 2013 and subsequently approved in a NYSDEC letter dated February 21, 2013.

Details of the routine maintenance tasks and troubleshooting are included for this reporting period in the nine monthly memoranda from Olin's consultant, AMEC Environment and Infrastructure, (***Attachment 2, on CD***). The most significant metrics of the system performance are the tracking of downtime and of target drawdown levels. Historically, when the system is operating efficiently, hydraulic capture is achieved. The monthly O&M reports document details of downtimes, drawdown levels, and any other issues for that month.

Hydraulic Capture:

Attachment 3 on the CD includes PDF files of piezometric maps for each hydraulic zone representing the most recent three quarters. That attachment also includes tables and hydrographs documenting empirical monthly hydraulic capture comparisons, plus piezometric data and system flow data. On June 13, 2012, AMEC, on behalf of Olin, submitted a request to reduce the pumping rate at RW-2 from 20 gpm to 10 gpm. This was approved by NYSDEC on June 22, 2013 contingent on hydraulic capture being maintained at the facility boundary (***Attachment 1***).

A-zone: The A-zone groundwater capture criteria are via empirical comparison to Gill Creek stage and Buffalo Avenue sewer invert levels. In general, A-zone capture is being achieved over the 300 foot boundary with Gill Creek, and relative to potential northward flow toward Buffalo Avenue (Figure 1).

B-zone: Capture is also being maintained (Figure 2).

C and CD-zones: C and CD-zone hydraulic gradients indicate westward flow toward and capture by the high volume production well in Plant 1. There is some north and northeastward flow indicated near the northeast portion of the Plant 2 area. These zones are shown in Figures 3 and 4.

Groundwater Quality:

The recovery well header groundwater data, plus influent, mid-carbon, and effluent data are included on the CD as ***Attachment 4***.

Overview of extracted groundwater volume and contaminant mass:

The total volume of groundwater extracted since system startup is approximately 394 million gallons. The volume of pumped groundwater for the three quarters during the reporting period was approximately 18.8 million gallons. To date, the system has extracted over 87,000 pounds of organics, 384 pounds of pesticides, and approximately 4 pounds of mercury. ***Attachment 5*** contains tables showing the current quarters' header data that provide the mass removed per quarter and mass removed over the operational life of the system to date. 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 removed by the Olin treatment system originates off-site from the DuPont facility. Since these contaminants migrate to the extraction well 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.

We are continuing to remove Olin and DuPont contaminant mass via our remediation system. Our remediation system is operated pursuant to the NYSDEC-approved O&M Plan and we will submit an annual report covering the period of January 1, 2013 through December 31, 2013 on or before April 1, 2014. Please direct any questions or comments to me at 423-336-4576.

Sincerely,

Richard W. McClure, PG
OLIN CORPORATION

cc: David Share: Olin ERG, Cleveland, TN
Christine Markham: Olin, Niagara Falls, NY
Peter Thompson: AMEC E&I, Portland, ME
Tony Englund: AMEC E&I, Kennesaw, GA

List of Attachments on CD

Attachment 1:

- Agency Correspondence

Attachment 2:

- Monthly Operation and Maintenance Reports

Attachment 3:

- Piezometric maps, hydrographs and supporting data
- System Flow Data

Attachment 4:

- Groundwater Quality Data: quarterly recovery well header data and influent/effluent data

Attachment 5:

- Quarterly Contaminant mass removed tables
- Summary of Project Life Groundwater Flow and Mass Removed

Attachment 1

Agency 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

July 26, 2012

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

RE: Groundwater Collection and Treatment System
Operations and Maintenance Plan – Revision 05
Olin Chemicals, Buffalo Ave. Facility, Niagara Falls, New York
AOC Index No. R9-4171-94-08, NYSDEC Site No. 932051B

Dear Mr. McClure:

The New York State Department of Environmental Conservation (Department) has reviewed the above-referenced document dated June 29, 2012 (O&M Plan – Rev 05). The document describes the groundwater collection and treatment system at Olin's Niagara Falls plant and Olin's plan to operate the system in accordance with the requirements of Olin's Administrative Order on Consent.

Per our recent telephone discussion, the Department understands that Olin will submit a revised document that corrects minor typographical errors in several tables and in the system schematic in Figure 2.5. The Department also understands that, while the requirement for monthly water level measurements in each Plant 2 monitoring well is dropped in this revision of the O&M Plan (quarterly measurements will continue), Olin will continue monthly water level measurements in recovery well RW-2 until such time as the reduced pumping rate in that well is demonstrated to be sufficient to maintain hydraulic control at the plant.

Pending submission of the corrected version of the O&M Plan – Rev 05, the document 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. Carpenter, USEPA, Region 2
J. Strickland, NYSDEC, Region 9
M. Cruden
D. Radtke

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

November 6, 2012

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

RE: Proposed Well Decommissioning
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 (the Department) has reviewed your letter on the above-referenced subject dated October 18, 2012. In your letter, Olin proposes decommissioning off-site monitoring well clusters OBA-12 and OBA-13 (specifically, wells OBA-12A, -12B, and -12C and OBA-13A, -13A(ob), -13B, and -13C). The wells are located north of Buffalo Avenue on property owned by the New York State Department of Transportation (NYSDOT).

The wells are no longer used for hydraulic or constituent monitoring at the site and NYSDOT has expressed an interest in having the wells removed if they are no longer required for site monitoring. The subject wells, along with other monitoring wells north of Buffalo Avenue, are not significantly impacted by site-related contamination. Olin has, therefore, proposed decommissioning the wells in accordance with the Department's Commissioner's Policy *CP-43: Groundwater Monitoring Well Decommissioning Policy*.

The proposed well decommissioning is approved with the following conditions:

1. NYSDOT requires a work permit to perform the necessary work on their property. Olin must contact NYSDOT's Region 5 (Buffalo) office to obtain the required permit(s).

2. NYSDOT has requested that bollards protecting the well clusters also be removed. Per our recent correspondence, the Department understands that Olin intends to remove the bollards and restore the area to pre-existing condition.

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: F. Garbe, NYSDOT, Buffalo
D. Carpenter, USEPA, Region 2
D. Weiss, NYSDEC, Region 9
M. Cruden, NYSDEC
D. Radtke, NYSDEC

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

February 21, 2013

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

RE: Groundwater Treatment System – Well Decommissioning Report
Olin Chemicals, Buffalo Avenue Facility, Niagara Falls, New York
AOC Index No. R9-4171-94-08, NYSDEC Site No. 932051A

Dear Mr. McClure:

The New York State Department of Environmental Conservation has reviewed the above-referenced report dated January 3, 2013. The report documents field activities associated with decommissioning the following seven (7) groundwater monitoring wells at Olin's Niagara Falls facility: OBA-12A, -12B, -12C, -13A(ob), -13A, -13B, and -13C. The wells were decommissioned in accordance with the Department's *Commissioner's Policy CP-43: Groundwater Monitoring Well Decommissioning Policy* and all surface completions and above-ground appurtenances were removed. The referenced report is approved.

If you have any questions regarding this report, 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. Carpenter, USEPA
D. Weiss, NYSDEC, Region 9
D. Radtke, RBE

Attachment 2

Monthly Operation and Maintenance Reports

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Katie Godlove @ Olin-Niagara; Kelly McIntosh @ AMEC; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: May 11, 2012

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for April 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

The following table presents general treatment system data for April 2012:

GWTS Status April 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**GW Target Level (ft MSL)**	**Days Meeting Target Levels**
RW-1	**5.1**	**556.9**	**557.5**	**28**
RW-2	**26.7**	**557.4**	**557.7**	**28**
RW-3	**4.4**	**557.3**	**557.5**	**29**
RW-4	**6.4**	**557.1**	**557.5**	**29**
PR-4	**2.7**	**554.0**	**556.7**	**28**
RW-5	**14.1**	**556.9**	**557.5**	**29**
PR-12	**2.4**	**556.8**	**558.5**	**30**
OBA-9AR	**0.6**	**557.2**	**557.7**	**27**

Prepared By: AWM 05/06/2012
Checked By: AWE 05/08/2012

Groundwater elevations exceeded groundwater target levels due to system shutdowns during the week 4/14/12-4/17/12 caused by air entering the suction line of the GAC feed pump. The air was bled from the line on 4/17/12 and the GAC feed pump has been running without further incident. Olin has purchased a new air stripper sump level switch to correct this issue.

On4/23/12, target levels were not met due to a GWTS shutdown caused by a heavy rain/snow event and scheduled system maintenance to replace the blower shaft seal. Residual high water levels from this rain/snow event contributed to target levels not being met on 4/24/12.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System (except RW-3)	4/1/2012 9:30	4/1/12 12:00	2.5	Not recorded
RW-3	4/1/2012 9:30	4/1/12 10:30	1.0	Not recorded
System	4/7/2012 0:40	4/7/12 2:20	1.7	Not recorded
System	4/14/2012 19:40	4/14/12 21:05	1.4	Air interlock in GAC feed pump
System	4/14/2012 21:55	4/14/12 23:00	1.1	
System	4/15/12 19:55	4/15/12 21:20	1.4	
RW-1, RW-2, and RW-3	4/15/2012 21:35	4/16/12 4:10	6.6	
RW-4 and RW-5	4/15/2012 21:55	4/16/12 4:00	6.1	
PR-12 and OBA-9AR	4/16/2012 0:05	4/16/12 3:55	3.8	
System	4/16/2012 4:45	4/16/12 9:20	4.6	
System	04/16/2012 09:45	4/16/2012 22:55		
System	4/16/2012 23:55	4/17/12 7:30	8.6	
System	4/17/2012 10:20	4/17/12 19:20	9.0	
System	4/17/2012 20:25	4/17/12 22:15	1.8	Not recorded
System	4/17/2012 22:45	4/17/12 23:45	1.0	Not recorded
System	4/18/2012 2:05	4/18/12 3:00	0.9	Carbon backwashing
System	4/23/2012 12:15	4/23/12 14:50	2.6	Installation of seal on blower shaft (scheduled repair)

Prepared By: AWM 05/07/2012
Checked By: AWE 05/08/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or

replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	04/03/2012	0.14	-0.03	
	04/10/2012	0.21	-0.01	
	04/17/2012	0.37	-0.02	
	04/24/2012	0.15	0.00	
RW-2	04/03/2012	-0.06	-0.10	
	04/10/2012	-0.07	-0.11	
	04/17/2012	-0.07	-0.13	
	04/24/2012	-0.10	-0.10	
RW-3	04/03/2012	0.06	-0.25	
	04/10/2012	0.02	-0.10	
	04/17/2012	0.08	-0.10	
	04/24/2012	0.12	-0.02	
RW-4	04/03/2012	0.14	0.01	
	04/10/2012	0.15	0.00	
	04/17/2012	0.13	0.03	
	04/24/2012	0.00	0.05	
PR-4	04/03/2012	0.23	-0.18	
	04/10/2012	0.41	-0.15	
	04/17/2012	0.87	-0.12	
	04/24/2012	0.51	-0.20	
RW-5	04/03/2012	0.23	0.03	
	04/10/2012	0.22	0.04	
	04/17/2012	0.17	0.02	
	04/24/2012	0.23	0.04	
PR-12	04/03/2012	0.16	NA	
	04/10/2012	0.18	NA	
	04/17/2012	-0.18	NA	
	04/24/2012	0.04	NA	
OBA-9AR	04/03/2012	0.47	0.05	
	04/10/2012	0.08	-0.38	
	04/17/2012	0.45	0.04	
	04/24/2012	0.10	-0.35	

Prepared By: AWM 05/07/2012
Checked By: AWE 05/08/2012

DNAPL INSPECTION

On April 5, 2012, seven wells were inspected for the presence of DNAPL. The following table presents the results of the inspection:

Well	Volume Purged (gallons)	DNAPL Presence	DNAPL Quantity Removed (mL)	Comment
OBA-9AR	1.0	Yes	150	

Prepared By: AWM 5/7/2012
Checked By: AWE 05/08/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Katie Godlove @ Olin-Niagara; Kelly McIntosh @ AMEC; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: June 13, 2012

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for May 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

The following table presents general treatment system data for May 2012:

GWTS Status May 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**GW Target Level (ft MSL)**	**Days Meeting Target Levels**
RW-1	**5.2**	**556.7**	**557.5**	**28**
RW-2	**26.7**	**557.1**	**557.7**	**29**
RW-3	**4.1**	**556.9**	**557.5**	**31**
RW-4	**7.5**	**556.9**	**557.5**	**31**
PR-4	**1.0**	**553.8**	**556.7**	**31**
RW-5	**14.4**	**556.7**	**557.5**	**31**
PR-12	**1.2**	**556.9**	**558.5**	**29**
OBA-9AR	**0.6**	**557.1**	**557.7**	**31**

Prepared By: AWM 06/07/2012
Checked By: JDD 06/08/2012

The groundwater elevation exceeded the groundwater target level at RW-1 on 5/7/12 due to the pump being down at RW-1. The intake hose was reconnected on 5/7/12 resolving the issue. Groundwater elevations exceeded groundwater target levels at RW-1 and RW-2 on 5/19/12 and 5/20/12 due to the pump at RW-1 being down. The bad bushing on the pump at RW-1 has been replaced and the pump has been running without further incident. Groundwater elevation exceeded the groundwater target level at PR-12 on two occasions, 5/8/12 and 5/10/12. The pump had very low flow at the beginning of the month. Upon inspection, it was determined that solids build-up in the pump was causing it to fail. The pump at PR-12 was pulled on 5/9/12 and acid washed.

The system continued to have outages this month caused by air entering the suction line of the GAC pump. Olin replaced the air stripper sump level switch on 5/14/12 to correct this issue.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	5/1/2012 8:25	5/1/12 9:05	0.7	System shut down for routine air stripper maintenance.
System	5/3/2012 12:00	5/3/12 15:55	3.9	Not recorded.
RW-1	5/7/2012 1:25	5/7/12 7:55	6.5	Intake hose disconnected from pump.
RW-2,RW-3,RW-4,PR-4, and RW-5	5/7/2012 8:00	5/7/12 12:10	4.2	Air interlock in GAC pump.
RW-1	5/7/2012 11:55	5/8/12 1:40	13.7	Intake hose disconnected from pump.
System	5/8/2012 1:45	5/8/12 3:30	1.8	Air interlock in GAC pump.
RW-1	5/8/2012 1:50	5/8/12 3:40	1.8	Not recorded.
System	5/8/2012 3:45	5/8/12 5:15	1.5	Not recorded.
RW-1	5/8/2012 3:50	5/8/12 7:30	3.7	Not recorded.
RW-1	5/8/2012 7:40	5/8/12 11:05	3.4	Not recorded.
PR-12	5/9/2012 9:30	5/9/12 11:40	2.2	Solids build-up. Pump pulled and acid washed.
System	5/12/2012 3:35	5/12/12 8:35	5.0	Not recorded.
System	5/12/2012 11:55	5/12/12 20:05	8.2	Not recorded.
System	5/14/2012 15:00	5/14/12 23:00	8.0	System shut down for level switch replacement on air stripper.
System	5/17/2012 6:45	5/17/12 10:15	3.5	Not recorded.
RW-1	5/19/2012 12:50	5/22/12 10:10	69.3	Bad bushing on pump. Pump pulled and bushing replaced.
System	5/28/2012 15:30	5/28/12 18:40	3.2	Not recorded.

Prepared By: AWM 06/07/2012
Checked By: JDD 06/08/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	05/01/2012	0.19	-0.03	
	05/08/2012	0.16	-0.02	
	05/15/2012	0.18	-0.02	
	05/22/2012	0.42	-0.02	
	05/29/2012	0.26	-0.03	
RW-2	05/01/2012	0.00	-0.12	
	05/08/2012	-0.14	-0.14	
	05/15/2012	-0.05	-0.13	
	05/22/2012	0.00	-0.11	
	05/29/2012	-0.04	-0.11	
RW-3	05/01/2012	0.01	-0.12	
	05/08/2012	0.02	-0.09	
	05/15/2012	0.14	-0.13	
	05/22/2012	0.07	-0.11	
	05/29/2012	0.14	-0.15	
RW-4	05/01/2012	0.15	0.07	
	05/08/2012	-0.10	0.06	
	05/15/2012	0.12	0.09	
	05/22/2012	0.15	0.08	
	05/29/2012	0.19	0.11	
PR-4	05/01/2012	0.72	0.26	
	05/08/2012	-0.03	1.00	
	05/15/2012	0.33	0.14	
	05/22/2012	0.60	0.04	
	05/29/2012	0.47	-0.02	
RW-5	05/01/2012	0.23	0.03	
	05/08/2012	-0.03	0.02	
	05/15/2012	0.21	0.01	
	05/22/2012	0.28	0.04	
	05/29/2012	0.19	0.02	
PR-12	05/01/2012	-0.21	NA	
	05/08/2012	-0.19	NA	
	05/15/2012	-0.34	NA	
	05/22/2012	-0.46	NA	
	05/29/2012	0.21	NA	

OBA-9AR	05/01/2012	0.11	-0.34	
	05/08/2012	0.12	-0.28	
	05/15/2012	0.10	-0.39	
	05/22/2012	0.10	-0.32	
	05/29/2012	0.15	-0.26	

Prepared By: AWM 06/07/2012
Checked By: JDD 06/08/2012

DNAPL INSPECTION

On May 10, 2012, sixteen wells were inspected for the presence of DNAPL. The following table presents the results of the inspection:

Well	Volume Purged (gallons)	DNAPL Presence	DNAPL Quantity Removed (mL)	Comment
OBA-10A	1.0	Yes	trace	
OBA-9AR	1.0	Yes	250	
PN-12B	1.0	Yes	100	
PN-14B	1.0	Yes	40	
PN-21B	1.0	Yes	100	
PN-22B	1.0	Yes	125	
PN-23B	1.0	Yes	125	
PR-10	1.0	No	--	
PR-12	1.0	No	--	
PR-4	1.0	Yes	trace	
PR-9	1.0	No	--	
RW-1	1.0	No	--	
RW-2	1.0	No	--	
RW-3	1.0	No	--	
RW-4	1.0	No	--	
RW-5	1.0	No	--	

Prepared By: AWM 06/07/2012
Checked By: JDD 06/08/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: August 1, 2012

Subject: Monthly O&M Status Update for Ground-Water Treatment System for June 2012
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

The following table presents general treatment system data for June 2012:

GWTS Status June 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**GW Target Level (ft MSL)**	**Days Meeting Target Levels**
RW-1	**2.7**	**557.3**	**557.5**	**18**
RW-2	**19.4**	**557.4**	**557.7**	**30**
RW-3	**3.1**	**557.2**	**557.5**	**29**
RW-4	**7.4**	**557.2**	**557.5**	**29**
PR-4	**1.3**	**554.7**	**556.7**	**24**
RW-5	**6.6**	**557.0**	**557.5**	**30**
PR-12	**1.6**	**556.8**	**558.5**	**27**
OBA-9AR	**0.3**	**558.5**	**557.7**	**20**

Prepared By: AWM 07/11/2012
Checked By: JDD 07/12/2012

During the month of June, the system experienced several shutdowns that resulted in groundwater levels exceeding target levels. The system was shut down as part of scheduled

electrical maintenance on 6/3-6/8. NYSDEC was given prior notification of this and approved the scheduled downtime. In addition to the planned downtime, the system was down for 8.4 hours between 6/18 and 6/19. This downtime was due to air entering the suction line of the GAC feed pump. The air was bled from the line on 6/19/12 and the GAC feed pump has been running without further incident. The system was down on 6/26/12 for 3 hours for scheduled acid pump maintenance. The system ran without incident until the morning of 6/28/12 where the system shut down due to a low pH in the acid adjustment tank. The amount of acid was adjusted by Olin personnel, however, the pH dropped in the acid adjustment tank on 6/30/12 and the system shut down in response.

In addition to the aforementioned system downtimes, RW-1 was down on 6/11 and 6/12 due to solids build-up. This downtime coupled with the system downtimes (scheduled and unscheduled) resulted in RW-1 not meeting the target drawdown for 12 days out of the month of June.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-4, PR-4, RW-5, PR-12, OBA-9AR	6/1/2012 12:45	6/1/12 19:45	7.0	Not recorded.
RW-3	6/1/2012 12:45	6/1/12 19:10	6.4	Not recorded.
System	6/3/2012 6:20	6/8/12 22:55	136.6	Planned shutdown for electrical maintenance.
RW-1	6/11/2012 5:40	6/11/12 12:50	7.2	No flow due to solids build-up.
RW-1	6/11/2012 19:25	6/12/12 22:50	27.4	No flow due to solids build-up.
RW-5	6/15/2012 13:15	6/19/12 8:15	91.0	Not recorded.
PR-12	6/16/12 19:50	6/16/12 20:50	1.0	Not recorded.
System	6/18/2012 23:50	6/19/12 8:15	8.4	Air interlock in GAC pump.
RW-5	6/19/12 10:20	6/19/12 14:40	4.3	Not recorded.
RW-5	6/19/12 14:50	6/20/12 13:30	22.7	Not recorded.
RW-5	6/20/2012 13:40	6/21/12 8:15	18.6	Not recorded.
RW-5	6/21/12 8:25	6/21/12 14:20	5.9	Not recorded.
RW-2	6/21/12 10:20	6/21/12 14:20	4.0	Not recorded.
RW-2	6/21/2012 14:35	6/22/12 4:10	13.6	Not recorded.
RW-5	6/21/2012 14:35	6/22/12 7:00	16.4	Not recorded.
RW-2	6/22/12 4:20	6/22/12 5:15	0.9	Not recorded.
RW-3	6/22/2012 7:00	6/22/12 8:10	1.2	Not recorded.
RW-5	6/22/2012 8:20	6/22/12 15:05	6.8	Not recorded.
RW-2	6/22/2012 5:30	6/22/12 6:45	1.3	Not recorded.
RW-2	6/22/2012 7:15	6/22/12 8:00	0.8	Not recorded.
RW-2	6/22/2012 7:15	6/22/12 8:00	0.8	Not recorded.
RW-5	6/22/12 15:15	6/22/12 19:05	3.8	Not recorded.
RW-5	6/22/2012 19:15	6/23/12 0:05	4.8	Not recorded.
System	6/26/12 8:20	6/26/12 11:20	3.0	Planned shutdown for acid pump maintenance.

System	6/28/2012 8:20	6/28/12 11:20	3.0	Low pH in pH adjustment tank.
System (except RW-2)	6/30/2012 9:00	6/30/12 23:55	14.9	Low pH in pH adjustment tank.
RW-2	6/30/12 8:10	6/30/12 11:50	3.7	Not recorded.

Prepared By: AWM 07/09/2012
Checked By: JDD 07/12/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	NA	NA	
	06/19/2012	0.25	-0.02	
	06/26/2012	0.15	-0.05	
RW-2	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.01	-0.06	
	06/19/2012	0.11	-0.10	
	06/26/2012	0.00	-0.14	
RW-3	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.02	-0.06	
	06/19/2012	0.41	-0.02	
	06/26/2012	0.08	-0.11	
RW-4	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.14	-0.56	
	06/19/2012	0.38	0.06	
	06/26/2012	0.14	0.07	
PR-4	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	1.14	2.67	
	06/19/2012	0.08	-0.17	
	06/26/2012	1.46	0.03	
RW-5	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.30	-0.02	
	06/19/2012	0.94	0.00	
	06/26/2012	-1.81	0.01	

PR-12	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.12	NA	
	06/19/2012	0.70	NA	
	06/26/2012	0.76	NA	
OBA-9AR	06/05/2012	NA	NA	Scheduled system downtime.
	06/12/2012	0.41	0.01	
	06/19/2012	0.08	-0.35	
	06/26/2012	0.44	0.04	

Prepared By: AWM 07/11/2012
Checked By: JDD 7/12/2012

DNAPL INSPECTION

On June 5, 2012, one well was inspected for the presence of DNAPL. The following table presents the results of the inspection:

Well	Volume Purged (gallons)	DNAPL Presence	DNAPL Quantity Removed (mL)	Comment
OBA-9AR	1.0	Yes	75	

Prepared By: AWM 07/18/2012
Checked By: AWE 07/18/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: September 17, 2012

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for July 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

The following table presents general treatment system data for July 2012:

GWTS Status July 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Average Gill Creek Stilling Well Elevation (ft MSL)**	**Days Below Gill Creek Elevation**
RW-1	**5.3**	**557.0**	**562.57**	**31**
RW-2	**19.4**	**557.6**		**31**
RW-3	**2.2**	**557.4**		**31**
RW-4	**6.4**	**557.3**		**31**
PR-4	**5.1**	**555.4**		**31**
RW-5	**12.2**	**557.0**		**31**
PR-12	**1.1**	**557.1**		**31**
OBA-9AR	**0.4**	**558.6**		**31**

Prepared By: AWM 08/28/2012
Checked By: JDD 08/31/2012

During the month of July, all recovery wells were below the Gill Creek stilling well elevation. Capture of site groundwater is being maintained. As seen from the System Downtimes table, the system experienced several shutdowns; steps are being implemented to improve GWTS operations. The pH in the adjustment tank fluctuated more frequently than previous months, resulting in multiple alarms being triggered to shut down the system. Sevenson was on site on 7/3 to add soda ash to the tank to bring down the pH. The pH remained stable until 7/11 when it dropped again, resulting in the system shutting down. Sevenson worked with Olin E&I staff to address the pH adjustment issues. It was discovered that the acid feed pump was not set to shut down once the pH reached the low pH setpoint. Since the pump did not shut off, the pH in the adjustment tank continued to drop until the pH reached its low-low point which shuts down the system. The default has been changed to stop the pump when the pH has reached the low setpoint. The pump has also been set to a slower rate so that the DCS can recognize that the pH is being lowered before it is too low and the system shuts down. Further evaluation of the pH adjustment system is underway.

In addition to the aforementioned system downtimes, PR-4 was shutdown on 7/18 for acid cleaning and RW-1 was down on 7/28 due to a problem with solids build-up in the impeller. The pump will remain offline until the replacement pump is installed.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	7/2/2012 8:10	7/3/12 0:20	16.2	Low pH in adjustment tank
System	7/3/2012 0:35	7/3/12 10:35	10.0	
System	7/3/2012 11:05	7/3/12 12:40	1.6	
RW-1	7/3/2012 11:10	7/3/12 12:55	1.7	Not recorded.
System (except RW-1)	7/7/2012 8:35	7/7/12 10:40	2.1	
RW-1	7/11/2012 12:55	7/11/12 13:50	0.9	
System (except RW-1 and RW-2)	7/11/12 1:05	7/12/12 3:30	26.4	Low pH in adjustment tank
System	7/12/2012 3:50	7/12/12 12:25	8.6	
System	7/12/2012 14:25	7/12/12 23:55	9.5	
System	7/13/2012 0:40	7/13/12 3:45	3.1	
System	7/13/2012 4:15	7/13/12 8:15	4.0	
System (except RW-2)	7/13/2012 13:10	7/13/12 19:40	6.5	
System	7/13/2012 20:25	7/14/12 3:30	7.1	
System	7/14/2012 4:20	7/14/12 6:55	2.6	
System	7/14/2012 7:40	7/14/12 22:45	15.1	
System	7/14/2012 23:30	7/15/12 7:40	8.2	
System	7/15/2012 8:20	7/15/12 15:50	7.5	
System	7/15/2012 16:30	7/16/12 4:40	12.2	
System	7/16/2012 6:00	7/16/12 6:55	0.9	
PR-4 and RW-5	7/18/2012 10:40	7/18/12 11:40	1.0	No acid injected into PR-4

System (except RW-1)	7/18/2012 15:05	7/18/12 16:00	0.9	Low pH in adjustment tank
RW-2	7/19/2012 8:20	7/19/12 9:50	1.5	Not recorded.
System	7/19/2012 13:45	7/19/12 20:15	6.5	Low pH in adjustment tank
System	7/19/2012 21:55	7/20/12 4:35	6.7	
System	7/20/2012 7:10	7/20/12 9:45	2.6	Low pH in adjustment tank
System	7/20/2012 11:00	7/20/12 13:50	2.8	
System	7/21/2012 23:15	7/22/12 0:35	1.3	
System	7/22/2012 2:35	7/22/12 12:35	10.0	
System	7/22/2012 14:00	7/22/12 15:00	1.0	
System	7/22/2012 15:50	7/22/12 16:45	0.9	
PR-4 and RW-5	7/22/2012 17:55	7/22/12 20:05	2.2	Not recorded.
System	7/22/2012 21:00	7/22/12 22:15	1.3	Low pH in adjustment tank.
System	7/25/2012 1:40	7/25/12 2:25	0.8	
System	7/25/2012 4:25	7/25/12 15:20	10.9	
System	7/25/2012 19:15	7/25/12 20:10	0.9	
RW-1	7/28/2012 2:25	7/28/12 8:00	5.6	Impeller clogged
RW-1	7/28/2012 11:05	7/31/12 23:55	84.8	

Prepared By: AWM 08/10/2012
Checked By: JDD 08/13/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	07/05/2012	0.31	-0.03	
	07/10/2012	0.31	-0.05	
	07/16/2012	-0.62	-0.96	
	07/24/2012	0.77	-0.04	
	07/31/2012	NA	NA	
RW-2	07/05/2012	-0.03	-0.20	
	07/10/2012	-0.01	-0.11	
	07/16/2012	-0.24	-0.27	
	07/24/2012	0.13	-0.12	
	07/31/2012	0.01	-0.06	

RW-3	07/05/2012	0.11	-0.05	
	07/10/2012	0.08	0.48	
	07/16/2012	0.23	-0.06	
	07/24/2012	0.31	-0.11	
	07/31/2012	0.14	0.00	
RW-4	07/05/2012	0.17	0.07	
	07/10/2012	0.22	0.07	
	07/16/2012	0.17	0.04	
	07/24/2012	0.29	0.07	
	07/31/2012	0.16	0.03	
PR-4	07/05/2012	0.62	0.20	
	07/10/2012	0.53	0.56	
	07/16/2012	-0.47	-0.07	
	07/24/2012	0.14	0.10	
	07/31/2012	0.86	0.06	
RW-5	07/05/2012	0.30	0.01	
	07/10/2012	0.30	0.03	
	07/16/2012	0.20	-0.05	
	07/24/2012	0.45	0.01	
	07/31/2012	0.30	0.02	
PR-12	07/05/2012	0.25	NA	
	07/10/2012	0.60	NA	
	07/16/2012	0.23	NA	
	07/24/2012	0.10	NA	
	07/31/2012	-0.41	NA	
OBA-9AR	07/05/2012	0.03	-0.36	
	07/10/2012	0.13	-0.41	
	07/16/2012	-0.12	-0.49	
	07/24/2012	0.08	-0.36	
	07/31/2012	0.07	-0.43	

Prepared By: AWM 08/13/2012
Checked By: JAN 08/16/2012

DNAPL INSPECTION

On July 5, 2012, one well was inspected for the presence of DNAPL. The following table presents the results of the inspection:

Well	Volume Purged (gallons)	DNAPL Presence	DNAPL Quantity Removed (mL)	Comment
OBA-9AR	1.0	Yes	100	

Prepared By: AWM 08/15/2012
Checked By: JAN 08/16/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: October 11, 2012

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for August 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

As shown below, during August, all recovery wells were below the Gill Creek stilling well elevation. Capture of site groundwater is being maintained.

GWTS Status August 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Average Gill Creek Stilling Well Elevation (ft MSL)**	**Days Below Gill Creek Elevation**
RW-1	**0.6**	**557.8**	**562.43**	**31**
RW-2	**7.0**	**558.5**		**31**
RW-3	**1.1**	**557.4**		**31**
RW-4	**6.0**	**557.2**		**31**
PR-4	**9.8**	**555.8**		**31**
RW-5	**13.8**	**557.0**		**31**
PR-12	**0.9**	**557.4**		**31**
OBA-9AR	**0.6**	**558.5**		**31**

Prepared By: AWM 10/01/2012
Checked By: JDD 10/02/2012

During August, the System's operation runtime was 82%. As shown below, the system experienced several shutdowns due to a low pH in the adjustment tank; steps are being implemented to adjust pH setpoints and improve overall GWTS operations. The pump at RW-1 was replaced on 8/21. However, shortly after replacement, the new pump failed at RW-1 due to solids build-up in the impeller. A new pump is on order. The wiring harness on RW-2 was damaged during pump inspection and was replaced on 8/13. Both RW-1 and PR-12 were acid washed on 8/18.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-1	8/1/2012 0:00	8/2/12 11:10	35.2	Pump failure.
RW-1	8/2/2012 13:10	8/13/12 12:35	263.4	
System	8/4/2012 19:40	8/4/12 22:20	2.7	Low pH in adjustment tank shut system down.
System	8/6/2012 8:15	8/6/12 19:05	10.8	
System	8/6/2012 19:50	8/7/12 5:40	9.8	
System	8/7/2012 6:35	8/7/12 7:55	1.3	
System (except PR-12)	8/7/2012 8:00	8/7/12 11:30	3.5	
RW-2	8/7/12 6:35	8/13/12 13:35	151.0	Damaged wiring harness.
System	8/7/2012 14:00	8/8/12 7:00	17.0	Low pH in adjustment tank shut system down.
RW-3 & RW-4	8/12/2012 14:20	8/12/12 15:10	0.8	Not recorded.
PR-4 & RW-5	8/12/2012 14:15	8/12/12 15:10	0.9	Not recorded.
PR-12	8/12/2012 14:20	8/12/12 15:25	1.1	Electrical line to pump cut.
PR-12	8/13/2012 6:15	8/13/12 6:55	0.7	
PR-12	8/13/2012 7:50	8/13/12 9:20	1.5	
System	8/14/2012 21:45	8/15/12 5:15	7.5	Low pH in adjustment tank shut system down.
System	8/15/2012 5:50	8/15/12 6:30	0.7	
System	8/15/2012 9:20	8/15/12 15:45	6.4	
System	8/15/2012 16:30	8/16/12 3:20	10.8	
System	8/16/2012 4:05	8/16/12 6:00	1.9	
System	8/16/2012 7:35	8/16/12 8:30	0.9	
System	8/16/2012 9:45	8/16/12 11:00	1.3	
System	8/16/2012 11:50	8/16/12 14:00	2.2	
System	8/18/2012 23:35	8/19/12 2:45	3.2	System shut down to acid wash RW-1 and PR-12.
RW-1	8/20/2012 23:05	8/21/12 13:35	14.5	Pump failure.
RW-1	8/21/2012 13:50	8/21/12 14:50	1.0	Pump failure.
RW-1	8/23/2012 5:15	8/23/12 11:05	5.8	Pump failure.
System	8/25/2012 14:05	8/25/2012 22:10	8.1	Low pH in adjustment tank shut system down.
System	8/26/2012 17:05	8/27/12 4:50	11.8	
System	8/27/2012 14:10	8/27/12 17:15	3.1	
System	8/27/2012 18:45	8/27/12 19:50	1.1	
System	8/27/2012 21:00	8/27/12 22:55	1.9	

System	8/27/2012 23:45	8/28/12 2:10	2.4	Low pH in adjustment tank shut system down.
System	8/28/2012 15:05	8/28/12 17:10	2.1	
System	8/28/2012 21:40	8/28/12 22:15	0.6	
System	8/29/2012 9:35	8/29/12 16:40	7.1	
System	8/29/2012 17:10	8/29/12 17:50	0.7	
System	8/30/2012 2:50	8/30/12 7:10	4.3	
System	8/30/2012 8:40	8/30/12 13:50	5.2	
System	8/30/2012 15:10	8/30/12 18:35	3.4	
RW-1	8/31/2012 15:05	8/31/12 15:40	0.6	Pump failure.
RW-1	8/31/2012 16:35	8/31/12 17:15	0.7	
RW-1	8/31/2012 17:25	8/31/12 18:45	1.3	
RW-1	8/31/2012 21:40	8/31/12 23:55	2.3	
System	8/31/2012 22:35	8/31/12 23:55	1.3	Not recorded.

Prepared By: AWM 09/06/2012
Checked By: JDD 10/02/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	08/07/2012	NA	-0.96	Pump down.
	08/13/2012	0.26	-0.03	
	08/21/2012	NA	-0.96	Pump down.
	08/28/2012	0.28	-0.02	
RW-2	08/07/2012	NA	-0.27	Pump down.
	08/13/2012	-0.79	-0.13	
	08/21/2012	-0.79	-0.15	
	08/28/2012	-1.04	0.00	
RW-3	08/07/2012	0.17	0.01	
	08/13/2012	0.18	0.24	
	08/21/2012	0.19	0.09	
	08/28/2012	0.23	-0.06	
RW-4	08/07/2012	0.20	0.11	
	08/13/2012	0.20	0.08	
	08/21/2012	0.17	0.08	
	08/28/2012	0.21	0.04	
PR-4	08/07/2012	0.37	0.08	

	08/13/2012	0.32	0.30	
	08/21/2012	0.43	-0.20	
	08/28/2012	0.43	0.22	
RW-5	08/07/2012	0.29	0.03	
	08/13/2012	0.32	0.13	
	08/21/2012	0.26	0.01	
	08/28/2012	0.33	0.00	
PR-12	08/07/2012	0.18	NA	
	08/13/2012	0.16	NA	
	08/21/2012	1.00	NA	Transducer cleaned.
	08/28/2012	-0.01	NA	
OBA-9AR	08/07/2012	0.44	0.06	
	08/13/2012	0.35	-0.01	
	08/21/2012	0.11	-0.34	
	08/28/2012	0.44	0.03	

Prepared By: AWM 09/06/2012
Checked By: JDD 10/02 /2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: October 19, 2012

Subject: Monthly O&M Status Update for Ground-Water Treatment System for September 2012
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

As shown below, all recovery wells were below the Gill Creek stilling well elevation in September. Capture of site groundwater is being maintained.

GWTS Status September 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Average Gill Creek Stilling Well Elevation (ft MSL)**	**Days Below Gill Creek Elevation**
RW-1	**2.9**	**557.5**	**562.44**	**30**
RW-2	**6.5**	**558.8**		**30**
RW-3	**0.9**	**557.6**		**30**
RW-4	**8.1**	**557.3**		**30**
PR-4	**9.4**	**556.3**		**30**
RW-5	**14.1**	**557.0**		**30**
PR-12	**0.9**	**557.8**		**30**
OBA-9AR	**0.5**	**558.0**		**30**

Prepared By: AWM 10/15/2012
Checked By: JDD 10/16/2012

During September, the System's operation runtime was 79%. As shown below, the system experienced several shutdowns due to a low pH in the adjustment tank; steps are being implemented to adjust pH set points and improve overall GWTS operations. The pump head at RW-1 was replaced on 9/11. Olin personnel have been instructed to keep the acid pumps running while the pump is running to prevent solids build-up.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	9/1/2012 0:00	9/1/12 0:40	0.7	Low pH in adjustment tank shut system down.
System	9/1/2012 1:25	9/1/12 5:55	4.5	
RW-1	9/1/2012 0:55	9/1/12 5:55	5.0	Pump failure
RW-1	9/1/2012 6:10	9/4/2012 8:05	73.9	Pump failure
System	9/4/2012 1:55	9/4/12 8:00	6.1	Low pH in adjustment tank shut system down.
RW-1	9/4/2012 8:15	9/7/12 9:05	72.8	Pump failure
System	9/4/2012 14:15	9/4/12 17:50	3.6	Low pH in adjustment tank shut system down.
RW-1	9/7/2012 9:20	9/8/12 8:00	22.7	Pump failure
System	9/8/2012 3:50	9/8/12 9:25	5.6	Low pH in adjustment tank shut system down.
RW-1	9/8/2012 8:10	9/11/12 9:30	73.3	Pump failure
System	9/13/2012 10:55	9/13/12 15:00	4.1	Low pH in adjustment tank shut system down.
System	9/16/2012 23:55	9/17/12 1:20	1.4	
System	9/19/2012 8:05	9/19/12 15:10	7.1	
System	9/20/2012 15:10	9/22/12 9:05	41.9	
RW-1, RW-3 and PR-4	9/22/2012 11:30	9/22/12 12:40	1.2	Not recorded.
System	9/22/2012 1:05	9/22/12 14:15	13.2	Low pH in adjustment tank shut system down.
System	9/22/2012 15:40	9/22/2012 16:20	0.7	
System	9/22/2012 17:00	9/22/12 22:25	5.4	
System	9/22/2012 23:05	9/23/12 3:50	4.7	
System	9/26/2012 21:35	9/26/12 23:10	1.6	
System	9/27/2012 9:05	9/29/12 7:10	46.1	
System	9/30/2012 1:10	9/30/12 4:50	3.7	

Prepared By: AWM 10/12/2012
Checked By: JDD 10/16/2012

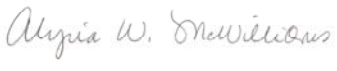
WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	09/04/2012	NA	-0.96	Pump down.
	09/11/2012	0.14	-0.05	
	09/18/2012	0.17	-0.02	
	09/25/2012	0.11	-0.03	
RW-2	09/04/2012	-1.05	-0.15	
	09/11/2012	-1.08	-0.08	
	09/18/2012	-1.10	-0.16	
	09/25/2012	-1.15	-0.15	Transducer cleaned and readjusted.
RW-3	09/04/2012	0.12	-0.03	
	09/11/2012	0.18	-0.01	
	09/18/2012	0.16	0.06	
	09/25/2012	0.22	-0.01	
RW-4	09/04/2012	0.15	0.07	
	09/11/2012	0.19	0.06	
	09/18/2012	0.12	0.06	
	09/25/2012	0.16	0.04	
PR-4	09/04/2012	0.36	0.51	
	09/11/2012	0.36	0.16	
	09/18/2012	0.27	0.14	
	09/25/2012	0.20	0.25	
RW-5	09/04/2012	0.31	0.00	
	09/11/2012	0.25	0.03	
	09/18/2012	0.28	-0.01	
	09/25/2012	0.32	0.04	
PR-12	09/04/2012	0.17	NA	
	09/11/2012	0.16	NA	
	09/18/2012	-0.83	NA	.
	09/25/2012	0.10	NA	
OBA-9AR	09/04/2012	0.10	-0.32	
	09/11/2012	0.11	-0.33	
	09/18/2012	0.00	-0.43	
	09/25/2012	0.12	-0.37	

Prepared By: AWM 10/15/2012
Checked By: JDD 10/16/2012

If there are any questions, please don't hesitate to call us.



Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: December 13, 2012

Subject: Monthly O&M Status Update for Ground-Water Treatment System for October 2012
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

As shown below, all recovery wells were below the Gill Creek stilling well elevation in October. Capture of site groundwater is being maintained.

GWTS Status October 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Average Gill Creek Stilling Well Elevation (ft MSL)**	**Days Below Gill Creek Elevation**
RW-1	**3.1**	**557.6**	**562.65**	**31**
RW-2	**8.0**	**557.6**		**31**
RW-3	**0.9**	**557.5**		**31**
RW-4	**7.4**	**557.3**		**31**
PR-4	**11.3**	**556.3**		**31**
RW-5	**14.6**	**557.0**		**31**
PR-12	**0.1**	**557.9**		**31**
OBA-9AR	**0.5**	**557.5**		**31**

Prepared By: AWM 11/15/2012
Checked By: JDD 11/15/2012

During October, the System's operation runtime was 89%. The majority of the downtime was the result of the pump failure at RW-1, the acid supply tote was empty for a period of time causing the impeller to clog due to carbonate scale formation in the well. A replacement pump was ordered. PR-12 was acid washed during the week of 10/2.

System Downtimes

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	10/1/2012 1:20	10/1/12 3:45	2.4	Carbon Backwashing.
RW-4, PR-4, and RW-5	10/4/2012 7:15	10/4/12 20:10	12.9	Not recorded.
System	10/8/2012 10:45	10/8/12 16:50	6.1	
RW-3	10/10/2012 7:45	10/11/12 10:00	26.3	Low flow due to solids build-up.
System	10/11/2012 7:25	10/11/12 10:05	2.7	Not recorded.
System	10/11/12 23:05	10/11/12 23:45	0.7	
System	10/12/2012 1:55	10/12/12 2:35	0.7	
RW-1 and RW-2	10/12/2012 3:10	10/12/12 4:10	1.0	
RW-3, RW-4, PR-4, RW-4, RW-5, PR-12 and OBA-9AR	10/12/2012 3:30	10/12/12 4:10	0.7	
System	10/12/2012 4:35	10/12/12 7:10	2.6	
System	10/16/2012 13:35	10/16/12 22:05	8.5	
System	10/16/2012 22:25	10/17/12 5:00	6.6	
System	10/17/2012 5:35	10/17/12 7:10	1.6	
System	10/17/2012 7:50	10/17/12 8:30	0.7	
System	10/17/2012 21:55	10/18/12 2:25	4.5	
RW-1	10/18/2012 3:45	10/31/12 23:55	332.2	Impeller clogged/pump corroded.
System	10/23/2012 23:20	10/24/12 1:10	1.8	Not recorded.
System	10/29/2012 8:05	10/29/12 9:20	1.3	
System	10/29/2012 19:35	10/29/12 22:20	2.8	
System	10/30/2012 2:50	10/30/12 3:25	0.6	
System	10/30/2012 7:55	10/30/12 8:50	0.9	

Prepared By: AWM 11/14/2012
Checked By: JDD 11/14/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	10/02/2012	0.06	-0.18	
	10/09/2012	0.28	-0.03	
	10/16/2012	0.29	-0.01	
	10/23/2012	NA	-0.96	Pump down.
	10/30/2012	NA	-0.96	Pump down.
RW-2	10/02/2012	-0.75	-0.18	Transducer pulled and cleaned.
	10/09/2012	0.16	-0.14	
	10/16/2012	0.20	-0.12	
	10/23/2012	0.17	-0.13	
	10/30/2012	0.20	-0.09	
RW-3	10/02/2012	0.22	-0.03	
	10/09/2012	0.22	-0.02	
	10/16/2012	0.15	-0.01	
	10/23/2012	0.23	0.05	
	10/30/2012	0.50	0.07	
RW-4	10/02/2012	0.18	0.05	
	10/09/2012	0.22	0.05	
	10/16/2012	0.16	0.06	
	10/23/2012	0.12	0.06	
	10/30/2012	0.05	0.11	
PR-4	10/02/2012	0.27	0.26	
	10/09/2012	0.36	0.27	
	10/16/2012	0.29	0.13	
	10/23/2012	0.19	0.00	
	10/30/2012	-0.32	0.05	
RW-5	10/02/2012	0.27	0.01	
	10/09/2012	0.29	0.06	
	10/16/2012	0.29	0.03	
	10/23/2012	0.29	0.01	
	10/30/2012	0.30	0.01	
PR-12	10/02/2012	-0.48	NA	
	10/09/2012	0.94	NA	
	10/16/2012	0.23	NA	.
	10/23/2012	0.14	NA	
	10/30/2012	0.12	NA	

OBA-9AR	10/02/2012	0.02	-0.43	
	10/09/2012	-0.10	-0.40	
	10/16/2012	0.12	-0.38	
	10/23/2012	0.43	0.13	
	10/30/2012	0.41	0.03	

Prepared By: AWM 11/15/2012
Checked By: JDD 11/15/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Gina Senia and Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: December 17, 2012

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for November 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107110002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

As shown below, all recovery wells were below the Gill Creek stilling well elevation in November. Capture of site groundwater is being maintained.

GWTS Status
November 2012

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Average Gill Creek Stilling Well Elevation (ft MSL)	Days Below Gill Creek Elevation
RW-1	4.9	557.0	562.25	30
RW-2	6.1	557.3		30
RW-3	0.6	557.4		30
RW-4	4.9	557.2		30
PR-4	3.8	555.0		30
RW-5	12.1	557.0		30
PR-12	0.05	560.9		29
OBA-9AR	0.5	558.3		28

Prepared By: AWM 12/14/2012
Checked By: JDD 12/14/2012

During November, the System's operation runtime was 82%. On 11/12, the system was shut down for a scheduled GAC change out. Subsequent to the change out, high levels in the 7-S sump resulted in the hi-level interlock being triggered. This interlock resulted in a significant portion of the downtime for November. The pump at RW-1 was replaced on 11/2. The flow rate at PR-12 was low during November and contributed to the groundwater elevation in that well exceeding the elevation at Gill Creek on 11/20. The groundwater elevation in OBA-9AR exceeded Gill Creek on 11/12 and 11/13.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-1	11/1/2012 0:00	11/2/12 10:45	34.7	Pump motor failure.
System	11/5/2012 9:50	11/5/12 11:15	1.4	Not recorded.
RW-1, RW-2	11/5/2012 11:30	11/6/12 8:25	20.9	Not recorded.
RW-3, RW-4	11/5/2012 11:30	11/6/12 6:30	19.0	Not recorded.
PR-4, RW-5, PR-12, OBA-9AR	11/5/2012 11:30	11/6/12 2:20	14.8	Not recorded.
PR-12	11/8/2012 9:55	11/8/12 14:00	4.1	Not recorded.
System	11/8/12 16:50	11/8/12 20:10	3.3	Not recorded.
System	11/8/2012 23:05	11/9/12 12:25	13.3	Not recorded.
System (except RW-3)	11/12/2012 8:15	11/14/12 17:05	56.8	Carbon change-out.
RW-3	11/12/2012 8:15	11/14/12 17:30	57.2	Interlock issue after carbon change-out.
System	11/14/2012 18:15	11/14/12 21:00	2.8	
System	11/23/2012 14:30	11/24/12 23:55	33.4	Interlock issue.
RW-1, RW-2, PR-4	11/25/2012 1:25	11/25/12 7:30	6.1	Not recorded.
RW-3, RW-4	11/25/2012 1:25	11/25/12 7:35	6.2	Not recorded.
RW-5, PR-12, OBA-9AR	11/25/2012 1:25	11/25/12 8:05	6.7	Not recorded.
System (except RW-2)	11/25/2012 8:20	11/25/12 10:45	2.4	Not recorded.
RW-2	11/25/2012 8:20	11/25/12 11:50	3.5	Not recorded.
System (except RW-2)	11/25/2012 11:05	11/25/12 11:50	0.8	Not recorded.

Prepared By: AWM 12/13/2012
Checked By: JDD 12/14/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	11/06/2012	0.17	-0.02	
	11/15/2012	0.31	-0.03	

	11/20/2012	0.18	0.04	
	11/27/2012	0.23	0.19	
RW-2	11/06/2012	0.14	-0.11	
	11/15/2012	0.20	-0.12	
	11/20/2012	0.22	-0.02	
	11/27/2012	0.12	-0.07	
RW-3	11/06/2012	0.08	0.01	
	11/15/2012	0.18	-0.04	
	11/20/2012	0.23	-0.31	
	11/27/2012	0.13	-0.06	
RW-4	11/06/2012	0.22	0.05	
	11/15/2012	0.19	0.05	
	11/20/2012	0.21	-0.16	
	11/27/2012	0.46	0.09	
PR-4	11/06/2012	0.28	0.08	
	11/15/2012	0.29	0.07	
	11/20/2012	-2.06	-0.17	
	11/27/2012	0.49	-0.07	
RW-5	11/06/2012	0.26	0.01	
	11/15/2012	0.30	0.00	
	11/20/2012	0.22	-0.15	
	11/27/2012	0.29	0.05	
PR-12	11/06/2012	0.19	NA	
	11/15/2012	0.19	NA	
	11/20/2012	0.49	NA	.
	11/27/2012	0.04	NA	
OBA-9AR	11/06/2012	0.10	-0.37	
	11/15/2012	0.43	0.04	
	11/20/2012	0.33	-0.15	
	11/27/2012	0.31	-0.17	

Prepared By: AWM 12/14/2012
Checked By: JDD 12/14/2012

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

MEMORANDUM

To: Rick McClure and David Share @ Olin-ERG

Cc: Christine Markham @ Olin-Niagara; Mike Walker @ Sevenson

From: Alycia McWilliams /Tony Englund

Date: January 30, 2013

Subject: **Monthly O&M Status Update for Ground-Water Treatment System for December 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107130002

This memo addresses the status of O&M for the ground-water treatment system (GWTS) at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

As shown below, average groundwater elevations in the recovery wells were below the Gill Creek water elevation in December indicating groundwater flow is toward the extraction wells.

GWTS Status December 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Average Gill Creek Stilling Well Elevation (ft MSL)**	**Days Below Gill Creek Elevation**
RW-1	4.2	557.1	562.3	31
RW-2	7.3	557.3		31
RW-3	0.5	557.3		31
RW-4	3.9	557.0		31
PR-4	4.1	554.9		31
RW-5	13.2	556.9		31
PR-12	0.1	561.2		22
OBA-9AR	0.4	557.7		28

Prepared By: AWM 01/10/2013
Checked By: JNM 1/14/2013

During December, the System's operation runtime was 92%. On 12/20, the system was shut down for a scheduled GAC change out. Subsequent to the change out, high levels in the 7-S sump resulted in the hi-level interlock being triggered. This interlock resulted in the system being down from 12/25 to 12/27. The system was shut down again on 12/31 for the scheduled replacement of the air stripper blower motor. The flow rate at PR-12 was low during December and contributed to the groundwater elevation in that well exceeding the elevation at Gill Creek on 12/6-12/11 and 12/15-12/17. The groundwater elevation in OBA-9AR exceeded Gill Creek on 12/20, 12/25 and 12/26.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-1	12/14/2012 5:00	12/18/12 12:45	103.7	Impeller/shaft binding due to high pH and solids build-up.
System	12/20/2012 7:45	12/20/12 13:30	5.8	Carbon change-out.
PR-12	12/20/2012 14:05	12/21/12 14:35	24.5	Not recorded.
System	12/25/2012 11:05	12/27/12 10:30	47.4	Interlock triggered by high water level in sump.
System	12/28/2012 14:10	12/28/12 16:20	2.2	Not recorded.
RW-1	12/30/2012 16:35	12/31/12 9:35	17.0	Not recorded.
System	12/31/2012 8:30	12/31/12 9:30	1.0	Scheduled shut-down to replace blower motor in air stripper.
RW-1 and RW-2	12/31/2012 10:20	12/31/12 23:55	13.6	Not recorded.
RW-3	12/31/2012 10:15	12/31/12 11:55	1.7	
RW-4	12/31/2012 10:20	12/31/12 11:55	1.6	
RW-5	12/31/2012 10:20	12/31/12 11:55	1.6	
PR-12 and OBA-9AR	12/31/2012 10:40	12/31/12 12:00	1.3	

Prepared By: AWM 01/10/2013
Checked By: JNM 1/11/2013

WELL INSPECTIONS

Each week, the recovery wells are inspected for well loss and transducer calibration. Consistent differences of a foot or greater between the well and the piezometer indicate unacceptable well loss, which is generally corrected by acid washing the well. Any differences seen between the APACs measurement and the actual measurement are generally a result of level changes between the time the readings are collected or differences caused by signal noise. If high differences (>1 ft) are seen consistently, the transducer will be checked, cleaned, and/or replaced, if necessary. The following table summarizes the results of those inspections and any actions taken to correct problems:

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	12/04/2012	0.21	-0.03	
	12/11/2012	0.23	0.25	
	12/18/2012	0.52	-0.02	
	12/27/2012	0.26	-0.03	
RW-2	12/04/2012	0.21	-0.15	
	12/11/2012	0.19	-0.02	
	12/18/2012	0.21	-0.11	
	12/27/2012	0.20	-0.13	
RW-3	12/04/2012	0.21	-0.02	
	12/11/2012	0.18	-0.08	
	12/18/2012	0.21	-0.04	
	12/27/2012	0.18	-0.02	
RW-4	12/04/2012	-0.05	0.17	
	12/11/2012	0.09	0.04	
	12/18/2012	-0.28	0.21	
	12/27/2012	-0.04	0.20	
PR-4	12/04/2012	1.53	-0.04	
	12/11/2012	0.53	-0.29	
	12/18/2012	0.49	-0.06	
	12/27/2012	0.46	-0.07	
RW-5	12/04/2012	0.33	-0.01	
	12/11/2012	0.29	0.04	
	12/18/2012	0.36	0.04	
	12/27/2012	0.29	0.00	
PR-12	12/04/2012	-0.03	NA	
	12/11/2012	0.04	NA	
	12/18/2012	0.08	NA	.
	12/27/2012	0.17	NA	
OBA-9AR	12/04/2012	0.45	-0.02	
	12/11/2012	0.54	0.09	
	12/18/2012	0.13	-0.37	
	12/27/2012	0.03	-0.34	

Prepared By: AWM 01/10/2013
Checked By: JNM 1/11/2013

If there are any questions, please don't hesitate to call us.

Alycia W. McWilliams

Anthony W. Englund

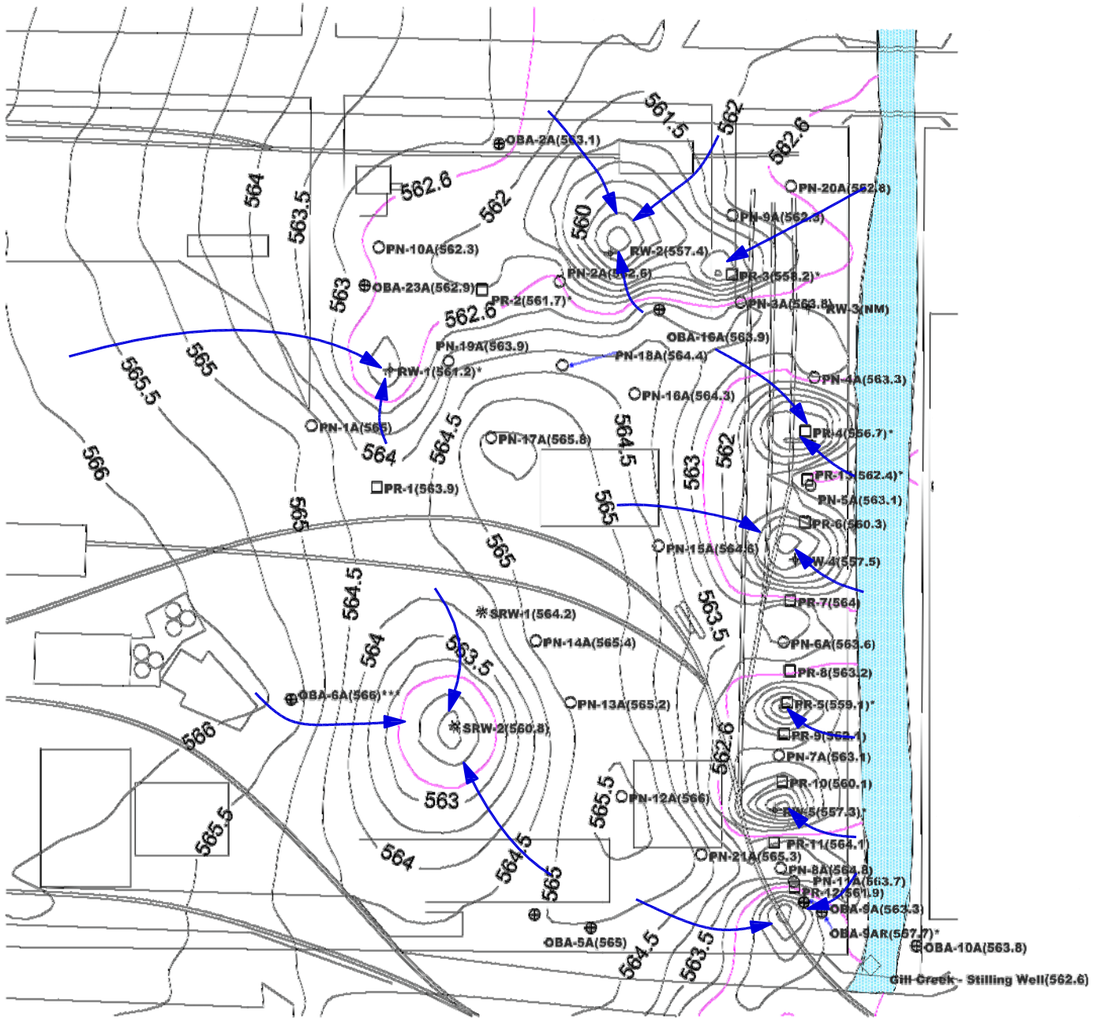
Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

Attachment 3

Piezometric Maps, Hydrographs, Supporting Data, and System Flows

Second Quarter 2012 Piezometric Maps



POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Extraction Well	Average Flow Rate (gpm)***
RW-1	6.60
RW-2	29.30
RW-3	4.60
RW-4	4.60
RW-5	15.90
PR-4	1.60
PR-12	0.20
OBA-9AR	0.60

*** :Averaged using daily flow rates for May 9, 2012. The water levels in RW-1, RW-4, RW-5, PR-4, and OBA-9AR were below the bottom of the A-zone. The water level in RW-3 was not measured.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL (PASSIVE)
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- GILL CREEK AREA

0 120 240
Scale 1 inch = 120 feet

NOTES

NM :Not measured

* :Well dry or water level below the bottom of the A-zone, elevation of bottom of A-Zone used in contouring.

** :Cracked concrete

*** :Missing bolts or broken lid box

Buffalo Avenue Sewer invert is assumed to be a groundwater sink. The piezometric surface is estimated as the bottom of the A-zone. The bottom of the A-zone along Buffalo Avenue was estimated from borings OBA-1A, OBA-2A, OBA-3A, and OBA-11A.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on May 9, 2012 (562.6 ft msl) was used in contouring the A zone.

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

Prepared By: VUO 06/11/2012
Checked By: AWE 06/13/2012

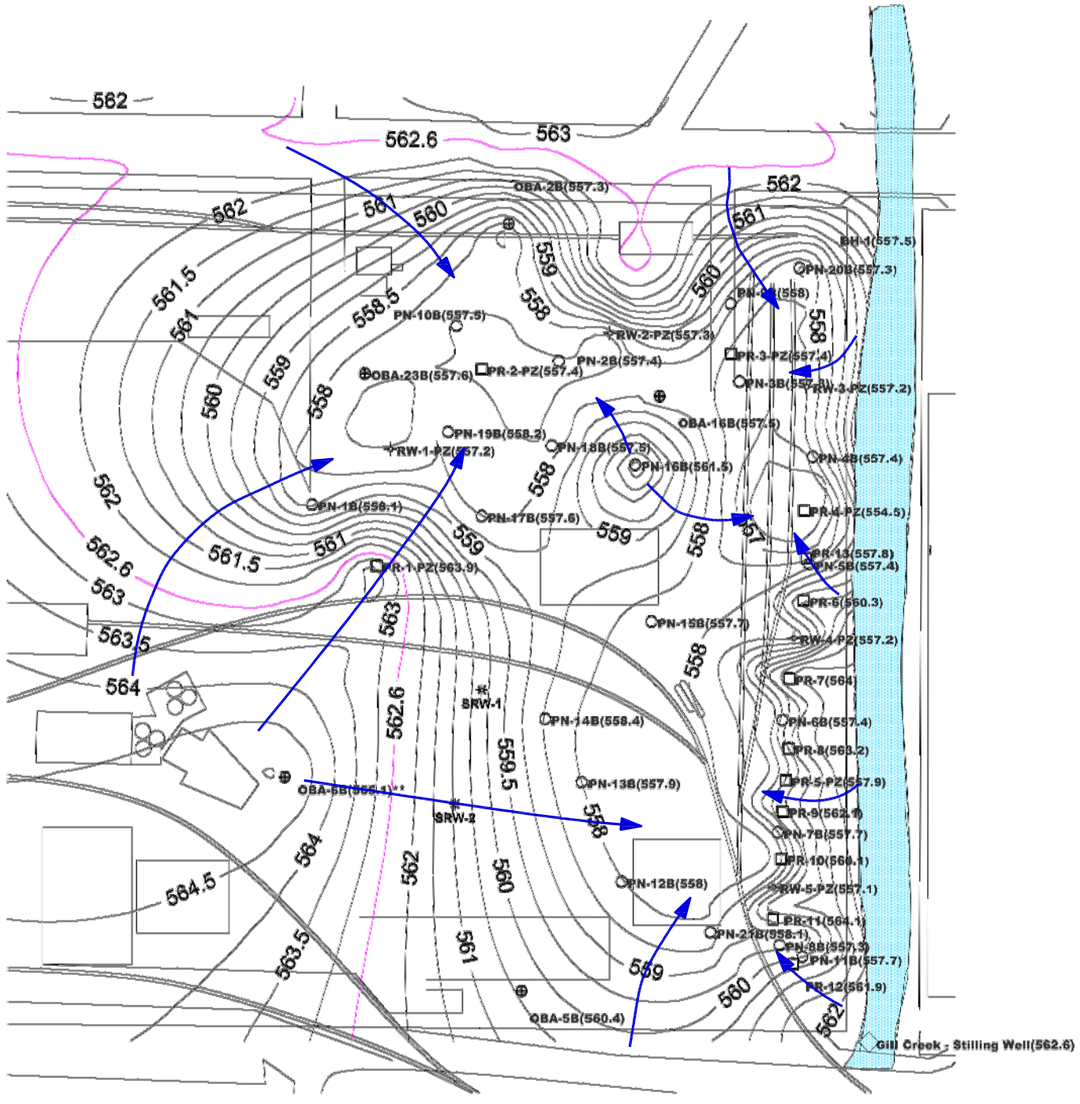
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	6.60
RW-2	29.30
RW-3	4.60
RW-4	4.60
RW-5	15.90
PR-4	1.60
PR-12	0.20
OBA-9AR	0.60

*** :Averaged using daily flow rates for May 9, 2012.
The water levels in RW-1, RW-4, RW-5, PR-4, and OBA-9AR were below the bottom of the A-zone.
The water level in RW-3 was not measured.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- GILL CREEK AREA

0 120 240

Scale: 1 inch = 120 feet

NOTES

** :Missing bolts or broken lid box

Buffalo Avenue Sewer invert is assumed to be a ground-water sink. The piezometric surface is not known.
The ground water contours were estimated based on the sewer invert elevation.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well.
Contour interval = 0.5 foot

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJC 06/11/2012
Checked By: AWE 06/13/2012

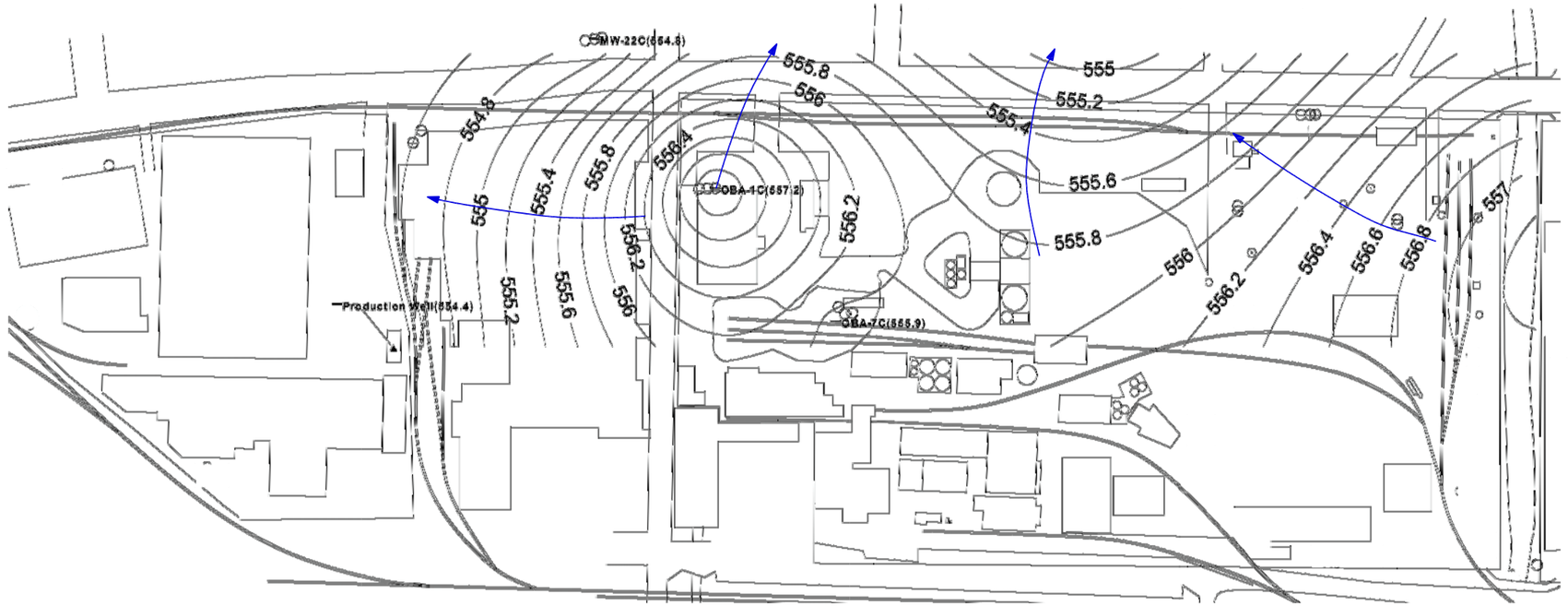
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 2



N

LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	586

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29

Only points onsite are shown. Points offsite are not included for clarity

0 200 400

Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 06/11/2012
Checked By: AWE 06/13/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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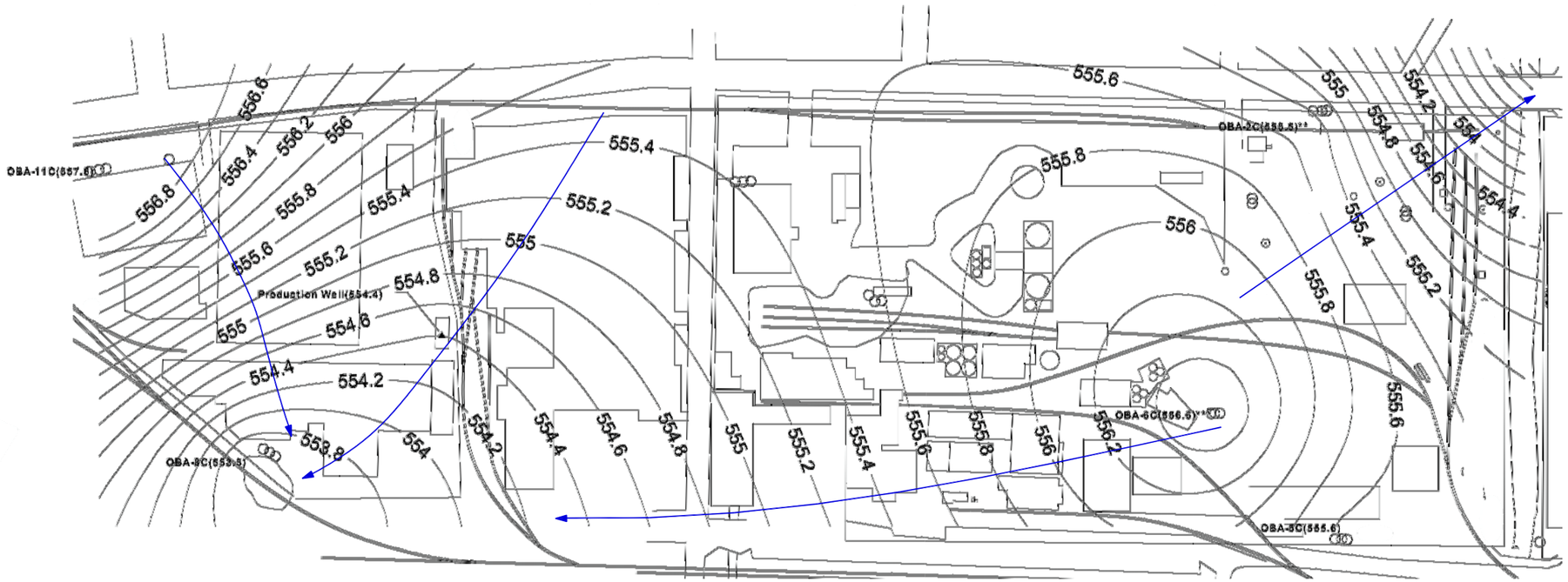
POTENTIOMETRIC SURFACE -- C ZONE
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 3



LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	586

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

0 200 400

Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJO 06/11/2012
Checked By: AWE 06/13/2012

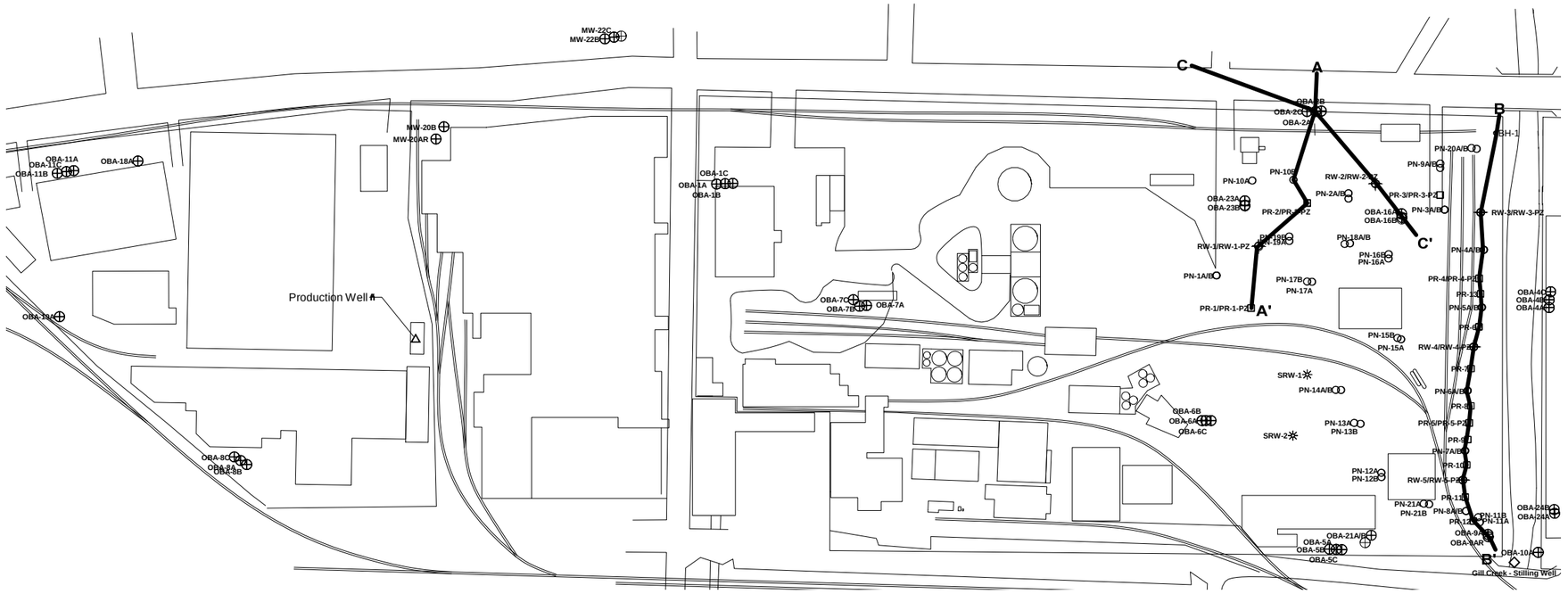
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

POTENTIOMETRIC SURFACE -- CD ZONE
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 4



LEGEND

- ◇ GILL CREEK MONITORING POINT
- △ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- + GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ▿ SEWER INVERT ELEVATION
- ✳ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE

Prepared By: VUO 08/15/2011
Checked By: MET 08/15/2011

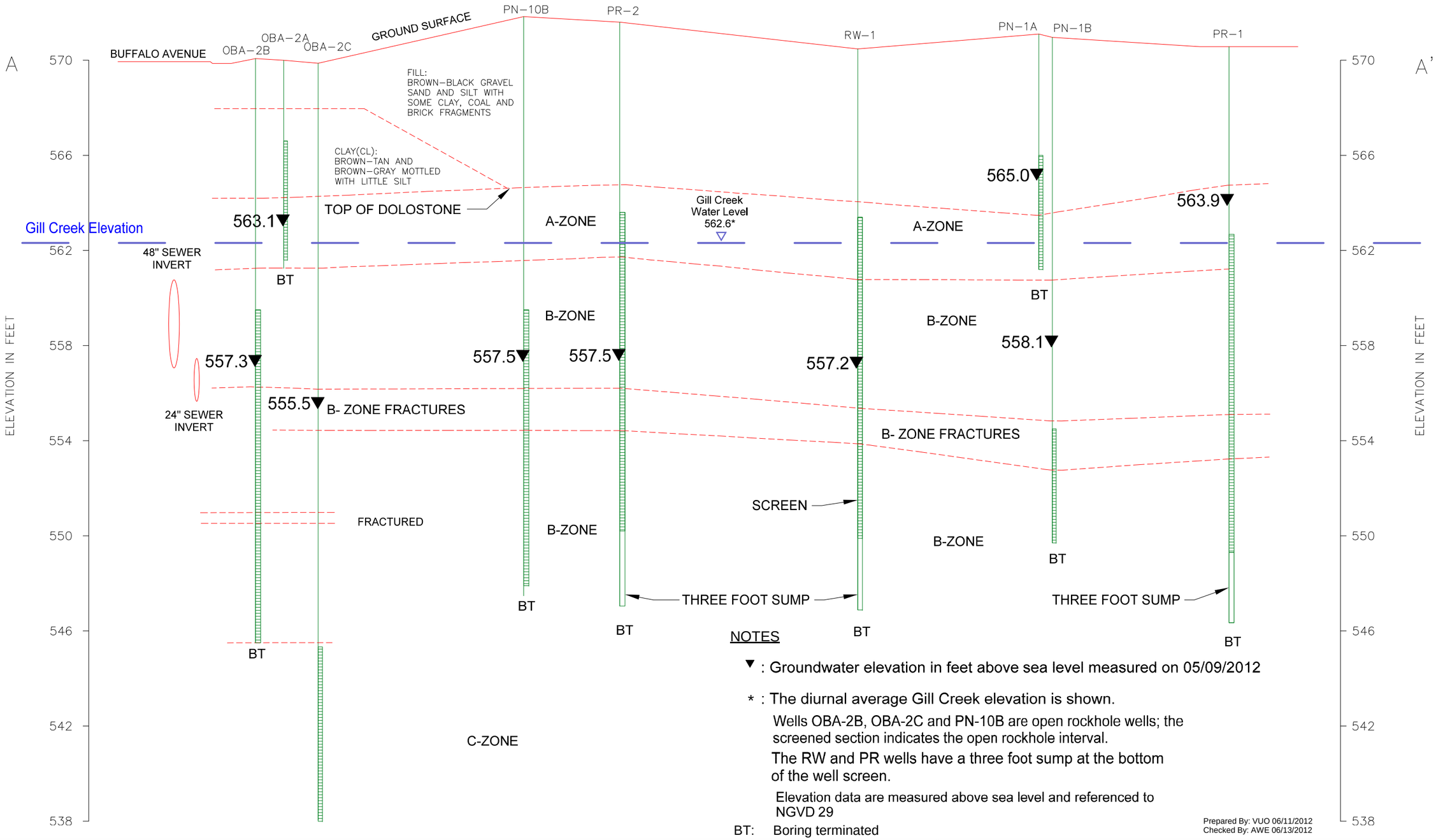
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

CROSS SECTION LOCATION MAP
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 5



NOTES

▼ : Groundwater elevation in feet above sea level measured on 05/09/2012

* : The diurnal average Gill Creek elevation is shown.

Wells OBA-2B, OBA-2C and PN-10B are open rockhole wells; the screened section indicates the open rockhole interval.

The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 06/11/2012
Checked By: AWE 06/13/2012

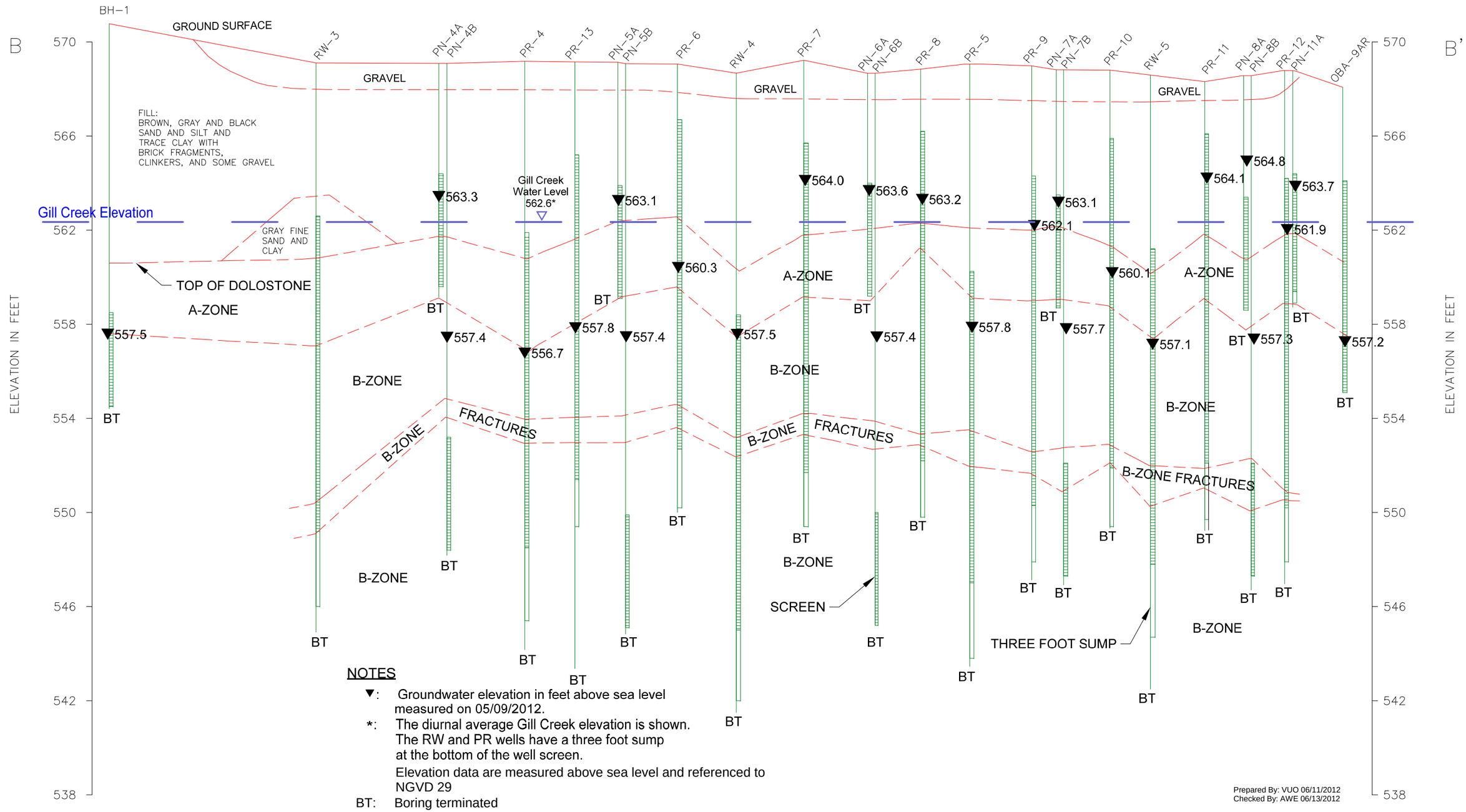
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION AA'
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 6



NOTES

▼: Groundwater elevation in feet above sea level measured on 05/09/2012.

*: The diurnal average Gill Creek elevation is shown. The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 06/11/2012
Checked By: AWE 06/13/2012

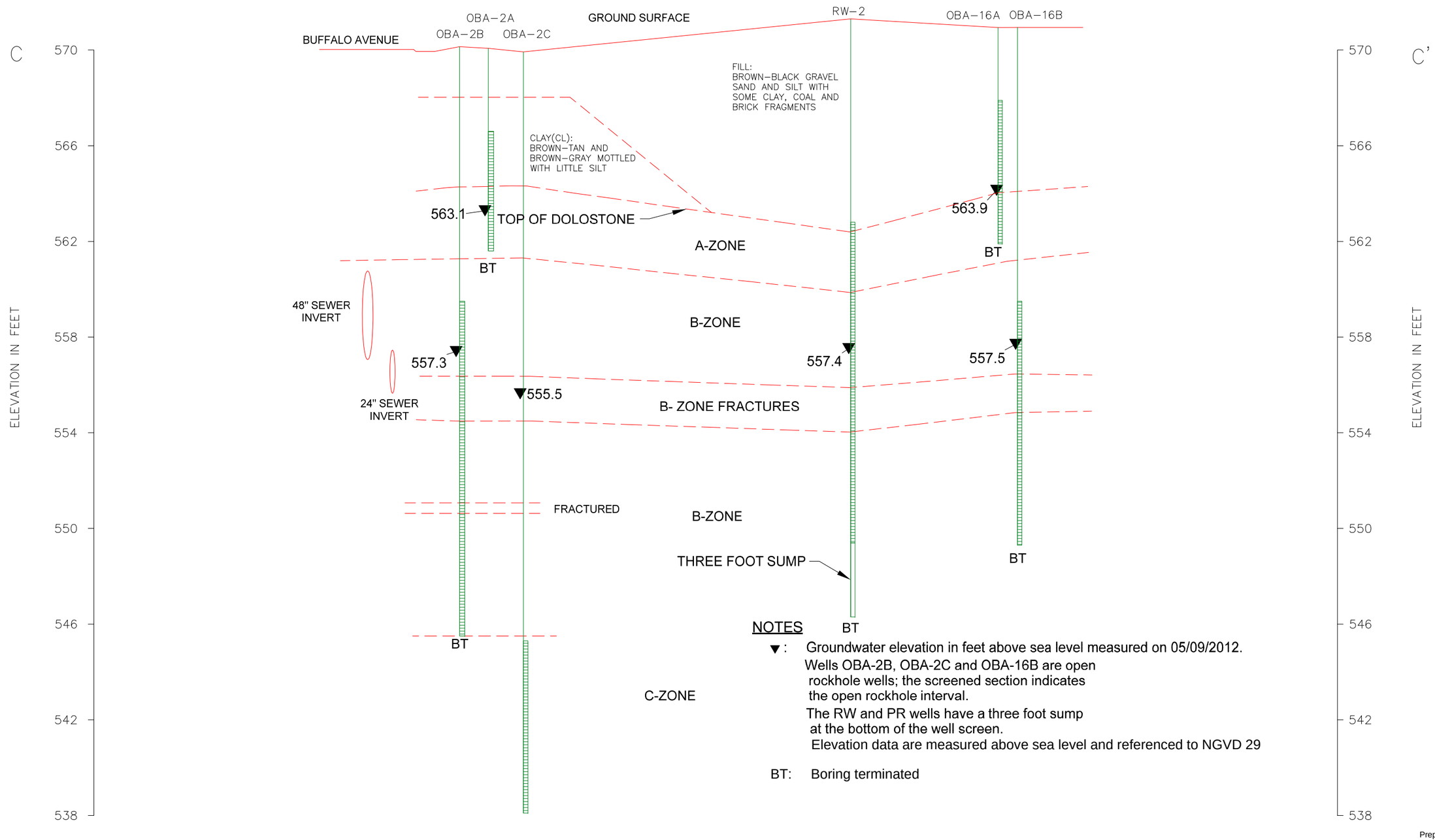
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION BB'
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 7



NOTES

▼: Groundwater elevation in feet above sea level measured on 05/09/2012.
Wells OBA-2B, OBA-2C and OBA-16B are open rockhole wells; the screened section indicates the open rockhole interval.
The RW and PR wells have a three foot sump at the bottom of the well screen.
Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 06/11/2012
Checked By: AWE 06/13/2012

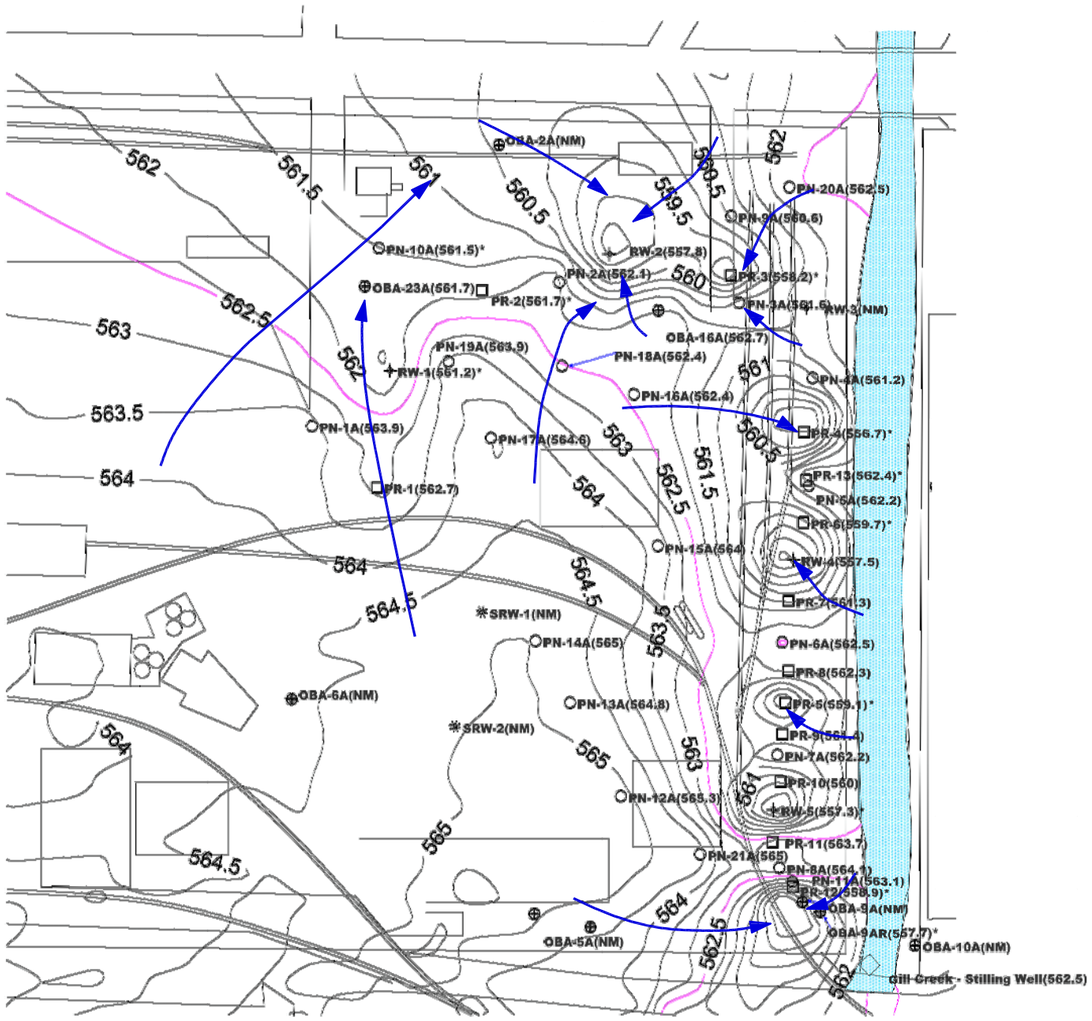
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION CC'
(MAY 09, 2012)

Job No.: 6107-12-0002

Figure 8



Extraction Well	Average Flow Rate (gpm)***
RW-1	8.10
RW-2	23.60
RW-3	3.80
RW-4	9.50
RW-5	17.20
PR-4	1.80
PR-12	2.20
OBA-9AR	0.00

*** :Averaged using daily flow rates for July 5, 2012. The water levels in RW-1, RW-3, RW-4, RW-5, PR-4, PR-12 and OBA-9AR were below the bottom of the A-zone.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL (PASSIVE)
- 565 — GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- GILL CREEK AREA

0 120 240
Scale 1 inch = 120 feet

NOTES

NM :Not measured

* :Well dry or water level below the bottom of the A-zone, elevation of bottom of A-Zone used in contouring.

Buffalo Avenue Sewer invert is assumed to be a groundwater sink. The piezometric surface is estimated as the bottom of the A-zone. The bottom of the A-zone along Buffalo Avenue was estimated from borings OBA-1A, OBA-2A, OBA-3A, and OBA-11A.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on July 5, 2012 (562.5 ft msl) was used in contouring the A zone.

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJO 08/01/2012
Checked By: AWE 08/03/2012

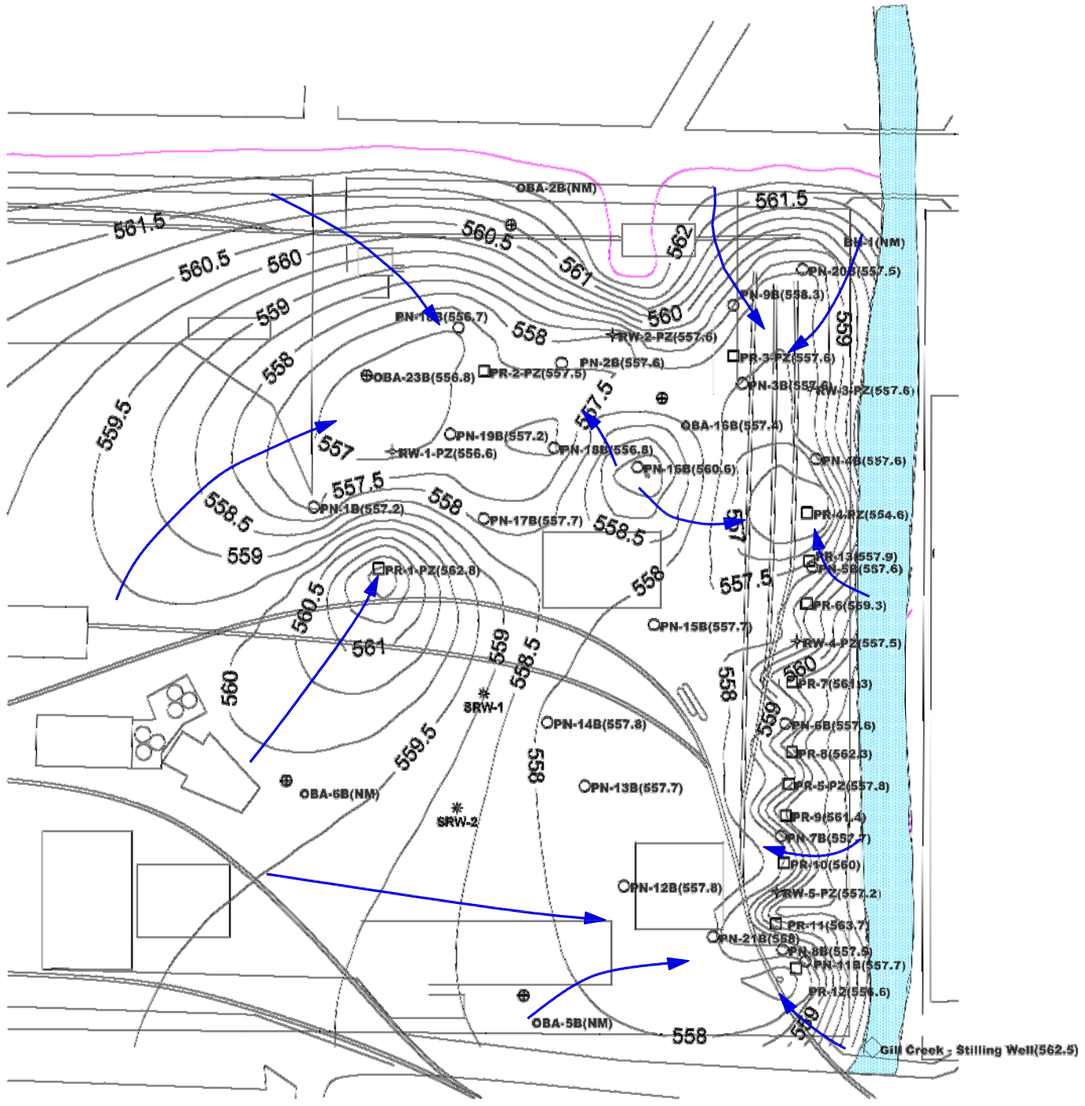
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(JULY 05, 2012)

Job No.: 6107-12-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	8.10
RW-2	23.60
RW-3	3.80
RW-4	9.50
RW-5	17.20
PR-4	1.80
PR-12	2.20
OBA-9AR	0.00

*** :Averaged using daily flow rates for July 5, 2012. The water levels in RW-1, RW-3, RW-4, RW-5, PR-4, PR-12 and OBA-9AR were below the bottom of the A-zone.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- GILL CREEK AREA

0 120 240

Scale: 1 inch = 120 feet

NOTES

NM :Not measured

Buffalo Avenue Sewer invert is assumed to be a ground-water sink. The piezometric surface is not known. The ground water contours were estimated based on the sewer invert elevation.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well.
Contour interval = 0.5 foot

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJD 08/01/2012
Checked By: AWE 08/03/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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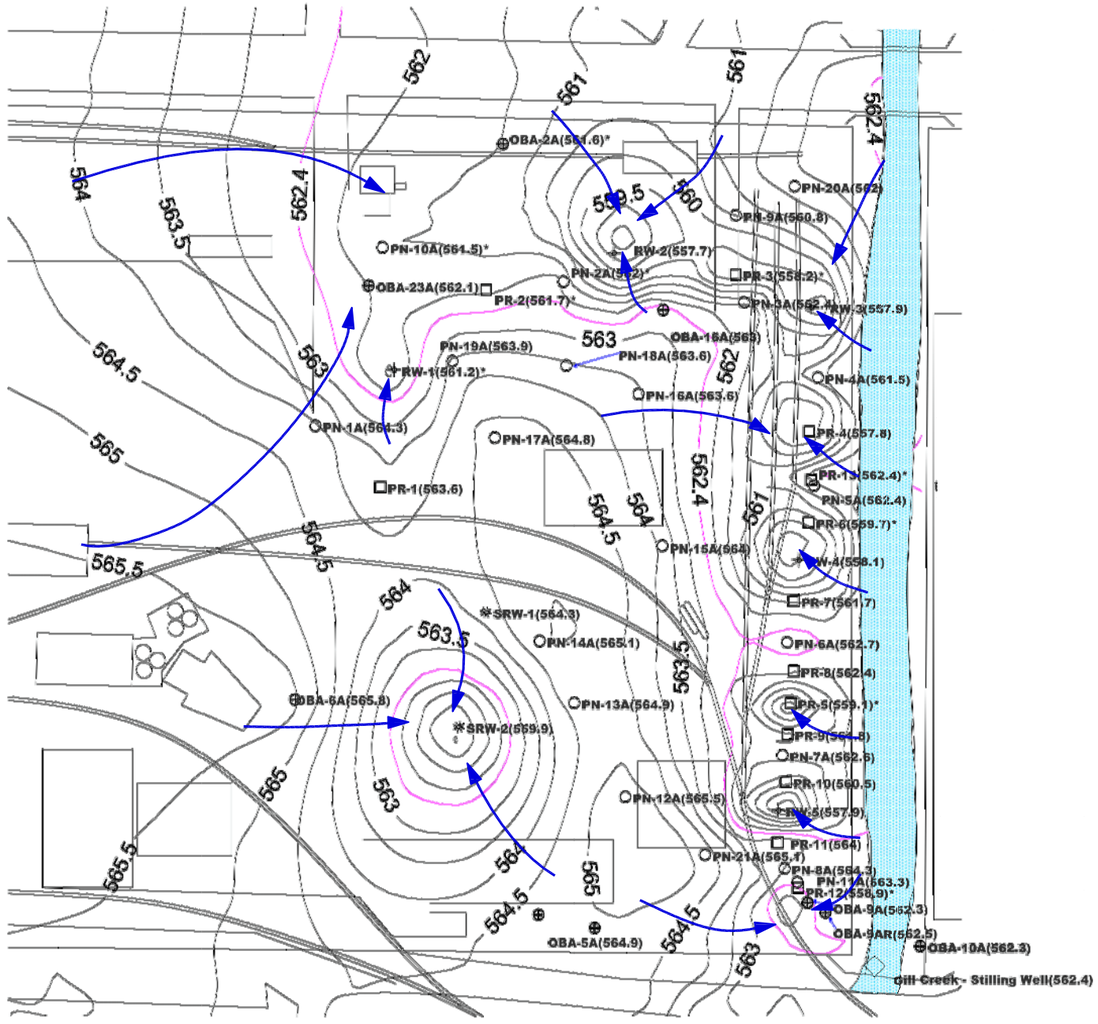
ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(JULY 05, 2012)

Job No.: 6107-12-0002

Figure 2

Third Quarter 2012 Piezometric Maps



Extraction Well	Average Flow Rate (gpm)***
RW-1	0.20
RW-2	0.90
RW-3	0.10
RW-4	0.70
RW-5	1.70
PR-4	1.20
PR-12	0.00
OBA-9AR	0.57

*** :Averaged using daily flow rates forAugust 15, 2012. The water levels in RW-1, RW-3, and PR-12 were below the bottom of the A-zone. The groundwater treatment system ran for only 8 hours on 8/15/2012.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL (PASSIVE)
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- GILL CREEK AREA

0 120 240
Scale 1 inch = 120 feet

NOTES

* :Well dry or water level below the bottom of the A-zone, elevation of bottom of A-Zone used in contouring.

Buffalo Avenue Sewer invert is assumed to be a groundwater sink. The piezometric surface is estimated as the bottom of the A-zone. The bottom of the A-zone along Buffalo Avenue was estimated from borings OBA-1A, OBA-2A, OBA-3A, and OBA-11A.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on August 15, 2012 (562.4 ft msl) was used in contouring the A zone.

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

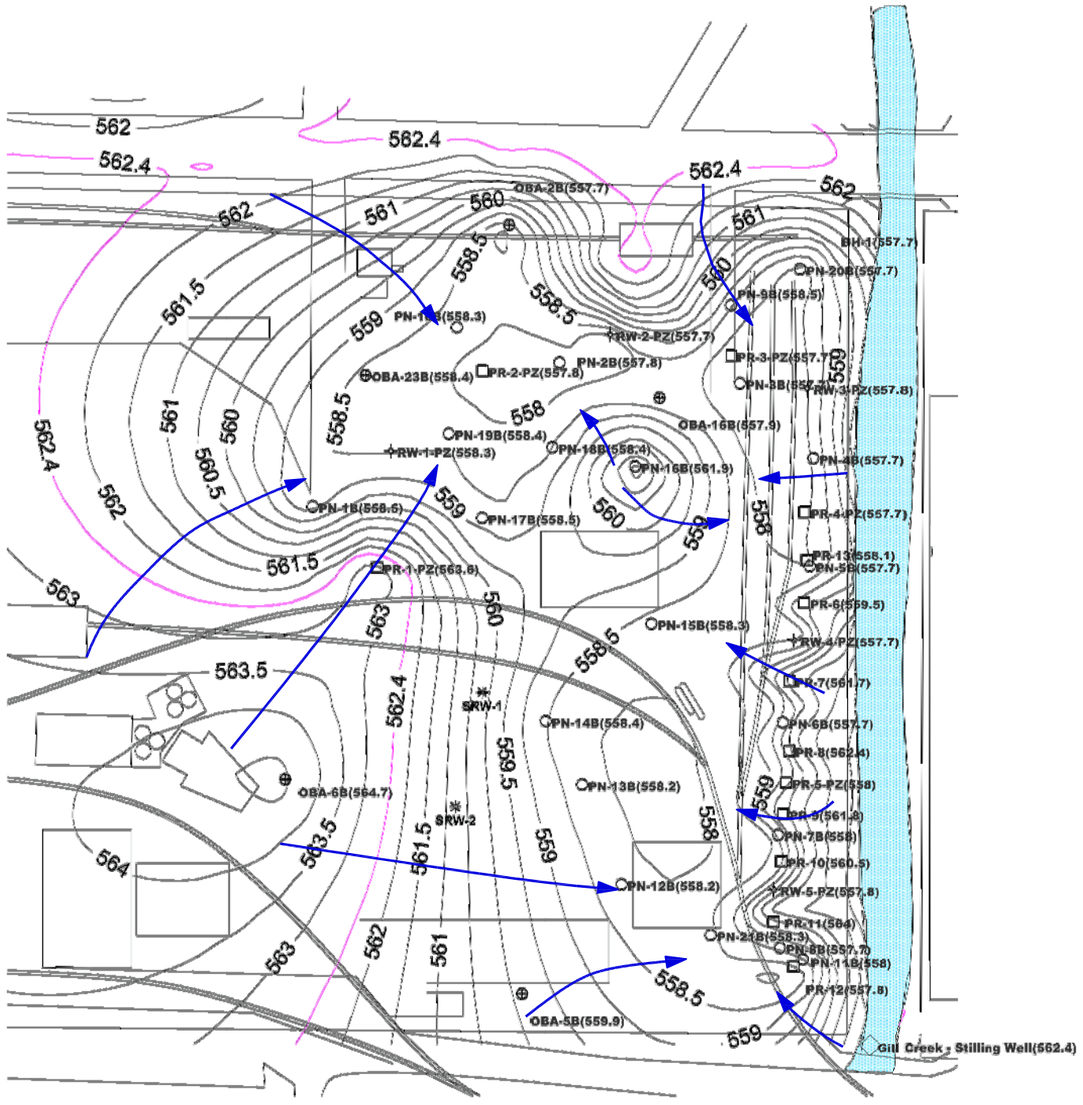
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	0.20
RW-2	0.90
RW-3	0.10
RW-4	0.70
RW-5	1.70
PR-4	1.20
PR-12	0.00
OBA-9AR	0.57

*** :Averaged using daily flow rates forAugust 15, 2012. The water levels in RW-1, RW-3, and PR-12 were below the bottom of the A-zone. The groundwater treatment system ran for only 8 hours on 8/15/2012.

N

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- GILL CREEK AREA

0 120 240

Scale: 1 inch = 120 feet

NOTES

Buffalo Avenue Sewer invert is assumed to be a ground-water sink. The piezometric surface is not known. The ground water contours were estimated based on the sewer invert elevation.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well.
Contour interval = 0.5 foot

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJO 09/04/2012
Checked By: AWE 09/05/2012

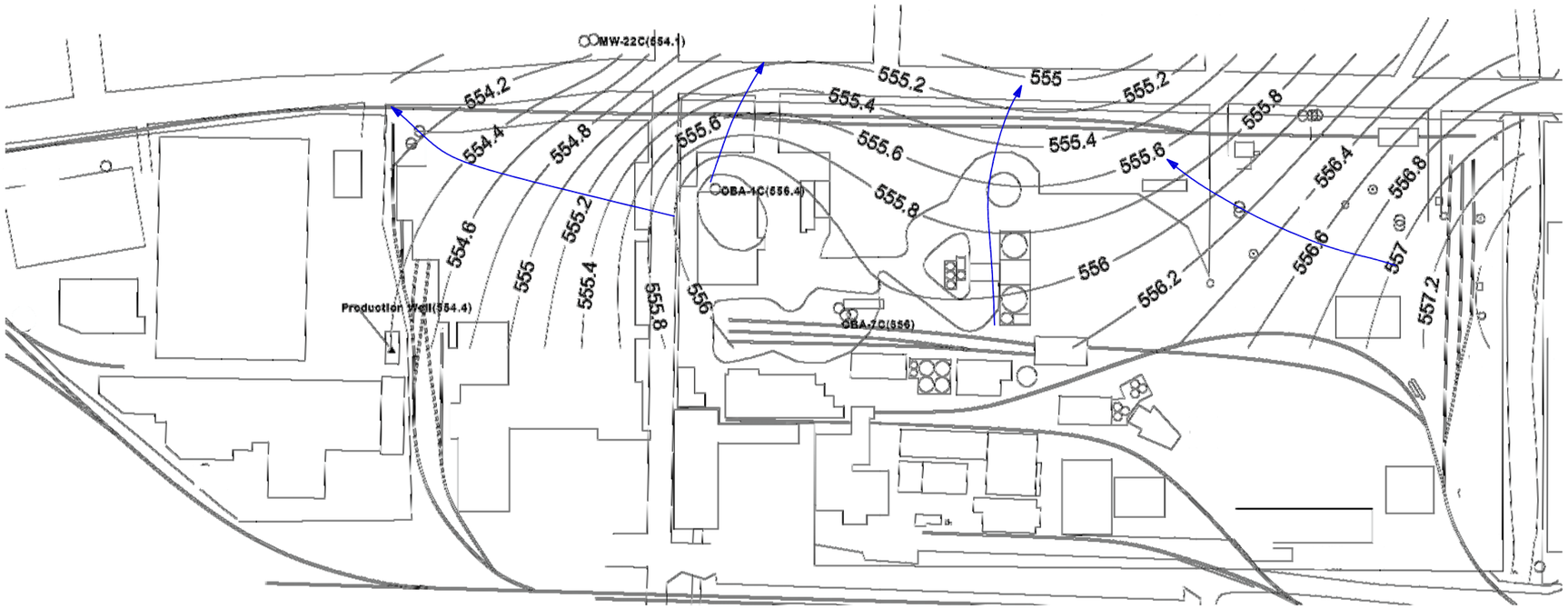
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 2



N

LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	574

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29
Only points onsite are shown. Points offsite are not included for clarity

0 200 400
Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

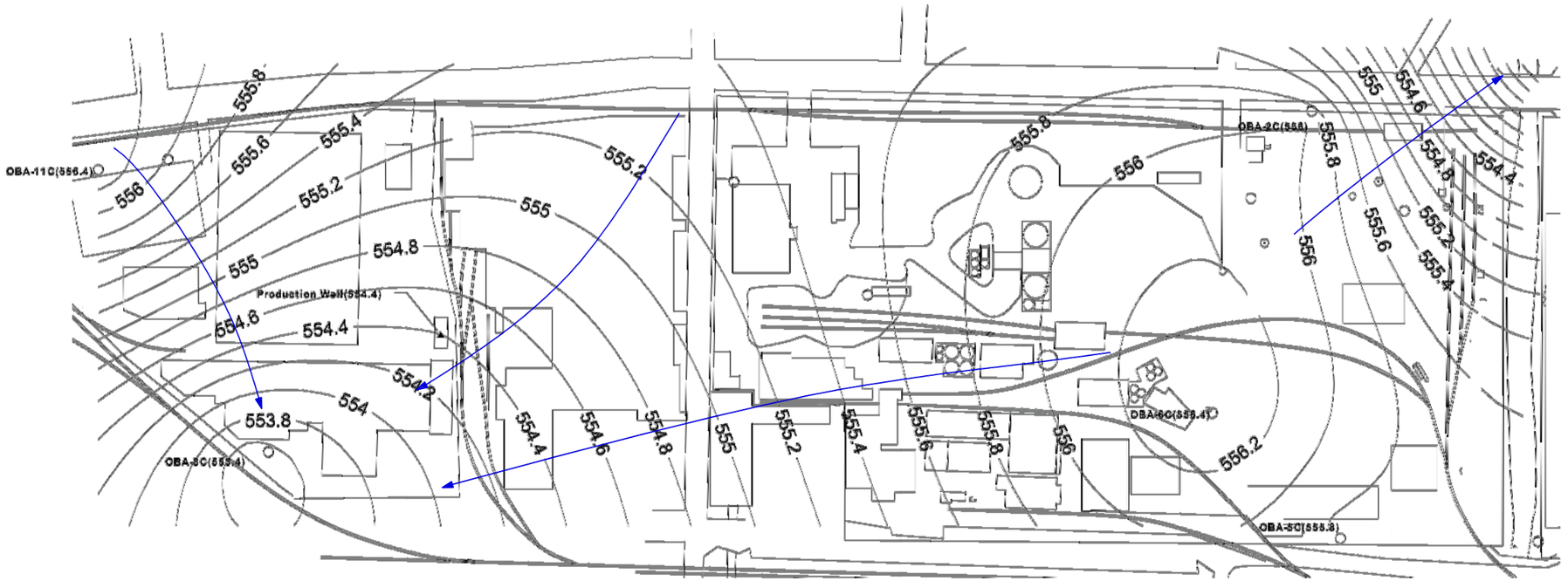
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

POTENTIOMETRIC SURFACE -- C ZONE
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 3



N

LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	574

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

0 200 400
Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VJO 09/04/2012
Checked By: AWE 09/05/2012

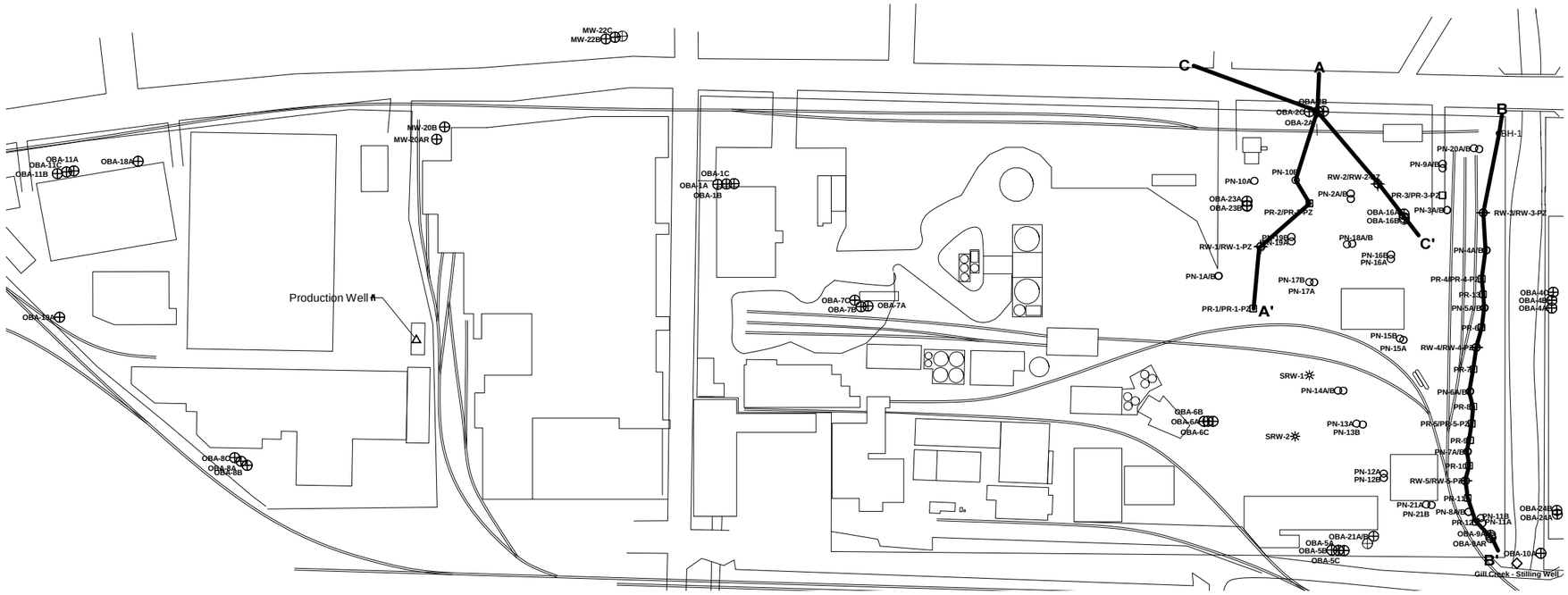
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

POTENTIOMETRIC SURFACE -- CD ZONE
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 4



LEGEND

- ◇ GILL CREEK MONITORING POINT
- △ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- + GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ▿ SEWER INVERT ELEVATION
- ✳ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

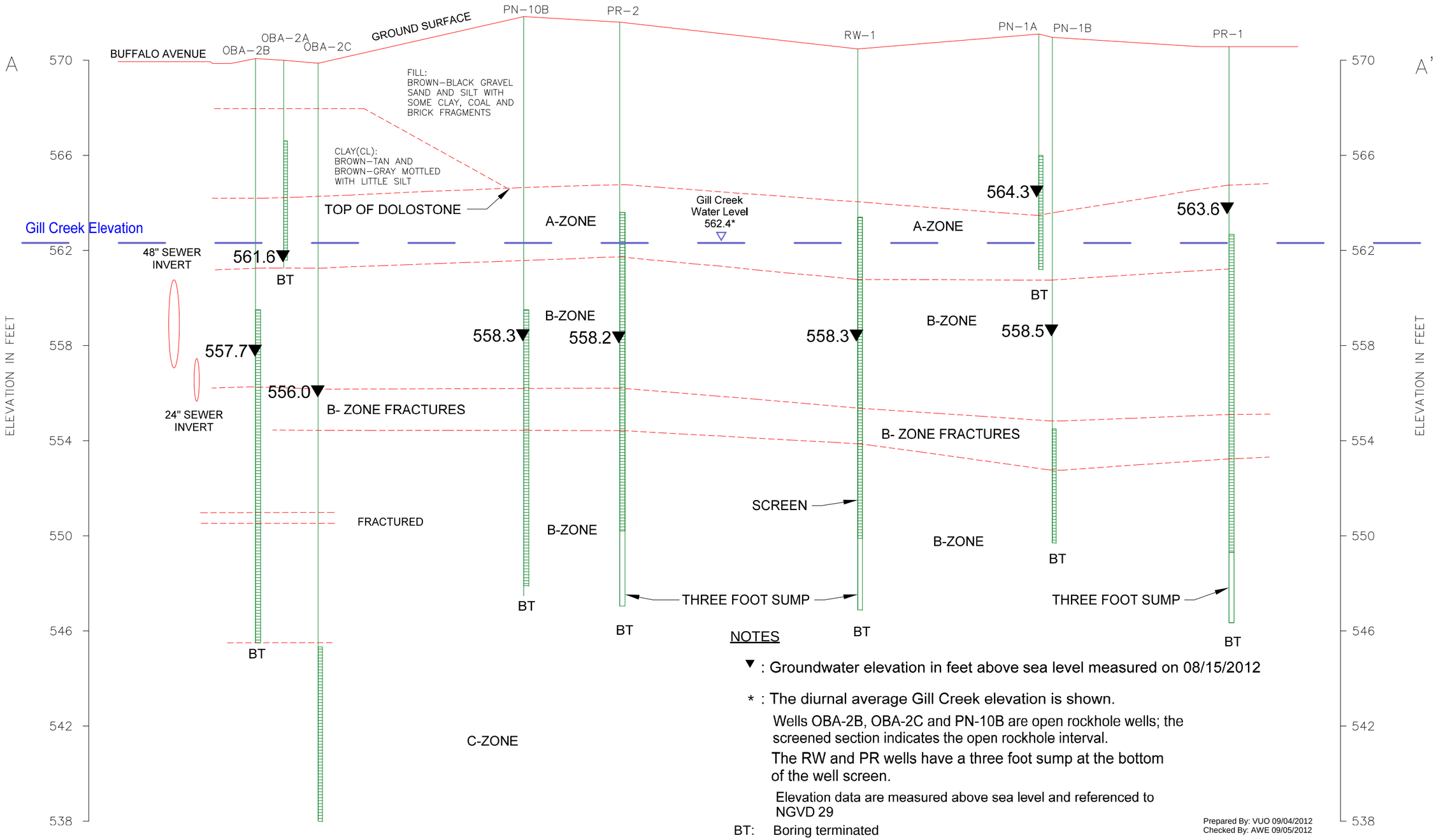
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

CROSS SECTION LOCATION MAP
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 5



NOTES

▼ : Groundwater elevation in feet above sea level measured on 08/15/2012

* : The diurnal average Gill Creek elevation is shown.

Wells OBA-2B, OBA-2C and PN-10B are open rockhole wells; the screened section indicates the open rockhole interval.

The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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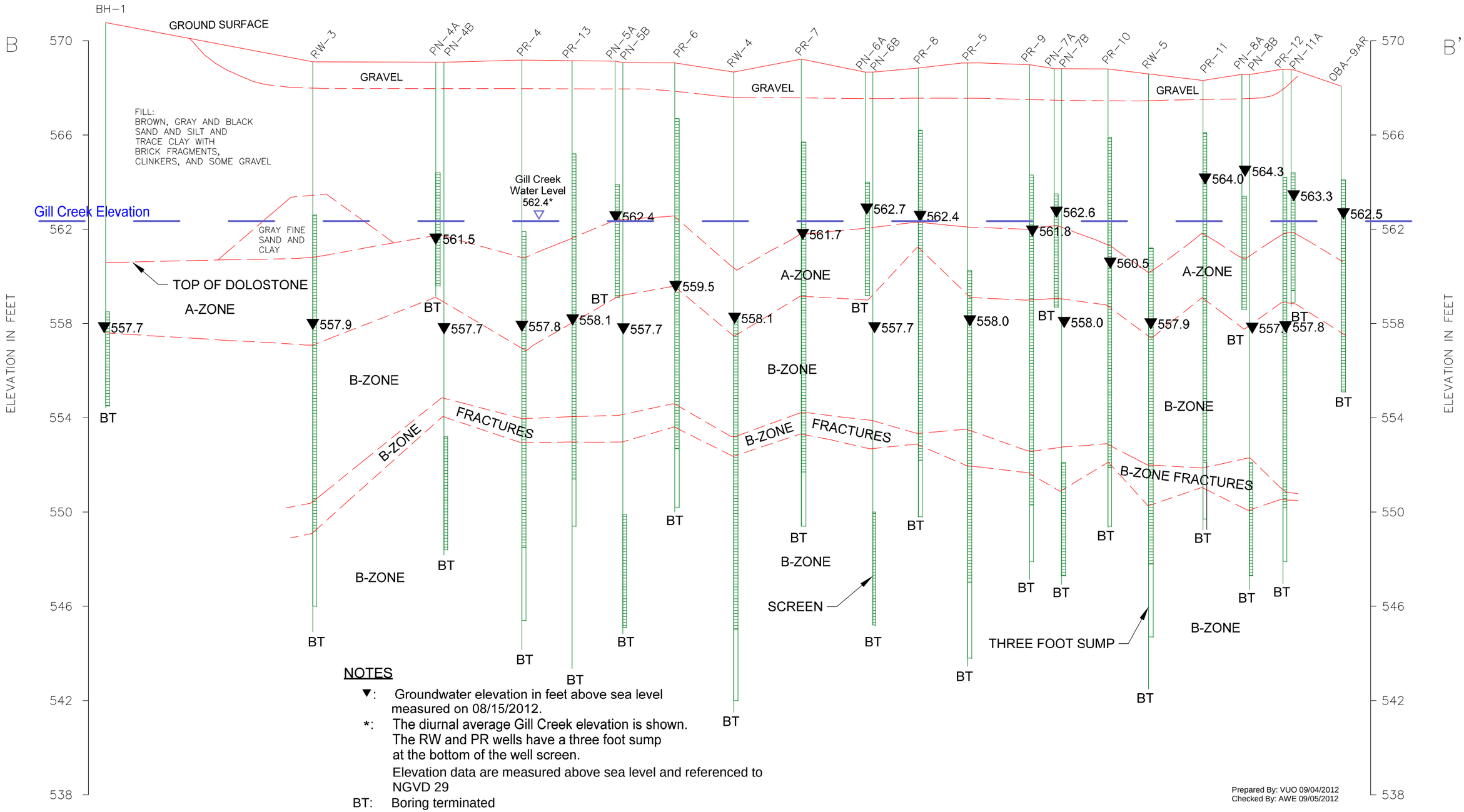
HYDROGEOLOGIC CROSS SECTION AA'
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 6



NOTES

▼: Groundwater elevation in feet above sea level measured on 08/15/2012.

*: The diurnal average Gill Creek elevation is shown. The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

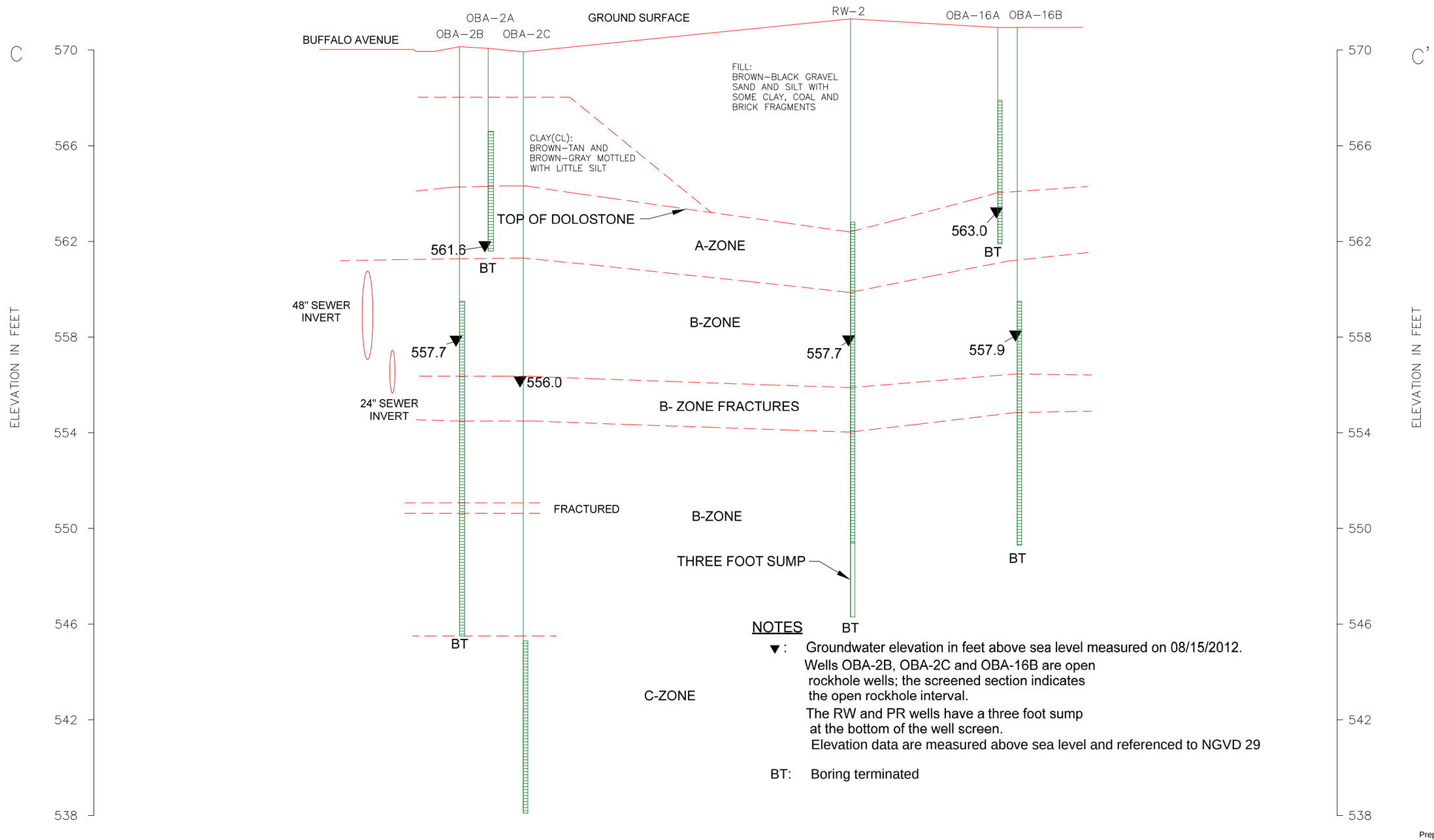
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION BB'
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 7



NOTES

▼: Groundwater elevation in feet above sea level measured on 08/15/2012.
Wells OBA-2B, OBA-2C and OBA-16B are open rockhole wells; the screened section indicates the open rockhole interval.
The RW and PR wells have a three foot sump at the bottom of the well screen.
Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 09/04/2012
Checked By: AWE 09/05/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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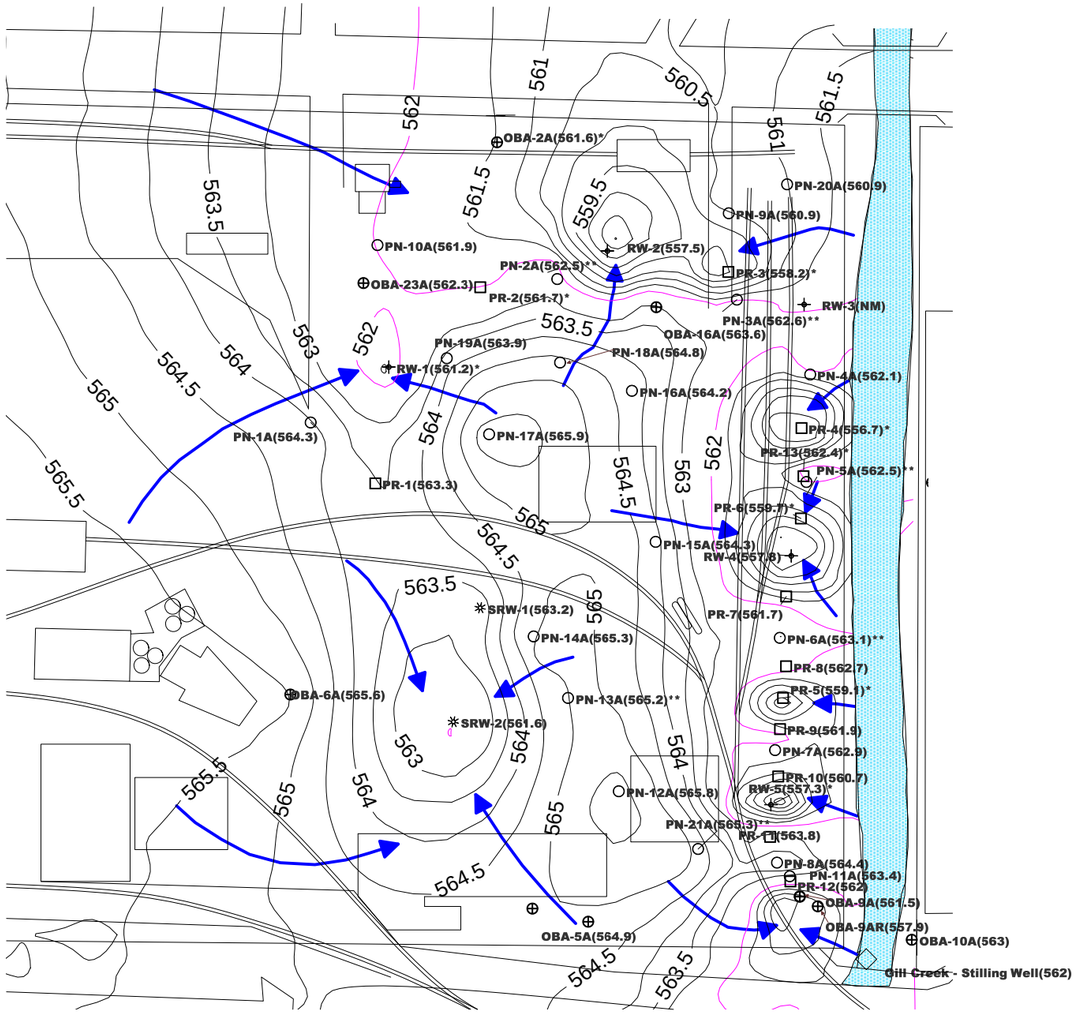
HYDROGEOLOGIC CROSS SECTION CC'
(AUGUST 15, 2012)

Job No.: 6107-12-0002

Figure 8

Fourth Quarter 2012 Piezometric Maps



Extraction Well	Average Flow Rate (gpm)***
RW-1	5.40
RW-2	4.60
RW-3	0.70
RW-4	5.70
RW-5	12.50
PR-4	2.60
PR-12	0.40
OBA-9AR	0.50

*** :Averaged using daily flow rates for November 08, 2012. The water levels in RW-1, RW-4, RW-5 and PR-4 were below the bottom of the A-zone. Water levels in RW-3 was not measured.

N

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL (PASSIVE)
- 565 — GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- FLOW DIRECTION
- GILL CREEK AREA

0 120 240
Scale 1 inch = 120 feet

NOTES

* :Well dry or water level below the bottom of the A-zone, elevation of bottom of A-Zone used in contouring.
** :Cracked concrete pad
Buffalo Avenue Sewer invert is assumed to be a groundwater sink. The piezometric surface is estimated as the bottom of the A-zone. The bottom of the A-zone along Buffalo Avenue was estimated from borings OBA-1A, OBA-2A, OBA-3A, and OBA-11A.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on November 8, 2012 (562.0 ft msl) was used in contouring the A zone.

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 12/11/2012
Checked By: AWE 12/12/2012

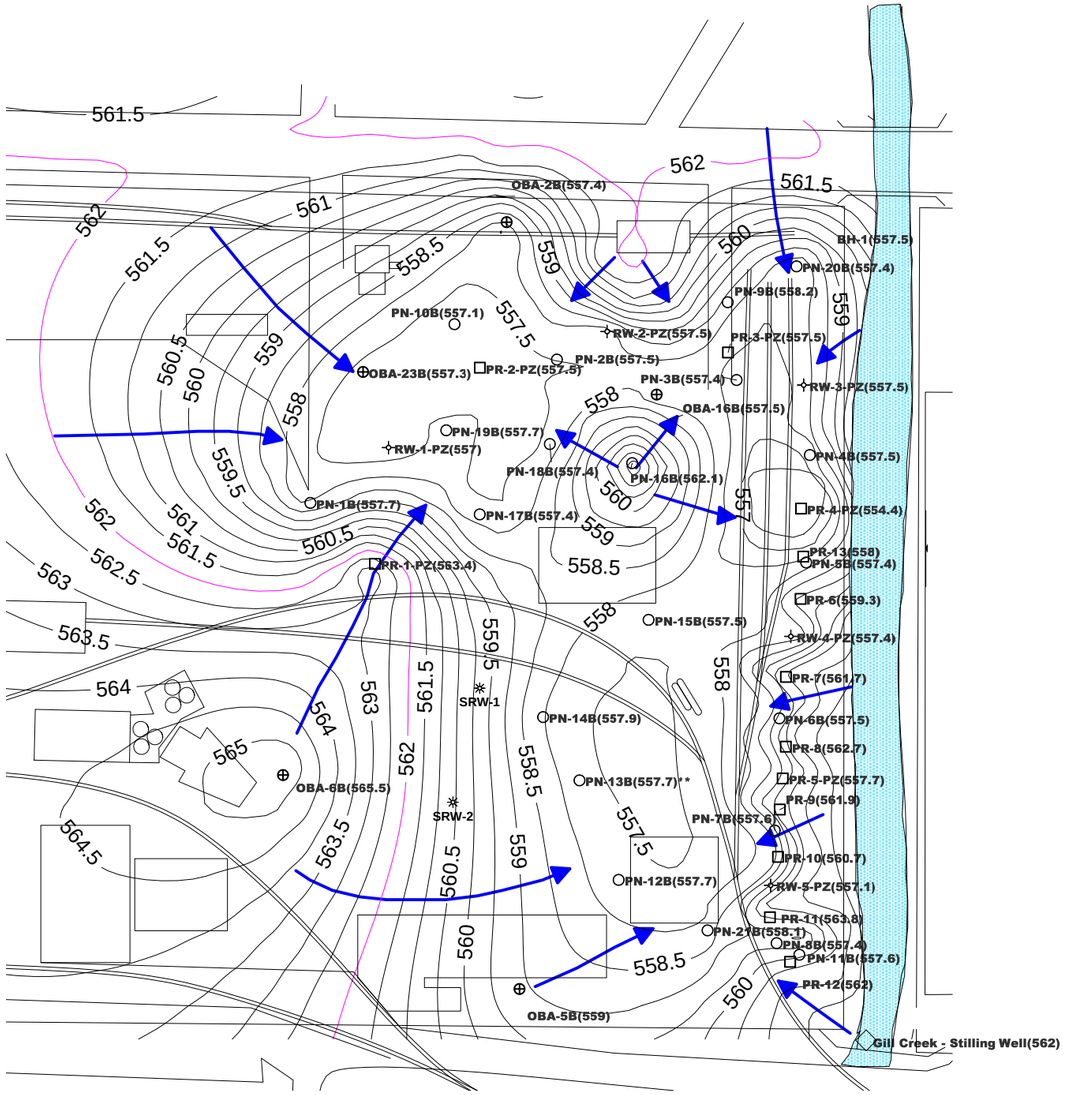
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	5.40
RW-2	4.60
RW-3	0.70
RW-4	5.70
RW-5	12.50
PR-4	2.60
PR-12	0.40
OBA-9AR	0.50

*** :Averaged using daily flow rates for November 08, 2012. The water levels in RW-1, RW-4, RW-5 and PR-4 were below the bottom of the A-zone. Water levels in RW-3 was not measured.

LEGEND

- GILL CREEK MONITORING POINT
- WATER QUALITY MONITORING WELLS
- A/B ZONE PIEZOMETER NESTS
- GROUND WATER RECOVERY WELLS
- PASSIVE RELIEF WELLS
- SUPPLEMENTAL REMEDIATION WELL
- EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- 565 GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- FLOW DIRECTION
- GILL CREEK AREA

0 120 240

Scale: 1 inch = 120 feet

NOTES

** :Cracked concrete pad
Buffalo Avenue Sewer invert is assumed to be a ground-water sink. The piezometric surface is not known.
The ground water contours were estimated based on the sewer invert elevation.
The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well.
Contour interval = 0.5 foot

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 12/11/2012
Checked By: AWE 12/12/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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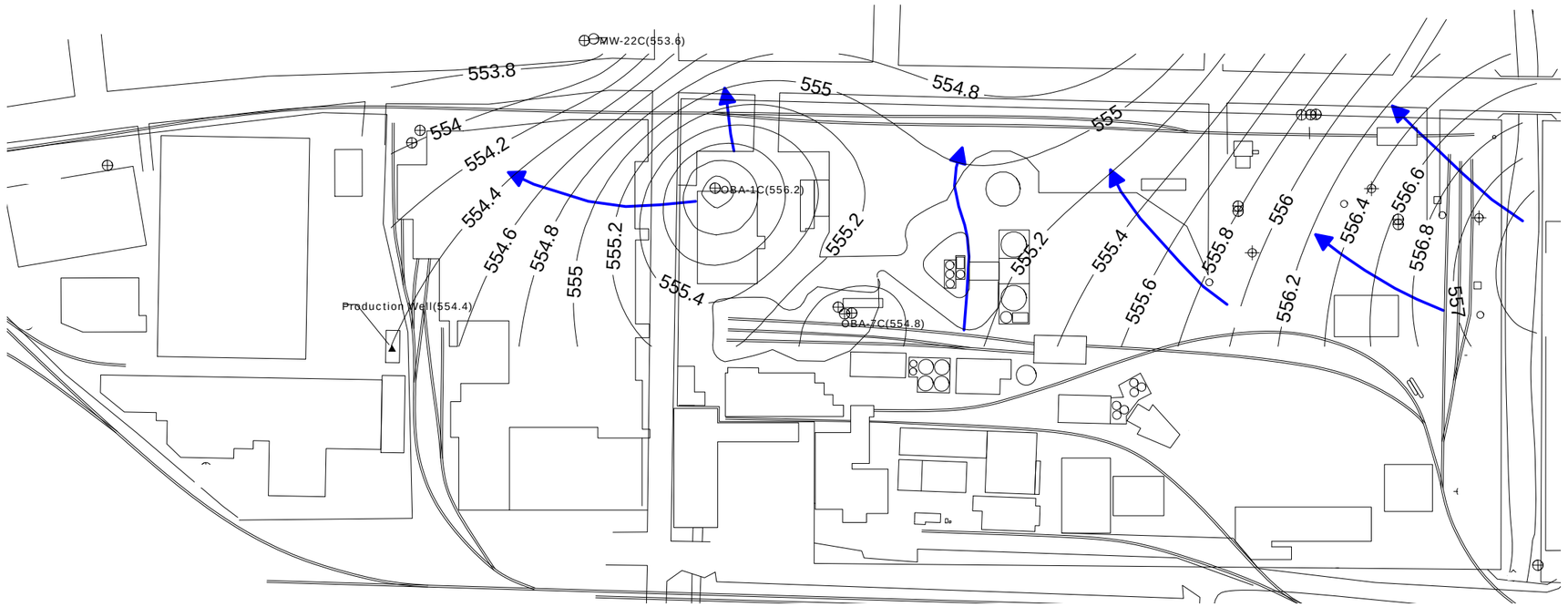
ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 2



LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES
- FLOW DIRECTION

Well	Average Flow Rate (gpm)
Olin Production Well	579

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29

Only points onsite are shown. Points offsite are not included for clarity

0 200 400

Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 12/11/2012
Checked By: AWE 12/12/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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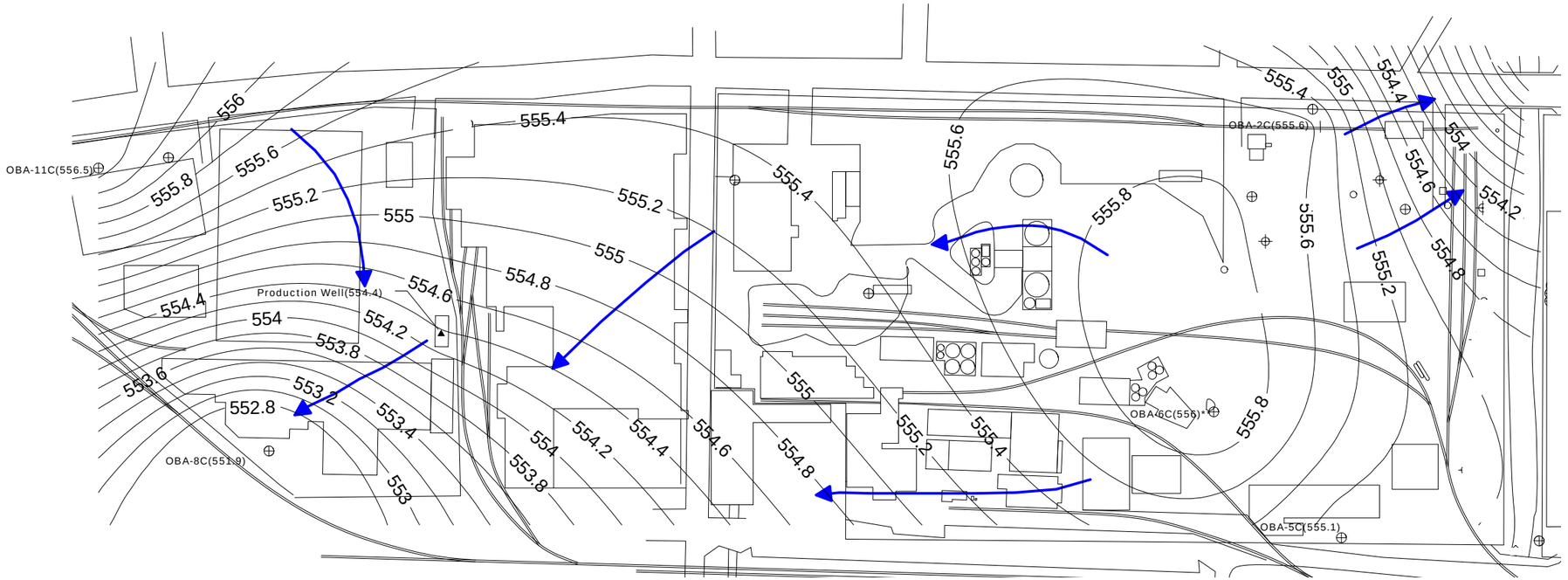
POTENTIOMETRIC SURFACE -- C ZONE
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 3



LEGEND

- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- 565 GROUNDWATER CONTOUR LINES
- FLOW DIRECTION

Well	Average Flow Rate (gpm)
Olin Production Well	579

Pumping Rate to Water Elevation Conversion:
Y = -0.00613915 (X) + 557.951

Where:
Y = Water Elevation (ft)
X = Pumping Rate (gpm)

NOTES

Elevation data are measured above sea level and referenced to NGVD 29

Points onsite are shown. Points offsite are not included for clarity

0 200 400

Scale 1 inch = 200 feet

POTENTIOMETRIC SURFACE CONTOUR USING SURFER 8 FOR WINDOWS BY GOLDEN SOFTWARE, INC. 2002.

Prepared By: VUO 12/11/2012
Checked By: AWE 12/12/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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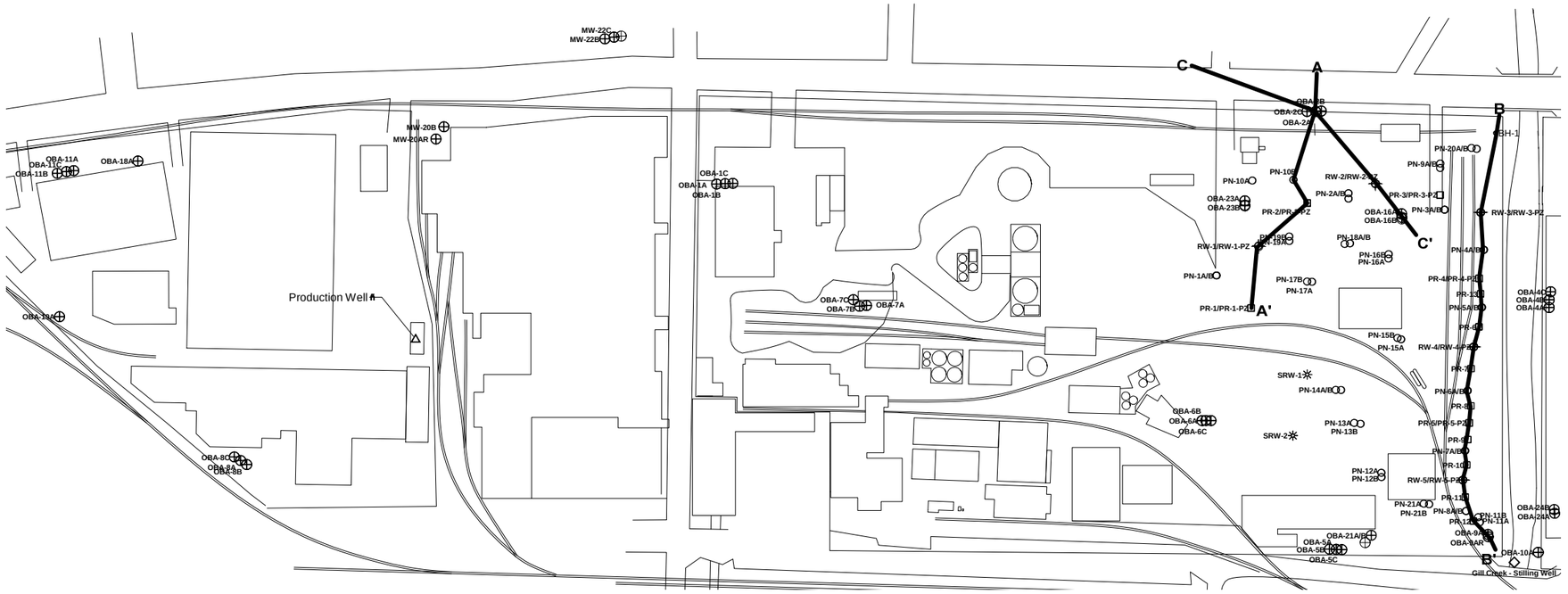
POTENTIOMETRIC SURFACE -- CD ZONE
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 4



LEGEND

- ◇ GILL CREEK MONITORING POINT
- △ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- + GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ▿ SEWER INVERT ELEVATION
- ✳ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE

Prepared By: VUO 11/30/2012
Checked By: AWE 12/04/2012

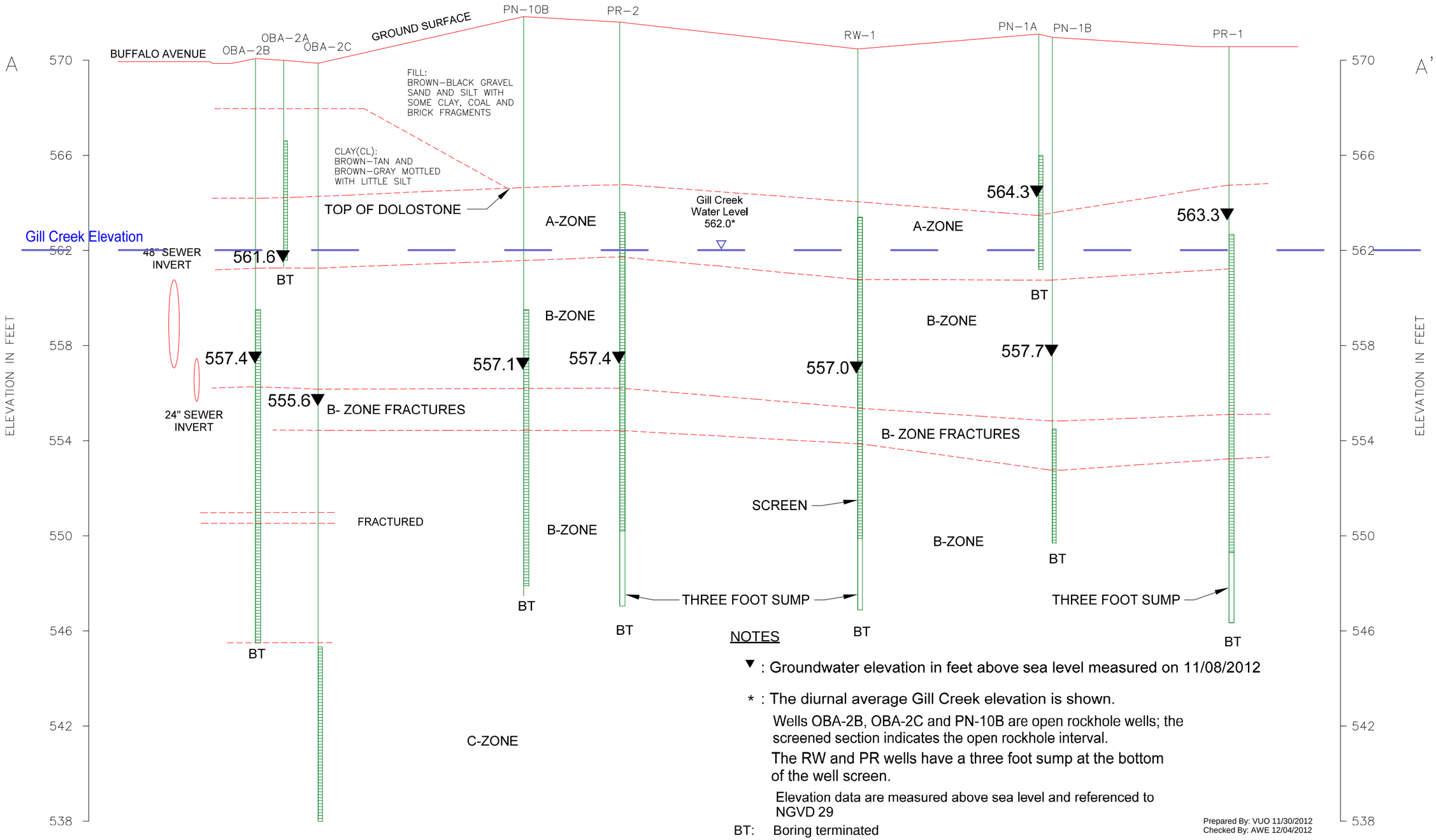
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

CROSS SECTION LOCATION MAP
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 5



NOTES

▼ : Groundwater elevation in feet above sea level measured on 11/08/2012

* : The diurnal average Gill Creek elevation is shown.

Wells OBA-2B, OBA-2C and PN-10B are open rockhole wells; the screened section indicates the open rockhole interval.

The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

Prepared By: VUO 11/30/2012
Checked By: AWE 12/04/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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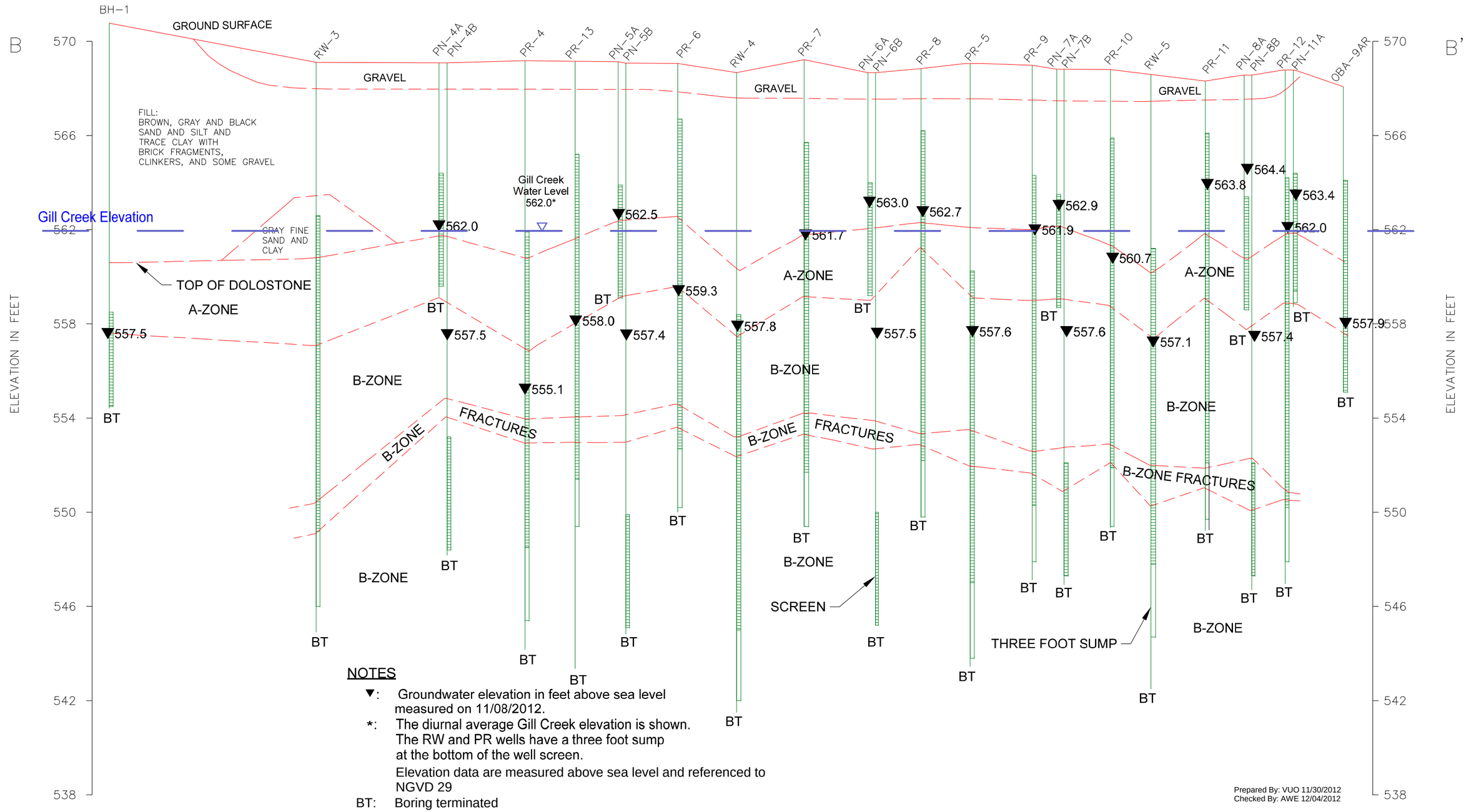
HYDROGEOLOGIC CROSS SECTION AA'
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 6



NOTES

▼: Groundwater elevation in feet above sea level measured on 11/08/2012.

*: The diurnal average Gill Creek elevation is shown. The RW and PR wells have a three foot sump at the bottom of the well screen.

Elevation data are measured above sea level and referenced to NGVD 29

BT: Boring terminated

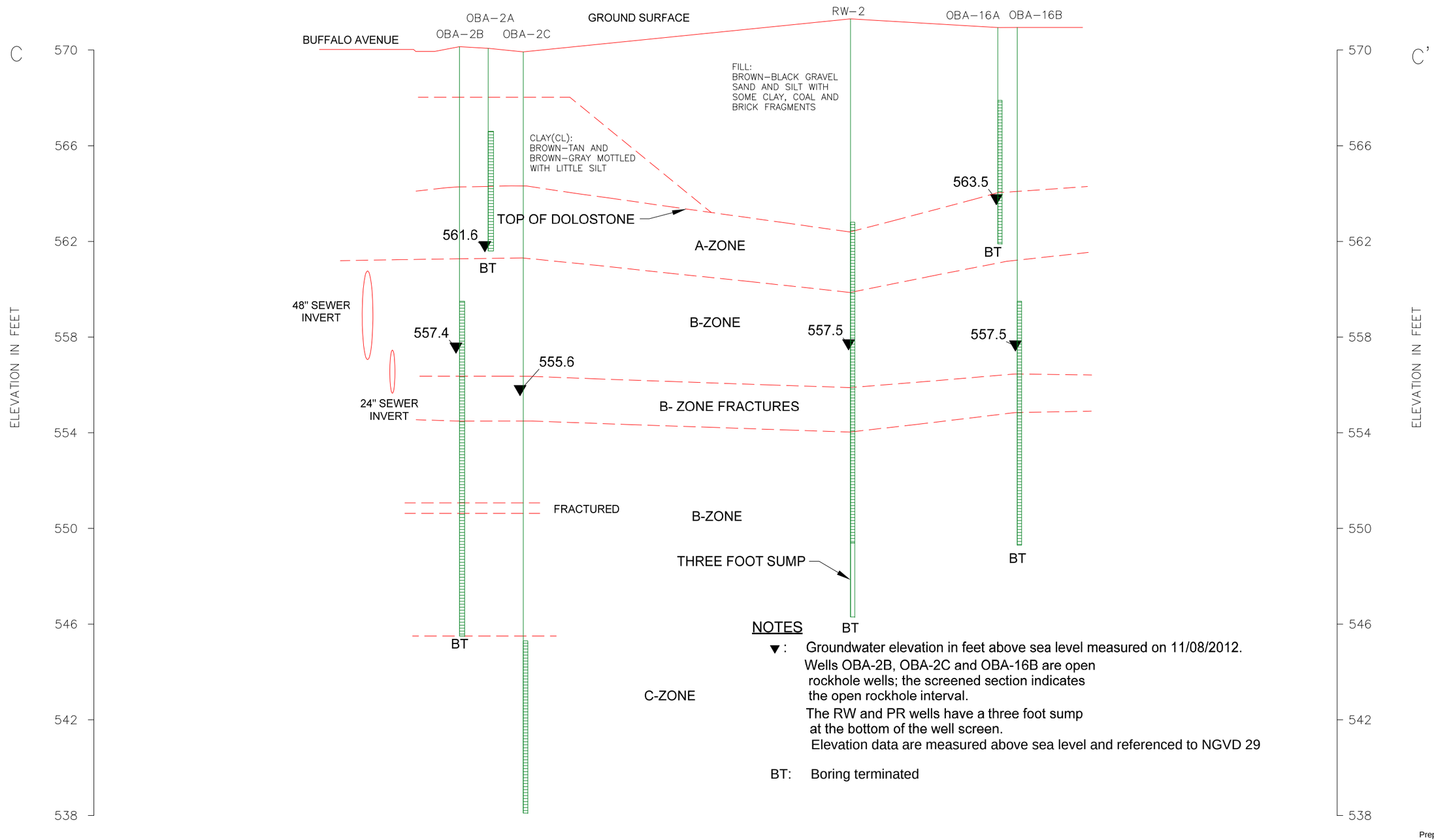
Prepared By: VUO 11/30/2012
Checked By: AWE 12/04/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

HYDROGEOLOGIC CROSS SECTION BB'
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 7



Prepared By: VUO 11/30/2012
Checked By: AWE 12/04/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

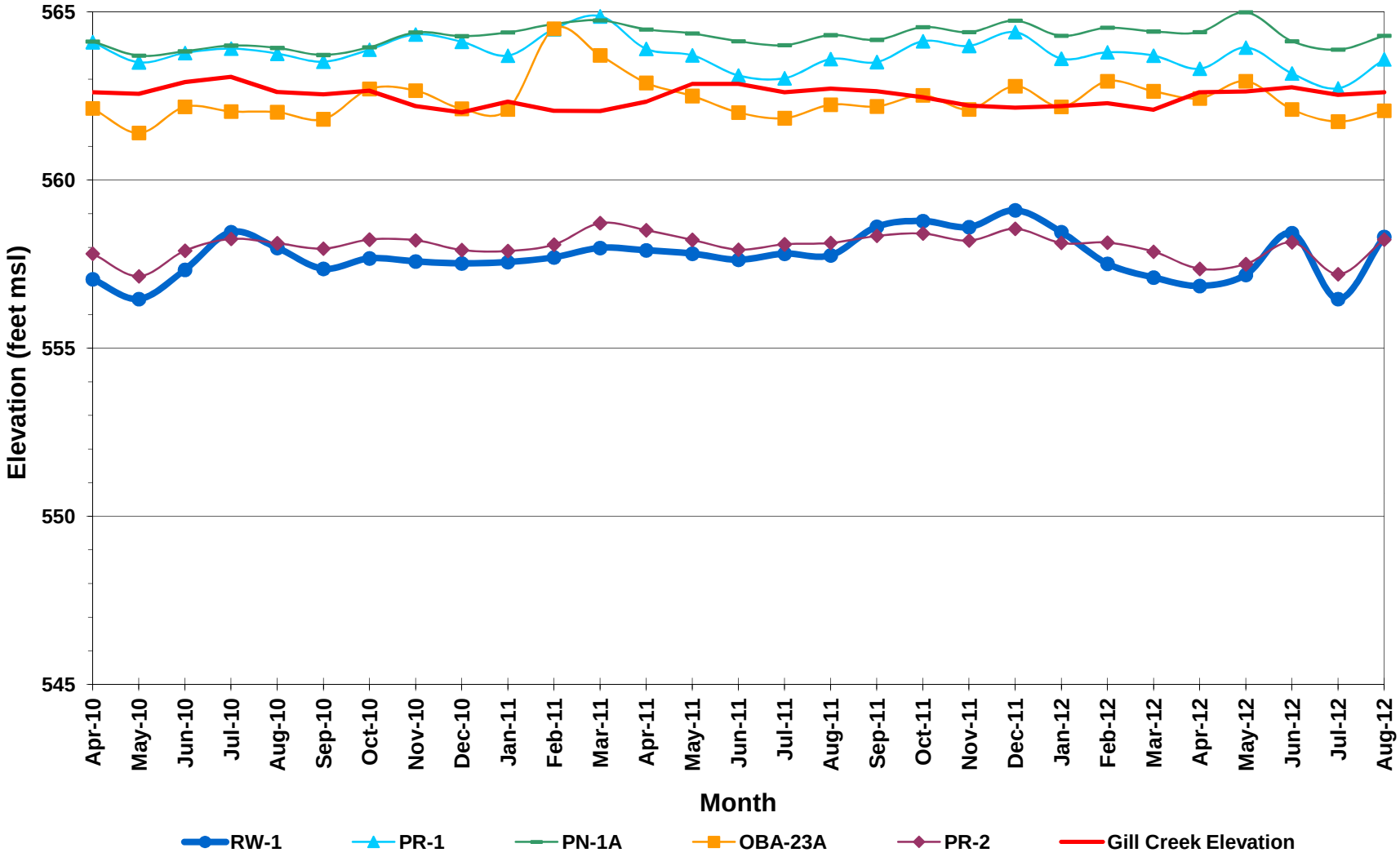
HYDROGEOLOGIC CROSS SECTION CC'
(NOVEMBER 08, 2012)

Job No.: 6107-12-0002

Figure 8

Hydrographs and System Flows

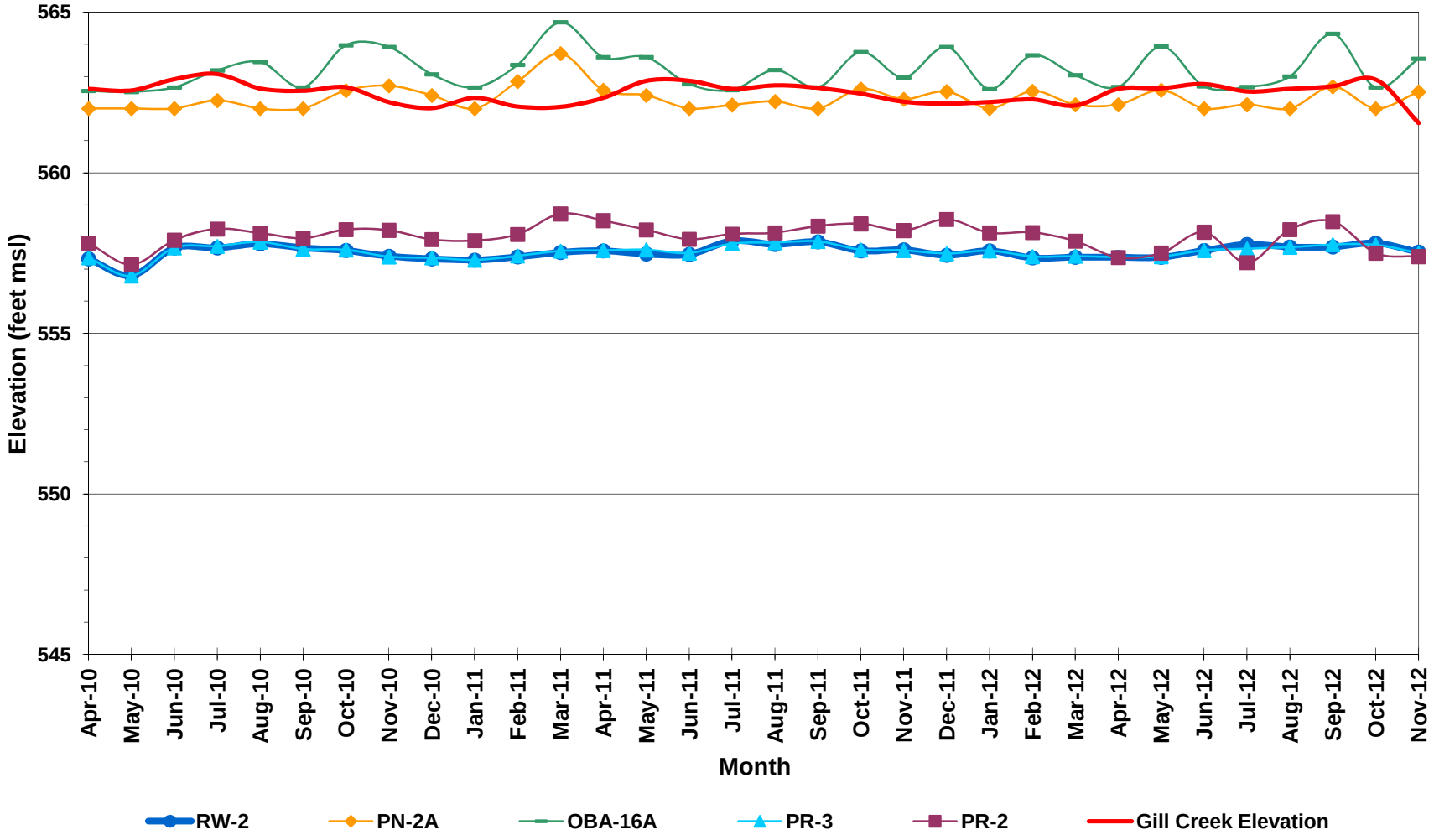
Figure 3-1
RW-1 Drawdown and Adjacent A-Zone Water Table Surface



Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

msl - mean sea level

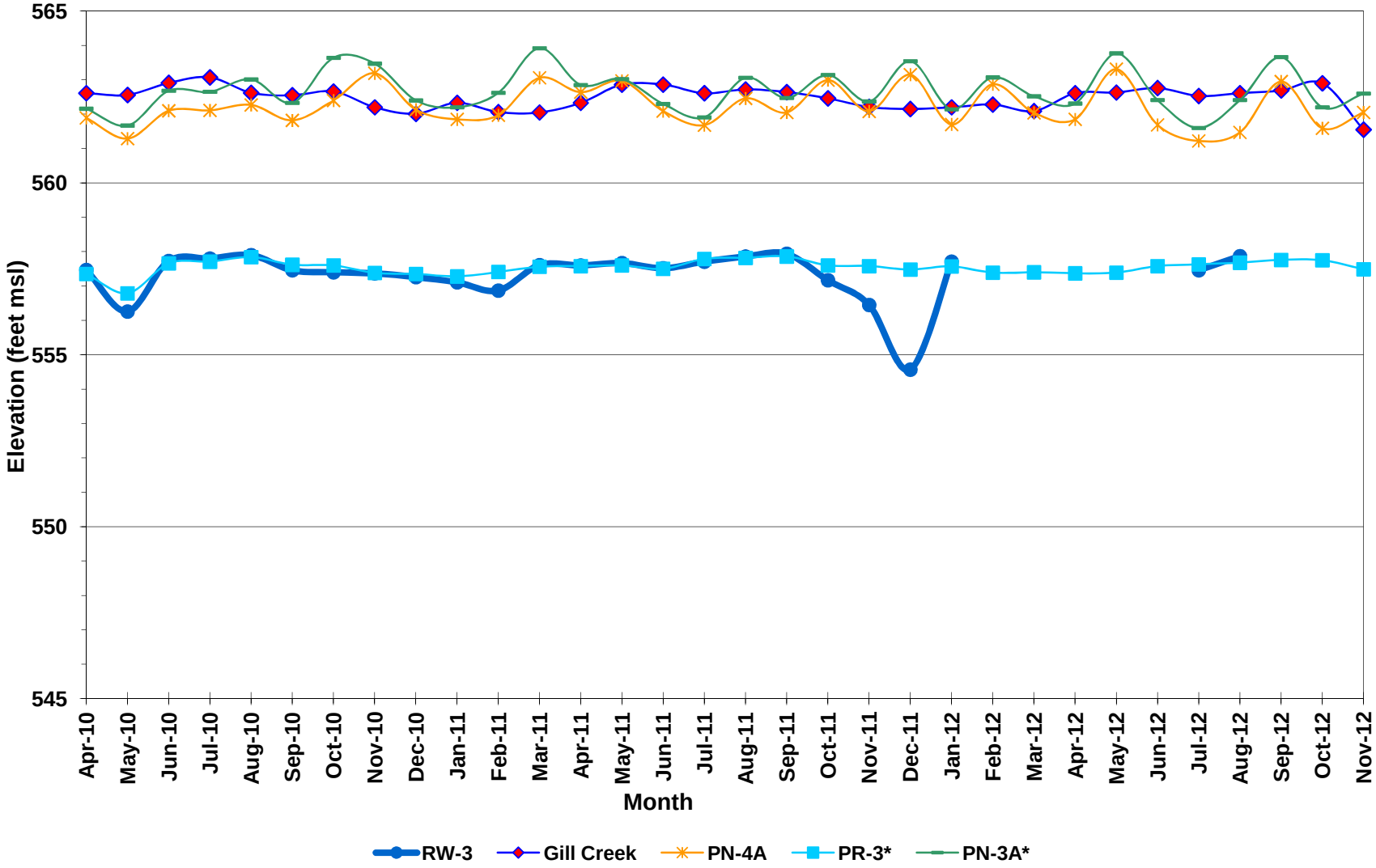
Figure 3-2
RW-2 Drawdown and Adjacent A-Zone Water Table Surface



Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

msl - mean sea level

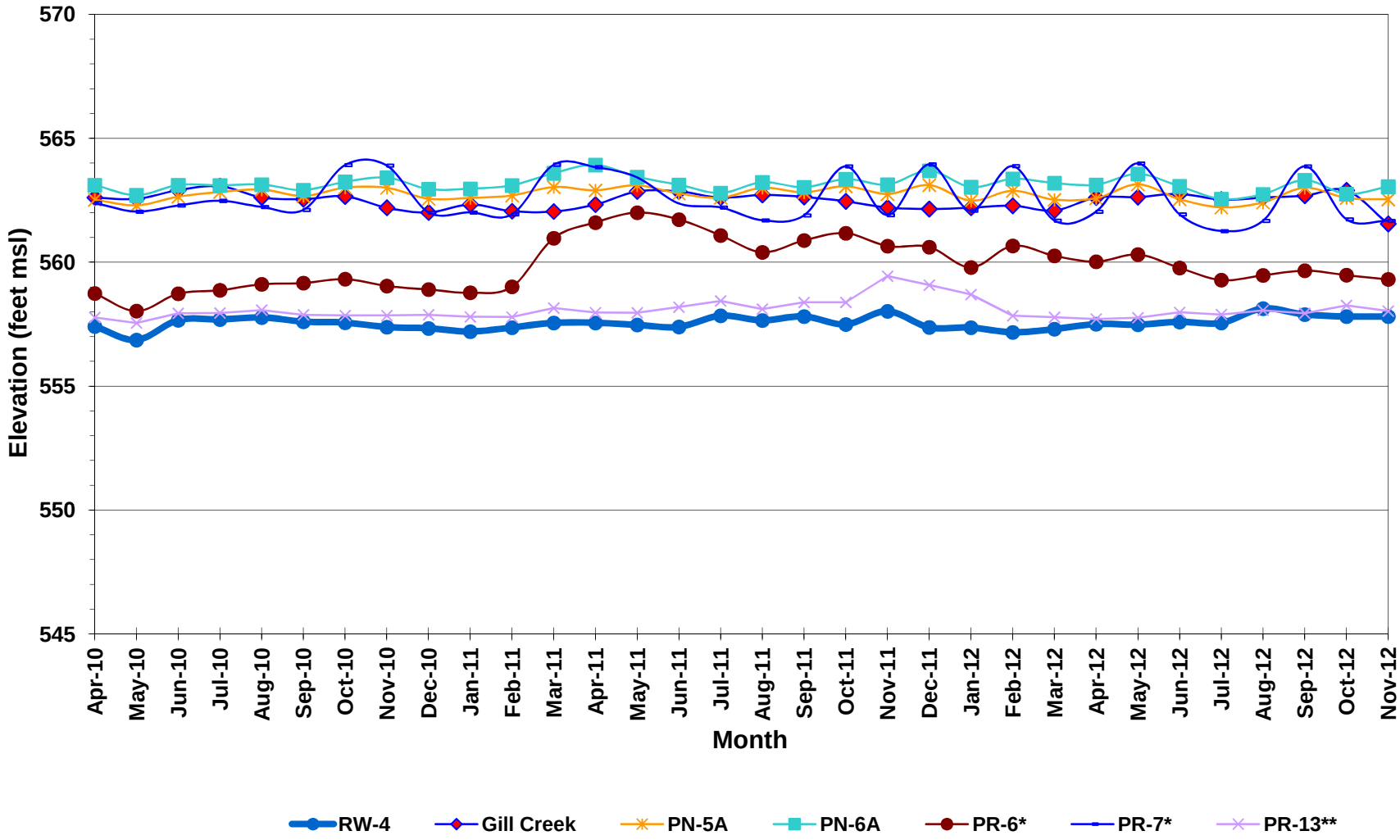
Figure 3-3
RW-3 Drawdown and Adjacent A-Zone Water Table Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

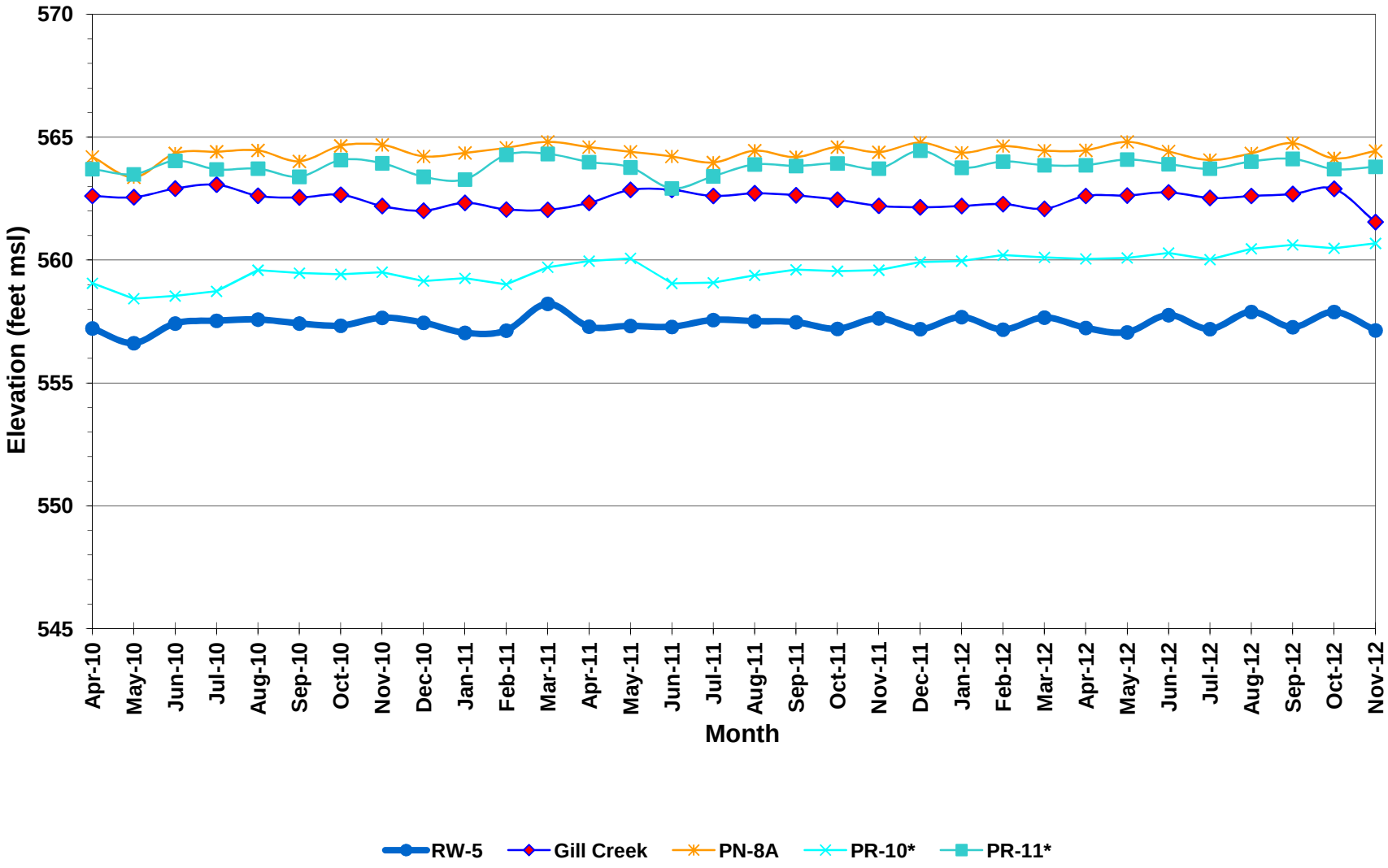
Figure 3-4
RW-4 Drawdown and Adjacent A-Zone Water Table Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

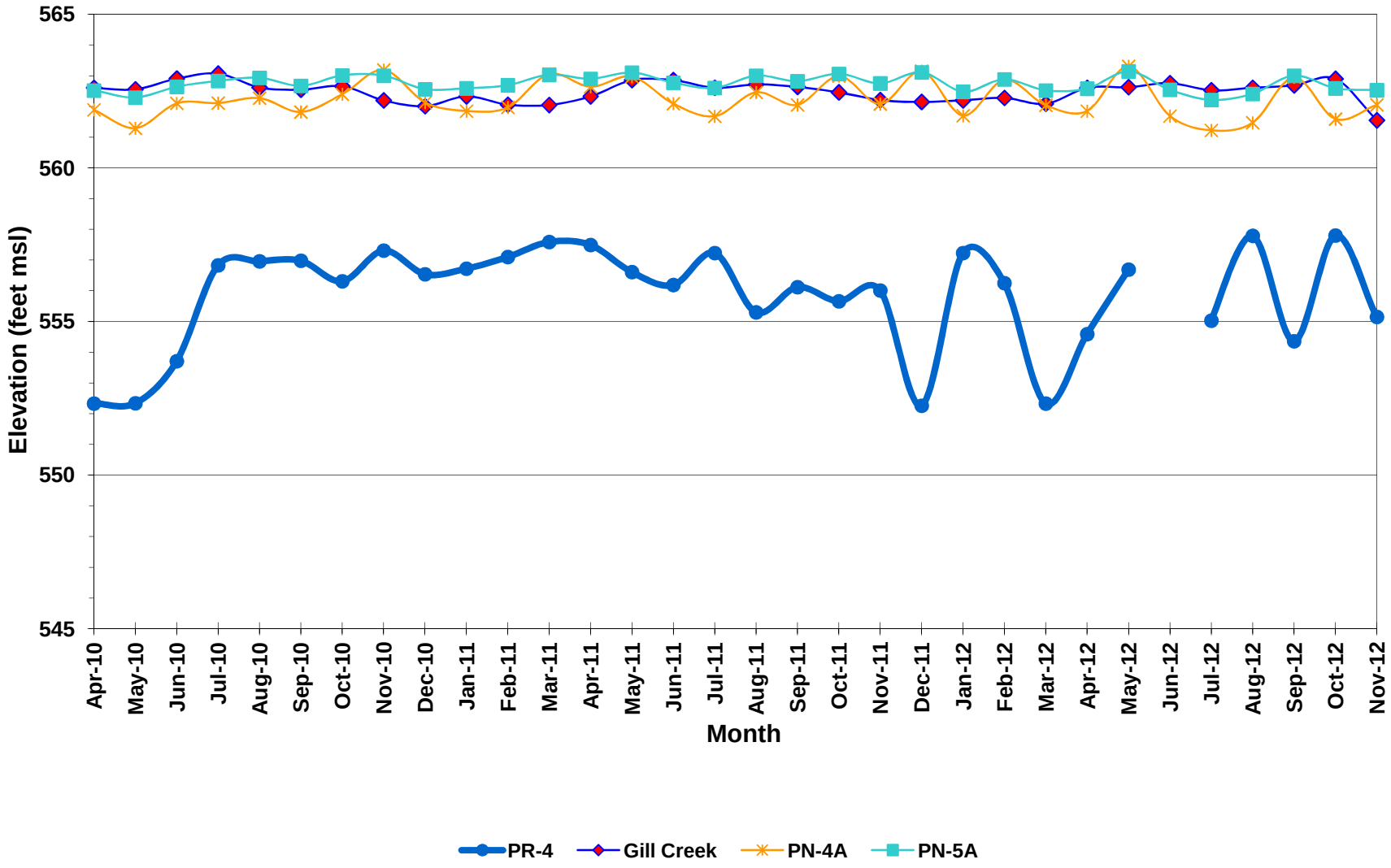
Figure 3-5
RW-5 Drawdown and Adjacent A-Zone Water Table Surface



Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

msl - mean sea level

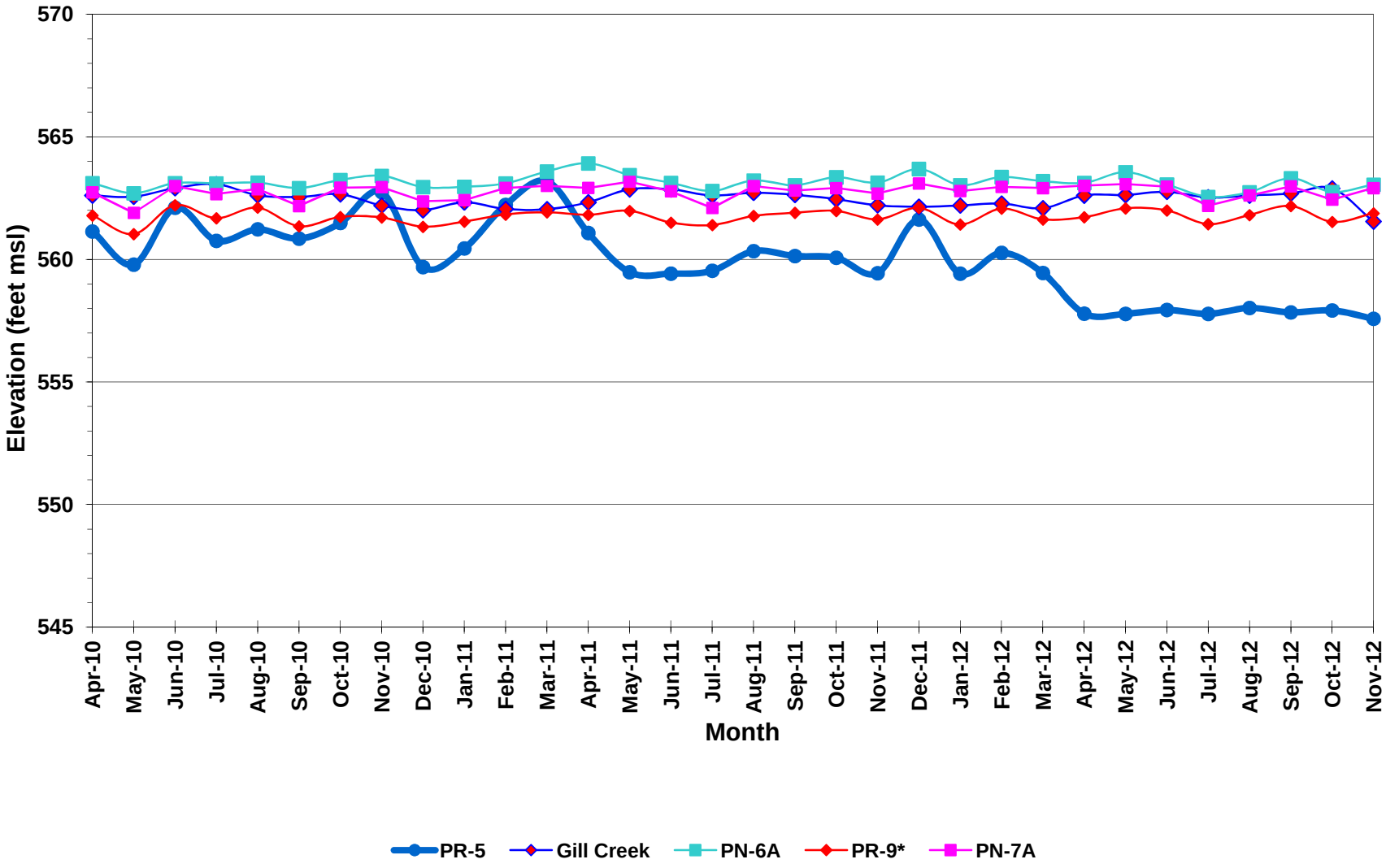
Figure 3-6
PR-4 Drawdown and Adjacent A-Zone Water Table Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

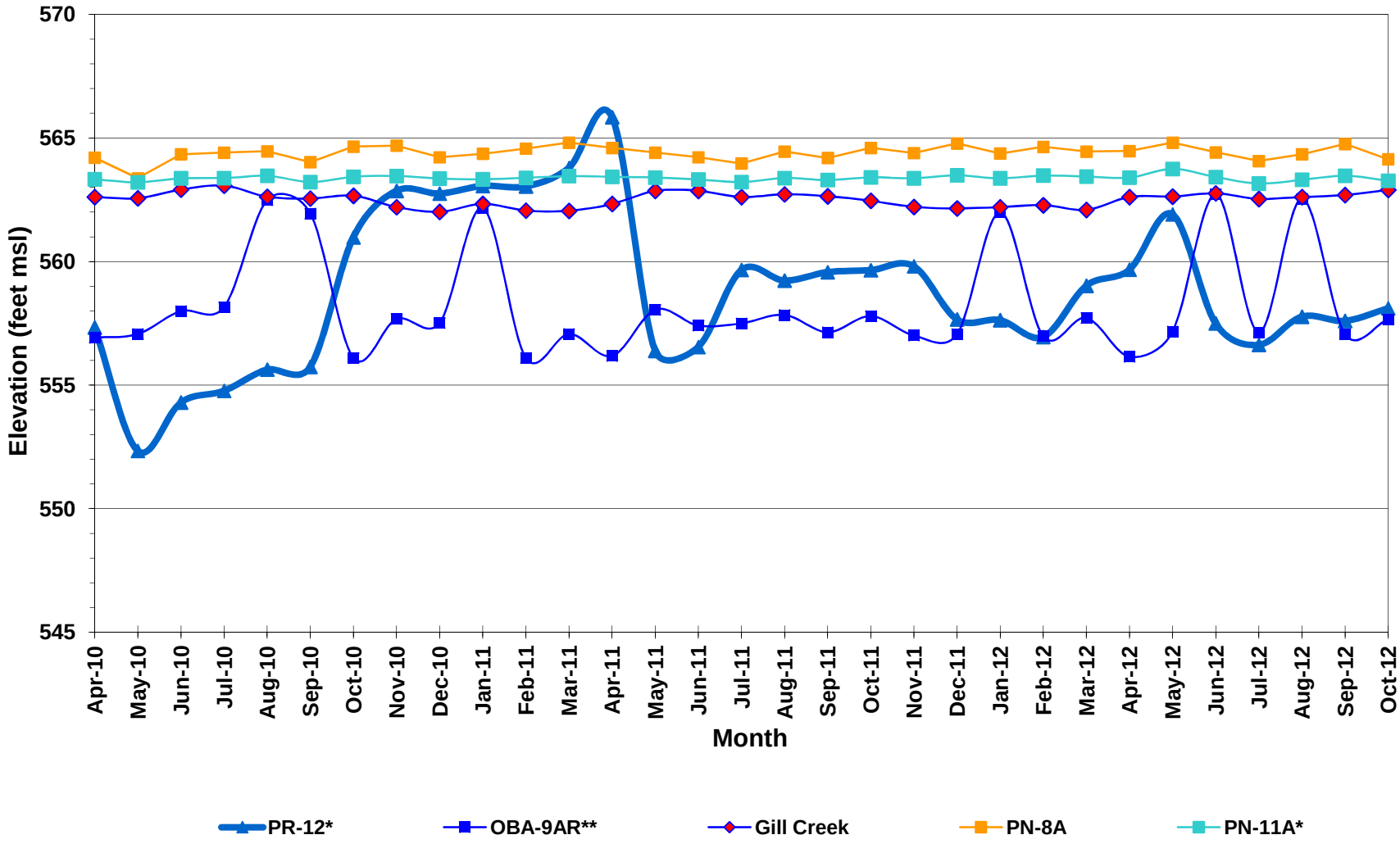
Figure 3-7
PR-5 Drawdown and Adjacent A-Zone Water Table Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

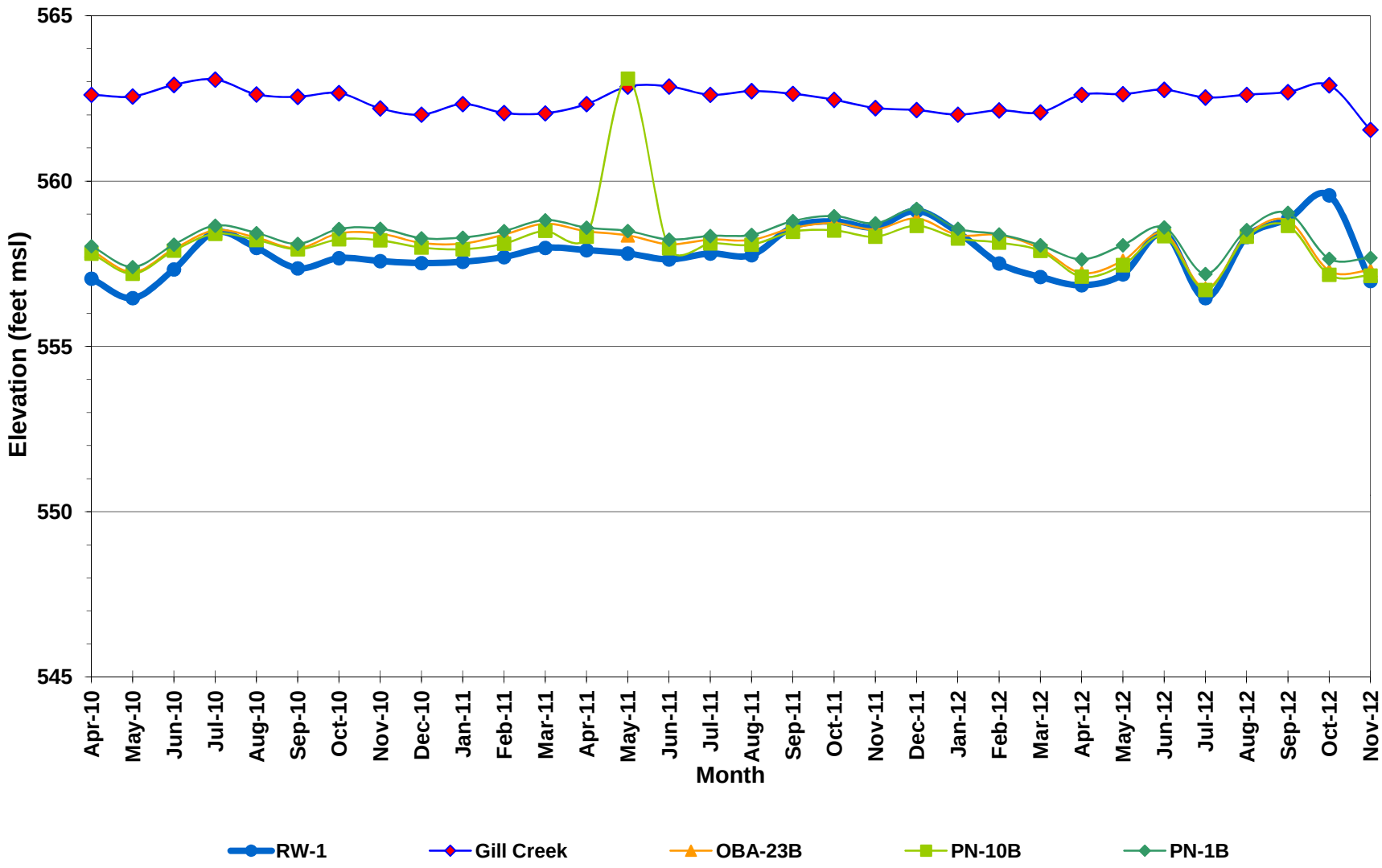
Figure 3-8
PR-12 and OBA-9AR Drawdown and Adjacent A-Zone Water Table Surface



msl - mean sea level

Prepared by: AWM 03/13/2013
Checked by: JDD 03/14/2013

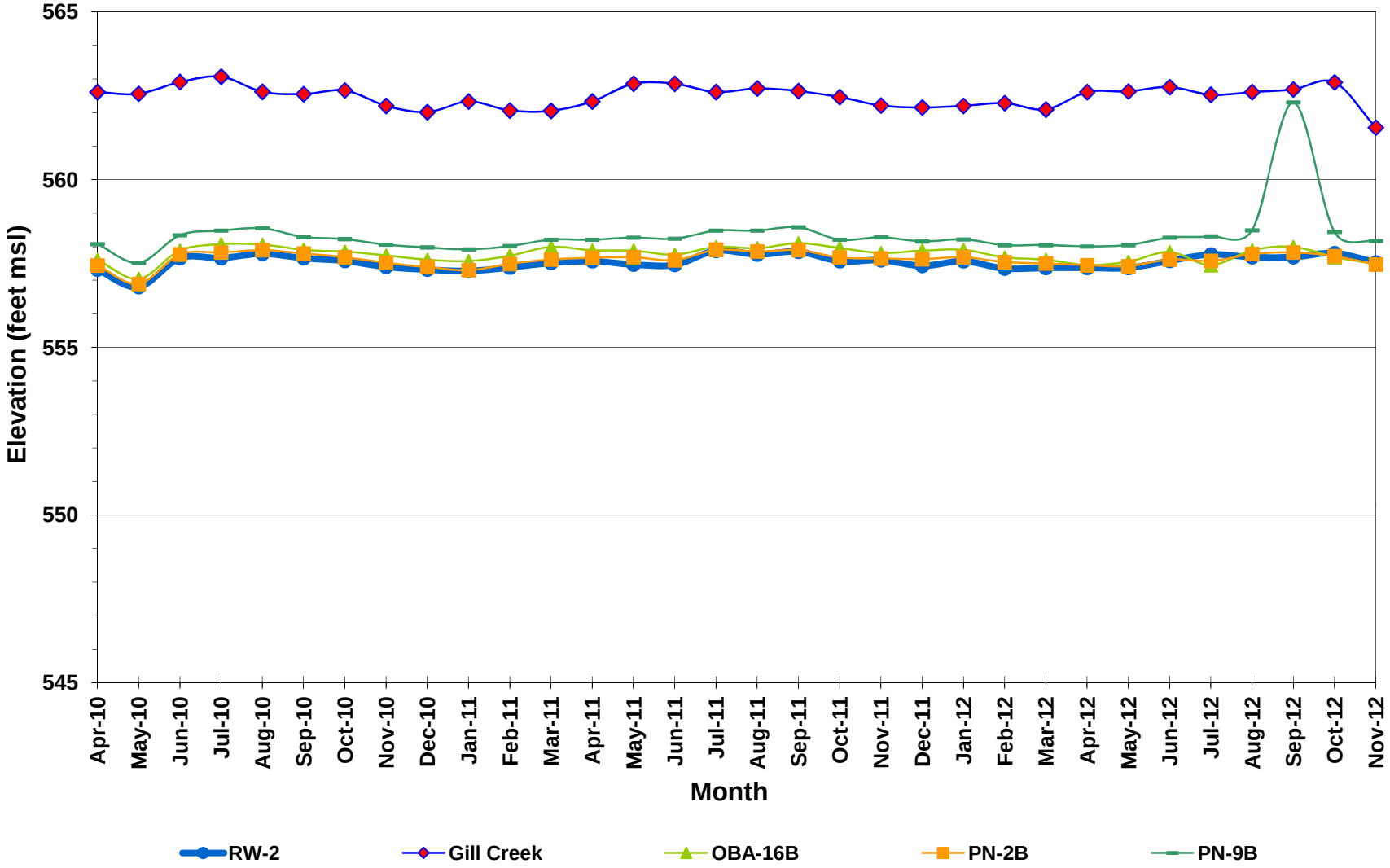
Figure 3-9
RW-1 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

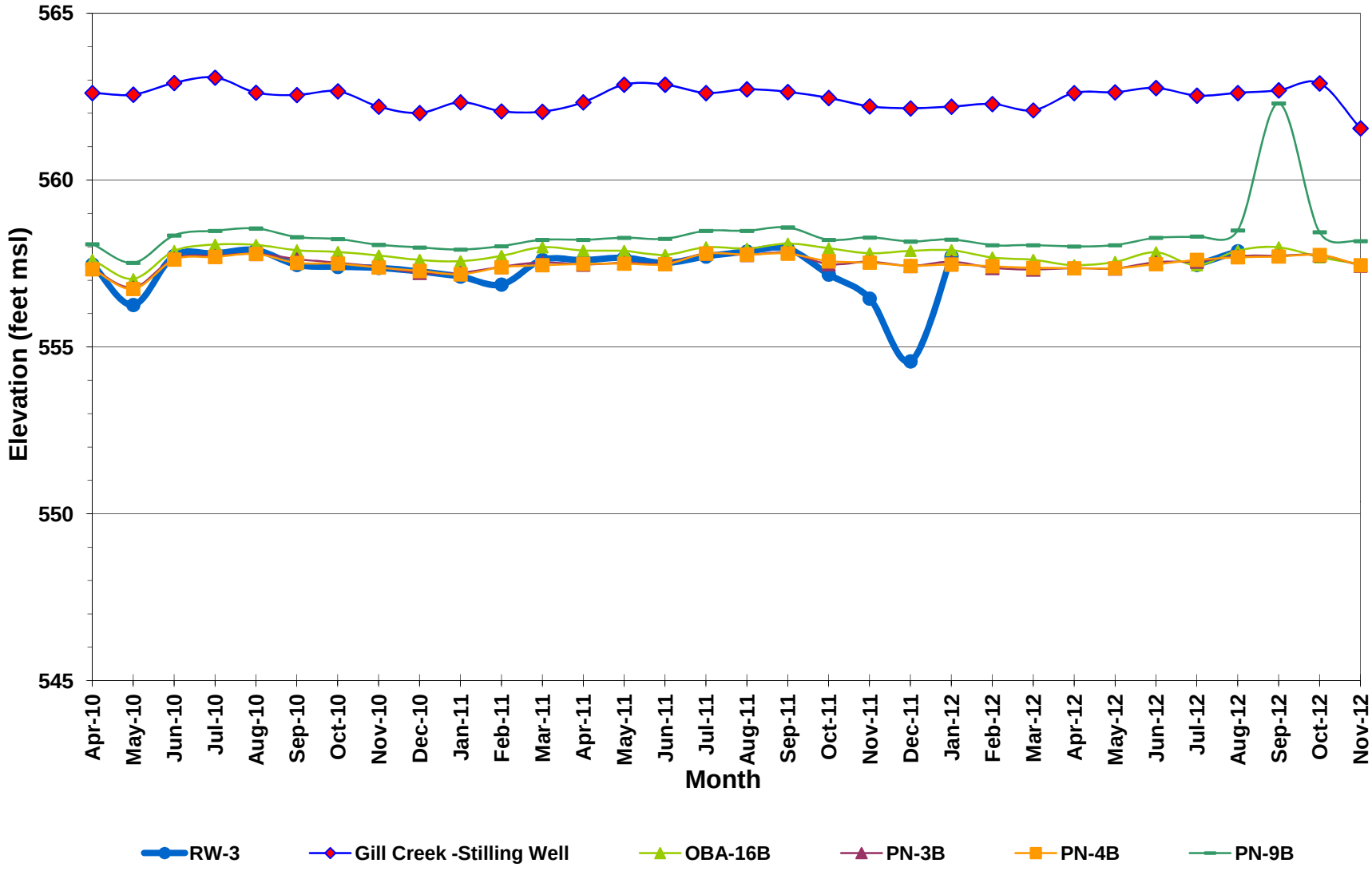
Figure 3-10
RW-2 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

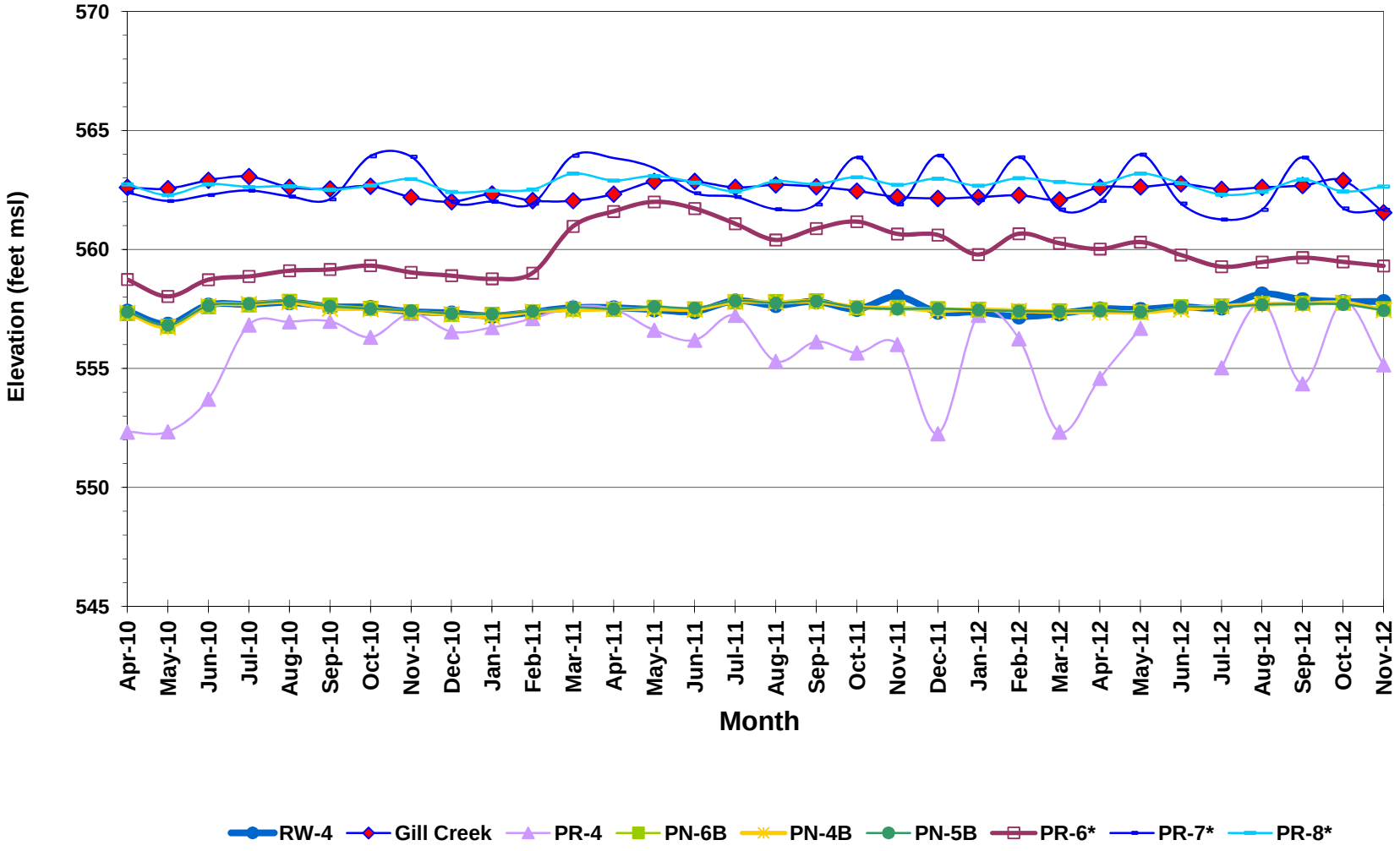
Figure 3-11
RW-3 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

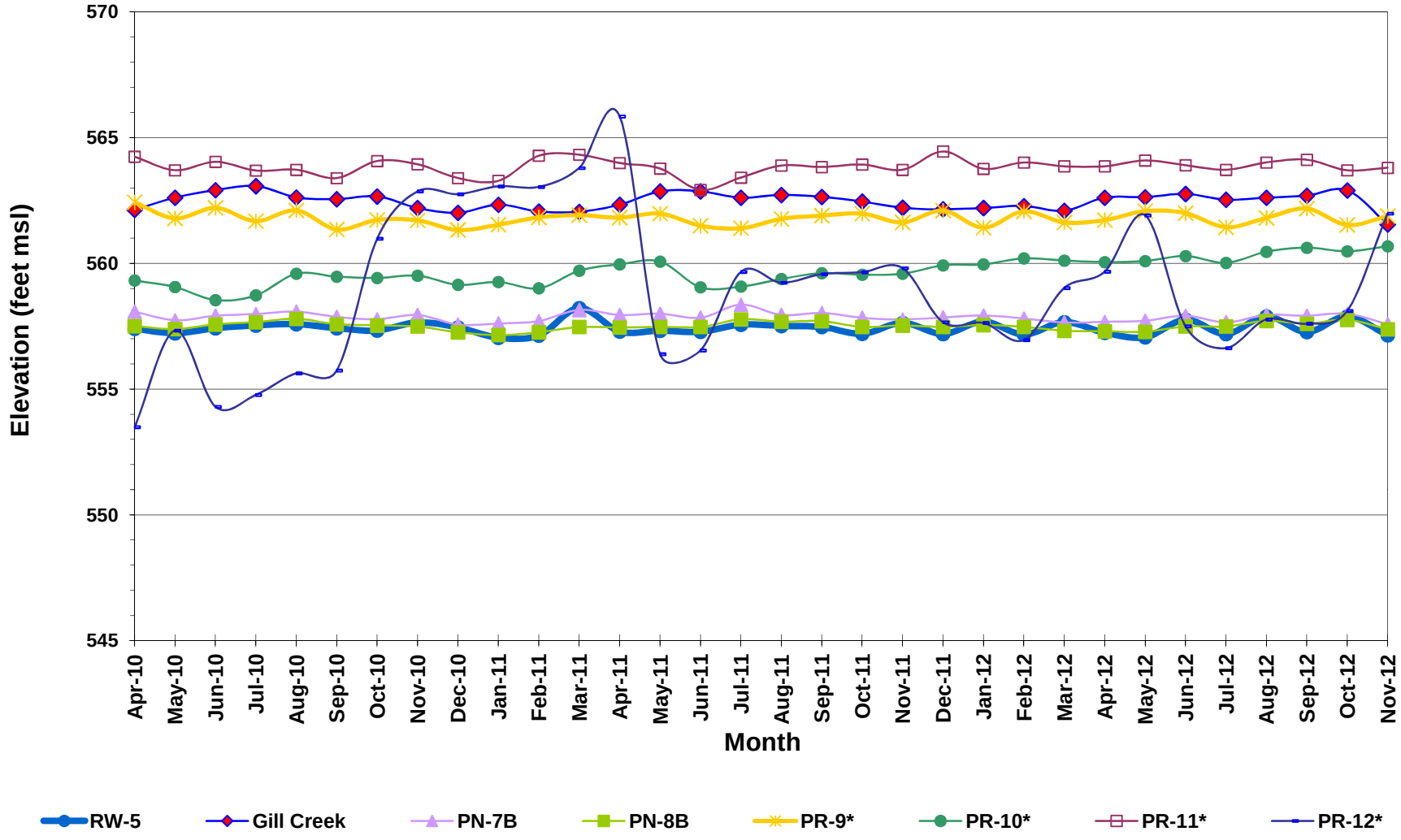
Figure 3-12
RW-4 and PR-4 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

Prepared by : AWM 03/14/2013
Checked by: AWM 03/14/2013

Figure 3-13
RW-5 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

Prepared by : AWE 10/06/2011
Checked by: AWM 10/07/2011

Table 3-1
A-Zone
RW-1 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
PR-1	564.10	563.50	563.78	563.91	563.76	563.52	563.88	564.33	564.11	563.70	564.49	564.87	563.90	563.71	563.11	563.03	563.60	563.51
PN-1A	564.12	563.70	563.83	564.00	563.93	563.72	563.95	564.39	564.28	564.39	564.64	564.75	564.48	564.36	564.13	564.01	564.31	564.17
RW-1	557.05	556.46	557.33	558.45	557.98	557.36	557.67	557.58	557.52	557.56	557.70	557.98	557.91	557.81	557.63	557.81	557.76	558.61
OBA-23A	562.13	561.40	562.18	562.04	562.02	561.81	562.71	562.66	562.12	562.10	564.50	563.71	562.89	562.50	562.01	561.84	562.24	562.19
PR-2	557.81	557.14	557.90	558.25	558.12	557.96	558.23	558.21	557.92	557.89	558.08	558.72	558.51	558.22	557.93	558.09	558.13	558.34
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64

Notes:
Elevations are reported in feet above mean seal level (msl)
*An elevation of 561.40 feet msl for OBA-23A indicates that this well is dry.
#N/A Unable to collect water level

Table 3-1
A-Zone
RW-1 and Adjacent Monitoring Point Water Elevations

Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
564.13	563.99	564.40	563.61	563.80	563.70	563.31	563.94	563.17	562.73	563.59	564.10	562.38	563.34
564.55	564.40	564.74	564.29	564.53	564.42	564.40	564.99	564.13	563.88	564.29	564.59	563.81	564.29
558.78	558.60	559.10	558.45	557.51	557.10	556.85	557.18	558.42	556.46	558.31	558.85	559.57	556.98
562.52	562.10	562.79	562.18	562.94	562.64	562.43	562.94	562.10	561.74	562.06	562.50	561.74	562.32
558.41	558.20	558.55	558.13	558.14	557.87	557.36	557.50	558.15	557.20	558.23	558.48	557.50	557.39
562.46	562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-2
A-Zone
RW-2 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
PN-2A*	562.00	562.00	562.00	562.25	562.00	562.00	562.56	562.71	562.41	562.00	562.84	563.71	562.57	562.41	562.00	562.11	562.22	562.00	562.61
RW-2	557.32	556.80	557.66	557.66	557.79	557.66	557.58	557.40	557.32	557.28	557.38	557.52	557.57	557.47	557.46	557.88	557.77	557.85	557.57
OBA-16A	562.55	562.52	562.66	563.19	563.45	562.66	563.97	563.92	563.07	562.66	563.36	564.69	563.60	563.60	562.76	562.58	563.20	562.66	563.76
PR-3	557.35	556.79	557.66	557.71	557.84	557.62	557.60	557.38	557.35	557.28	557.41	557.56	557.58	557.60	557.50	557.79	557.82	557.86	557.60
PR-2	557.81	557.14	557.90	558.25	558.12	557.96	558.23	558.21	557.92	557.89	558.08	558.72	558.51	558.22	557.93	558.09	558.13	558.34	558.41
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46

Notes:
Elevations are reported in feet above mean seal level (msl)
*An elevation of 562.00 feet msl for PN-2A indicates that the piezometer is dry.

Table 3-2
A-Zone
RW-2 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.29	562.53	562.00	562.54	562.12	562.12	562.57	562.00	562.12	562.00	562.68	562.00	562.52
557.60	557.43	557.57	557.35	557.37	557.37	557.37	557.58	557.77	557.69	557.69	557.81	557.53
562.97	563.92	562.61	563.66	563.04	562.67	563.94	562.69	562.67	563.00	564.33	562.66	563.55
557.58	557.48	557.57	557.39	557.40	557.37	557.39	557.58	557.63	557.68	557.76	557.75	557.49
558.20	558.55	558.13	558.14	557.87	557.36	557.50	558.15	557.20	558.23	558.48	557.50	557.39
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-3
A-Zone
RW-3 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46
PN-3A	562.16	561.67	562.68	562.65	563.01	562.33	563.64	563.47	562.40	562.20	562.62	563.92	562.85	563.02	562.30	561.91	563.06	562.47	563.14
RW-3	557.47	556.26	557.73	557.80	557.90	557.46	557.40	557.37	557.26	557.11	556.87	557.61	557.60	557.67	557.52	557.71	557.86	557.94	557.17
PN-4A	561.89	561.29	562.10	562.11	562.27	561.82	562.40	563.19	562.13	561.85	561.97	563.06	562.64	562.97	562.09	561.68	562.46	562.05	562.99
PR-3	557.35	556.79	557.66	557.71	557.84	557.62	557.60	557.38	557.35	557.28	557.41	557.56	557.58	557.60	557.50	557.79	557.82	557.86	557.60

Note:
Elevations are reported in feet above mean seal level (msl)

Table 3-3
A-Zone
RW-3 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
562.37	563.54	562.14	563.07	562.52	562.31	563.77	562.41	561.60	562.41	563.66	562.20	562.60
556.45	554.57	557.71	NM	NM	NM	NM	NM	557.46	557.87	NM	NM	NM
562.08	563.15	561.70	562.87	562.04	561.85	563.31	561.69	561.22	561.47	562.95	561.59	562.05
557.58	557.48	557.57	557.39	557.40	557.37	557.39	557.58	557.63	557.68	557.76	557.75	557.49

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-4
A-Zone
RW-4 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Gill Creek -Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46
PN-5A	562.52	562.29	562.64	562.83	562.93	562.67	563.01	563.00	562.56	562.59	562.69	563.03	562.90	563.10	562.77	562.60	563.00	562.82	563.06
PR-13**	557.77	557.55	557.94	557.95	558.07	557.88	557.85	557.85	557.88	557.80	557.79	558.15	557.97	557.96	558.19	558.44	558.11	558.38	558.38
RW-4	557.41	556.86	557.66	557.69	557.77	557.60	557.56	557.38	557.33	557.20	557.36	557.55	557.55	557.47	557.39	557.84	557.65	557.81	557.49
PN-6A	563.11	562.70	563.11	563.10	563.13	562.91	563.24	563.41	562.95	562.96	563.10	563.59	563.92	563.44	563.12	562.79	563.22	563.02	563.35
PR-6*	558.74	558.03	558.73	558.87	559.11	559.16	559.32	559.04	558.90	558.77	559.01	560.97	561.60	562.00	561.72	561.08	560.40	560.88	561.17
PR-7*	562.39	562.04	562.29	562.48	562.23	562.11	563.92	563.90	562.01	562.01	561.93	563.94	563.84	563.42	562.37	562.21	561.69	561.89	563.87

Notes:
Elevations are reported in feet above mean seal level (msl)
Due to significant well loss documented in RW-4 for March-02, the water level in RW-4-PZ is used as a more accurate water level for RW-4.
* Passive relief well installed in September 2002.
** Passive relief well Installed June 2003
NI - Not Installed

Table 3-4
A-Zone
RW-4 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
562.75	563.11	562.48	562.88	562.52	562.58	563.14	562.54	562.21	562.41	563.00	562.59	562.53
559.44	559.08	558.70	557.84	557.78	557.71	557.76	557.98	557.89	558.06	557.94	558.26	558.03
558.02	557.37	557.36	557.17	557.30	557.50	557.48	557.59	557.55	558.13	557.89	557.81	557.81
563.13	563.69	563.03	563.36	563.19	563.12	563.56	563.06	562.55	562.74	563.31	562.75	563.05
560.65	560.61	559.79	560.66	560.26	560.02	560.31	559.77	559.28	559.47	559.66	559.48	559.31
561.90	563.95	562.08	563.88	561.68	562.04	563.99	561.93	561.26	561.67	563.87	561.73	561.67

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-5
A-Zone
RW-5 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46
RW-5	557.22	556.62	557.42	557.53	557.58	557.42	557.33	557.65	557.45	557.04	557.13	558.22	557.29	557.32	557.28	557.56	557.51	557.47	557.20
PN-8A	564.20	563.37	564.34	564.41	564.46	564.02	564.65	564.69	564.22	564.36	564.57	564.81	564.60	564.41	564.22	563.97	564.45	564.19	564.60
PR-10*	559.06	558.43	558.54	558.73	559.59	559.47	559.42	559.51	559.15	559.26	559.01	559.71	559.96	560.07	559.05	559.08	559.38	559.61	559.55
PR-11*	563.70	563.49	564.04	563.69	563.72	563.39	564.07	563.94	563.39	563.28	564.28	564.32	563.99	563.77	562.92	563.41	563.89	563.83	563.93

Notes:
Elevations are reported in feet above mean seal level (msl)
*Passive relief well installed September 2002.
NI - Not Installed

Table 3-5
A-Zone
RW-5 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
557.63	557.19	557.68	557.17	557.66	557.24	557.06	557.76	557.19	557.89	557.27	557.89	557.14
564.39	564.78	564.37	564.64	564.45	564.47	564.81	564.42	564.07	564.34	564.76	564.14	564.44
559.59	559.92	559.96	560.20	560.11	560.05	560.09	560.29	560.02	560.46	560.62	560.48	560.68
563.72	564.45	563.76	564.01	563.86	563.86	564.09	563.90	563.72	564.01	564.12	563.70	563.80

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-6
A-Zone
PR-4 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46
PR-4	552.33	552.34	553.71	556.83	556.96	556.98	556.31	557.31	556.54	556.72	557.10	557.59	557.49	556.61	556.19	557.23	555.30	556.12	555.66
PN-4A	561.89	561.29	562.10	562.11	562.27	561.82	562.40	563.19	562.13	561.85	561.97	563.06	562.64	562.97	562.09	561.68	562.46	562.05	562.99
PN-5A	562.52	562.29	562.64	562.83	562.93	562.67	563.01	563.00	562.56	562.59	562.69	563.03	562.90	563.10	562.77	562.60	563.00	562.82	563.06

Notes:
Elevations are reported in feet above mean seal level (msl)

Table 3-6
A-Zone
PR-4 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
556.01	552.26	557.23	556.25	552.33	554.59	556.69	NM	555.03	557.79	554.36	557.80	555.15
562.08	563.15	561.70	562.87	562.04	561.85	563.31	561.69	561.22	561.47	562.95	561.59	562.05
562.75	563.11	562.48	562.88	562.52	562.58	563.14	562.54	562.21	562.41	563.00	562.59	562.53

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

Table 3-7
A-Zone
PR-5 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46
PR-5	561.14	559.79	562.11	560.76	561.23	560.85	561.49	562.75	559.69	560.45	562.23	563.19	561.08	559.48	559.42	559.54	560.34	560.14	560.07
PN-7A	562.74	561.90	562.99	562.67	562.87	562.18	562.93	562.95	562.37	562.42	562.92	563.00	562.92	563.17	562.78	562.10	562.99	562.81	562.91
PR-9*	561.79	561.03	562.21	561.68	562.11	561.35	561.73	561.71	561.33	561.54	561.83	561.92	561.82	561.98	561.50	561.40	561.77	561.90	561.98
PN-6A	563.11	562.70	563.11	563.10	563.13	562.91	563.24	563.41	562.95	562.96	563.10	563.59	563.92	563.44	563.12	562.79	563.22	563.02	563.35

Notes:
Elevations are reported in feet above mean seal level (msl)
* Passive relief well installed September 2002.
NM - Not Measured

Table 3-7
A-Zone
PR-5 and Adjacent Monitoring Point Water Elevations

Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
559.44	561.63	559.42	560.27	559.45	557.79	557.78	557.94	557.78	558.02	557.84	557.92	557.58
562.69	563.10	562.79	562.96	562.91	563.01	563.07	562.97	562.19	562.61	562.98	562.44	562.91
561.63	562.10	561.42	562.07	561.63	561.72	562.08	562.00	561.44	561.81	562.18	561.53	561.88
563.13	563.69	563.03	563.36	563.19	563.12	563.56	563.06	562.55	562.74	563.31	562.75	563.05

Prepared by : AWM 3/11/2013
Checked by: JDD 03/14/2013

Table 3-8
A-Zone
PR-12, OBA-9AR and Adjacent Monitoring Point Water Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
Gill Creek -Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64
PN-8A	564.20	563.37	564.34	564.41	564.46	564.02	564.65	564.69	564.22	564.36	564.57	564.81	564.60	564.41	564.22	563.97	564.45	564.19
PR-12*	557.33	552.34	554.30	554.77	555.63	555.74	560.98	562.86	562.75	563.06	563.04	563.79	565.84	556.39	556.54	559.66	559.23	559.57
PN-11A*	563.33	563.21	563.37	563.38	563.47	563.22	563.43	563.46	563.36	563.33	563.39	563.46	563.43	563.40	563.32	563.22	563.38	563.30
OBA-9AR**	556.92	557.07	558.00	558.16	562.49	561.94	556.10	557.68	557.52	562.16	556.10	557.07	556.18	558.05	557.41	557.50	557.84	557.14

Notes:
Elevations are reported in feet above mean seal level (msl)
* Passive relief well installed September 2002.
** Well added to quarterly monitoring program in October 2002.
NM - Not Measured

Table 3-8
A-Zone
PR-12, OBA-9AR and Adjacent Monitoring Point Water Elevations

Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
562.46	562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
564.60	564.39	564.78	564.37	564.64	564.45	564.47	564.81	564.42	564.07	564.34	564.76	564.14	564.44
559.65	559.81	557.66	557.63	556.95	559.02	559.67	561.91	557.50	556.63	557.77	557.60	558.11	561.98
563.41	563.37	563.49	563.37	563.48	563.44	563.40	563.75	563.42	563.16	563.31	563.47	563.27	563.36
557.79	557.01	557.06	561.99	556.98	557.72	556.15	557.17	562.72	557.13	562.54	557.06	557.66	557.93

Prepared by : AWM 03/11/2013
Checked by: JDD 03/14/2013

Table 3-9
B-Zone
RW-1 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
RW-1	557.05	556.46	557.33	558.45	557.98	557.36	557.67	557.58	557.52	557.56	557.70	557.98	557.91
Gill Creek -Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33
OBA-23B	557.90	557.25	557.95	558.51	558.29	557.97	558.42	558.41	558.13	558.11	558.38	558.71	558.48
PN-10B	557.81	557.20	557.90	558.41	558.22	557.94	558.24	558.21	557.99	557.94	558.11	558.50	558.32
PN-1B	558.03	557.40	558.08	558.65	558.43	558.10	558.55	558.56	558.27	558.29	558.49	558.82	558.59

Notes:
Elevations are reported in feet above mean seal level (msl)
Gill Creek level data is provided only for reference and does not effect B-zone capture.

Table 3-10
B-Zone
RW-2 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
RW-2	557.32	556.80	557.66	557.66	557.79	557.66	557.58	557.40	557.32	557.28	557.38	557.52	557.57	557.47	557.46	557.88	557.77	557.85	557.57	557.60	557.43	557.57	557.35	557.37	557.37	557.37	557.58	557.77	557.69	557.69	557.81	557.53
Gill Creek -Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
OBA-16B	557.61	557.04	557.88	558.07	558.06	557.90	557.85	557.74	557.61	557.57	557.73	557.99	557.89	557.88	557.76	557.99	557.95	558.10	557.96	557.81	557.88	557.90	557.68	557.61	557.45	557.55	557.84	557.45	557.89	557.99	557.69	557.48
PN-2B	557.44	556.89	557.77	557.83	557.90	557.80	557.69	557.52	557.40	557.30	557.49	557.62	557.67	557.69	557.60	557.91	557.86	557.90	557.68	557.65	557.63	557.69	557.54	557.50	557.45	557.42	557.62	557.58	557.78	557.83	557.72	557.47
PN-9B	558.08	557.52	558.34	558.48	558.55	558.29	558.23	558.06	557.98	557.92	558.02	558.21	558.21	558.27	558.24	558.48	558.48	558.58	558.21	558.28	558.16	558.22	558.05	558.05	558.01	558.05	558.27	558.31	558.49	562.30	558.44	558.17

Notes:
Elevations are reported in feet above mean seal level (msl)
Gill Creek level data is provided only for reference and does not effect B-zone capture.

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

Table 3-11
B-Zone
RW-3 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12
RW-3	557.47	556.26	557.73	557.80	557.90	557.46	557.40	557.37	557.26	557.11	556.87	557.61	557.60	557.67	557.52	557.71	557.86	557.94	557.17	556.45	554.57	557.71	NM	NM	NM	NM	NM	557.46	557.87	NM	NM	NM
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.20	562.28	562.09	562.61	562.63	562.76	562.53	562.61	562.69	562.90	561.55
OBA-16B	557.61	557.04	557.88	558.07	558.06	557.90	557.85	557.74	557.61	557.57	557.73	557.99	557.89	557.88	557.76	557.99	557.95	558.10	557.96	557.81	557.88	557.90	557.68	557.61	557.45	557.55	557.84	557.45	557.89	557.99	557.69	557.48
PN-3B	557.34	556.78	557.65	557.73	557.79	557.63	557.52	557.40	557.22	557.22	557.40	557.53	557.47	557.52	557.50	557.80	557.76	557.82	557.48	557.55	557.43	557.55	557.37	557.32	557.36	557.35	557.54	557.56	557.72	557.73	557.75	557.44
PN-4B	557.33	556.74	557.62	557.70	557.79	557.52	557.50	557.38	557.28	557.18	557.39	557.45	557.49	557.50	557.48	557.80	557.77	557.80	557.57	557.53	557.43	557.47	557.42	557.37	557.36	557.36	557.48	557.61	557.69	557.71	557.76	557.45
PN-9B	558.08	557.52	558.34	558.48	558.55	558.29	558.23	558.06	557.98	557.92	558.02	558.21	558.21	558.27	558.24	558.48	558.48	558.58	558.21	558.28	558.16	558.22	558.05	558.05	558.01	558.05	558.27	558.31	558.49	562.30	558.44	558.17

Notes:
Elevations are reported in feet above mean seal level (msl)
Gill Creek level data is provided only for reference and does not effect B-zone capture.

Prepared by : AWM 03/13/2013
Checked by: JDD 03/14/2013

Table 3-12
B-Zone
RW-4, PR-4 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12
RW-4	557.41	556.86	557.66	557.69	557.77	557.60	557.56	557.38	557.33	557.20	557.36	557.55	557.55	557.47	557.39	557.84	557.65	557.81	557.49	558.02	557.37	557.36	557.17	557.30
Gill Creek - Stilling Well	562.61	562.56	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.20	562.28	562.09
PR-4	552.33	552.34	553.71	556.83	556.96	556.98	556.31	557.31	556.54	556.72	557.10	557.59	557.49	556.61	556.19	557.23	555.30	556.12	555.66	556.01	552.26	557.23	556.25	552.33
PN-6B	557.31	556.78	557.60	557.68	557.82	557.66	557.53	557.38	557.28	557.28	557.38	557.49	557.49	557.57	557.50	557.80	557.81	557.84	557.55	557.57	557.52	557.49	557.40	557.42
PN-4B	557.33	556.74	557.62	557.70	557.79	557.52	557.50	557.38	557.28	557.18	557.39	557.45	557.49	557.50	557.48	557.80	557.77	557.80	557.57	557.53	557.43	557.47	557.42	557.37
PN-5B	557.38	556.82	557.64	557.72	557.83	557.62	557.51	557.43	557.31	557.29	557.41	557.57	557.50	557.60	557.54	557.84	557.75	557.83	557.57	557.50	557.51	557.46	557.41	557.40
PR-6*	558.74	558.03	558.73	558.87	559.11	559.16	559.32	559.04	558.90	558.77	559.01	560.97	561.60	562.00	561.72	561.08	560.40	560.88	561.17	560.65	560.61	559.79	560.66	560.26
PR-7*	562.39	562.04	562.29	562.48	562.23	562.11	563.92	563.90	562.01	562.01	561.93	563.94	563.84	563.42	562.37	562.21	561.69	561.89	563.87	561.90	563.95	562.08	563.88	561.68
PR-8*	562.74	562.29	562.74	562.63	562.66	562.51	562.69	562.96	562.42	562.47	562.52	563.19	562.90	563.09	562.81	562.44	562.87	562.75	563.04	562.72	562.98	562.68	563.00	562.84

Notes:
Elevations are reported in feet above mean seal level (msl)
Gill Creek level data is provided only for reference and does not effect B-zone capture.
*Installed September 2002

Table 3-13
B-Zone
RW-5 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12
RW-5	557.40	557.22	557.42	557.53	557.58	557.42	557.33	557.65	557.45	557.04	557.13	558.22	557.29	557.32	557.28	557.56	557.51	557.47	557.20	557.63	557.19	557.68	557.17	557.66
Gill Creek - Stilling Well	562.13	562.61	562.91	563.07	562.62	562.55	562.66	562.20	562.01	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.20	562.28	562.09
PN-7B	558.08	557.74	557.92	557.99	558.08	557.87	557.78	557.95	557.57	557.61	557.71	558.15	557.95	558.00	557.84	558.36	557.95	558.03	557.84	557.77	557.85	557.93	557.81	557.65
PN-8B	557.50	557.39	557.57	557.66	557.79	557.58	557.53	557.49	557.26	557.15	557.26	557.47	557.45	557.47	557.47	557.77	557.68	557.70	557.47	557.53	557.47	557.55	557.47	557.32
PR-9*	562.43	561.79	562.21	561.68	562.11	561.35	561.73	561.71	561.33	561.54	561.83	561.92	561.82	561.98	561.50	561.40	561.77	561.90	561.98	561.63	562.10	561.42	562.07	561.63
PR-10*	559.32	559.06	558.54	558.73	559.59	559.47	559.42	559.51	559.15	559.26	559.01	559.71	559.96	560.07	559.05	559.08	559.38	559.61	559.55	559.59	559.92	559.96	560.20	560.11
PR-11*	564.24	563.70	564.04	563.69	563.72	563.39	564.07	563.94	563.39	563.28	564.28	564.32	563.99	563.77	562.92	563.41	563.89	563.83	563.93	563.72	564.45	563.76	564.01	563.86
PR-12*	553.49	557.33	554.30	554.77	555.63	555.74	560.98	562.86	562.75	563.06	563.04	563.79	565.84	556.39	556.54	559.66	559.23	559.57	559.65	559.81	557.66	557.63	556.95	559.02

Notes:
Elevations are reported in feet above mean seal level (msl)
Gill Creek level data is provided only for reference and does not effect B-zone capture.
*Installed September 2002
NI - Not Installed

Attachment 4

Groundwater Quality Data

Olin Niagara Falls
May 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
After Carbon	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
After Carbon	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	T	0	0	Hg
After Carbon	SW8081A	alpha-BHC	0.17	JQ	0.032	5/9/2012	N	ug/l	N	0.17		
After Carbon	SW8081A	beta-BHC	2		0.12	5/9/2012	N	ug/l	N	2		
After Carbon	SW8081A	delta-BHC	0.97		0.049	5/9/2012	N	ug/l	N	0.97		
After Carbon	SW8081A	gamma-BHC (Lindane)	0.49		0.029	5/9/2012	N	ug/l	N	0.49	3.63	BHCs
After Carbon	SW8260B	1,1,1-Trichloroethane			0.82	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,1,2,2-Tetrachloroethane	550		4.2	5/9/2012	N	ug/l	N	550		
After Carbon	SW8260B	1,1,2-Trichloroethane	4.8		0.23	5/9/2012	N	ug/l	N	4.8		
After Carbon	SW8260B	1,1-Dichloroethene			0.29	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2,4-Trichlorobenzene			0.41	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2-Dichlorobenzene			0.79	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,3-Dichlorobenzene			0.78	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,4-Dichlorobenzene			0.84	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	Benzene			0.41	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	Carbon tetrachloride			0.27	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chlorobenzene			0.75	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chloromethane (Methyl chloride)			0.35	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	cis-1,2-Dichloroethene	30		0.81	5/9/2012	N	ug/l	N	30		
After Carbon	SW8260B	Methylene chloride (Dichloromethane)	0.98	JQ	0.44	5/9/2012	N	ug/l	N	0.98		
After Carbon	SW8260B	Tetrachloroethene (PCE)	35		0.36	5/9/2012	N	ug/l	N	35		
After Carbon	SW8260B	trans-1,2-Dichloroethene			0.90	5/9/2012	N	ug/l	N	0		
After Carbon	SW8260B	Trichloroethene (TCE)	290		9.2	5/9/2012	N	ug/l	N	290		
After Carbon	SW8260B	Vinyl Chloride			0.90	5/9/2012	N	ug/l	N	0	910.8	Organics
Before Carbon	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D			
Before Carbon	SW7470A	Mercury	0.00027		0.00012	5/9/2012	N	mg/l	T	0.00027	0.00027	Hg
Before Carbon	SW8081A	alpha-BHC	24		0.31	5/9/2012	N	ug/l	N	24		
Before Carbon	SW8081A	beta-BHC	3.4		1.2	5/9/2012	N	ug/l	N	3.4		
Before Carbon	SW8081A	delta-BHC	2.7		0.48	5/9/2012	N	ug/l	N	2.7		
Before Carbon	SW8081A	gamma-BHC (Lindane)	19		0.29	5/9/2012	N	ug/l	N	19	49.1	BHCs
Before Carbon	SW8260B	1,1,1-Trichloroethane			6.6	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,1,2,2-Tetrachloroethane	770		4.2	5/9/2012	N	ug/l	N	770		
Before Carbon	SW8260B	1,1,2-Trichloroethane	4.5	JQ	1.8	5/9/2012	N	ug/l	N	4.5		
Before Carbon	SW8260B	1,1-Dichloroethene			2.3	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,2,4-Trichlorobenzene	34		3.3	5/9/2012	N	ug/l	N	34		
Before Carbon	SW8260B	1,2-Dichlorobenzene			6.3	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,3-Dichlorobenzene			6.2	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,4-Dichlorobenzene			6.7	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Benzene			3.3	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Carbon tetrachloride			2.2	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chlorobenzene			6.0	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chloromethane (Methyl chloride)			2.8	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	cis-1,2-Dichloroethene	30		6.5	5/9/2012	N	ug/l	N	30		
Before Carbon	SW8260B	Methylene chloride (Dichloromethane)	7.5	JQ	3.5	5/9/2012	N	ug/l	N	7.5		

Prepared by: AWM 03/07/13
Checked by: JDD 03/11/13

Olin Niagara Falls
May 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
Before Carbon	SW8260B	Tetrachloroethene (PCE)	37		2.9	5/9/2012	N	ug/l	N	37		
Before Carbon	SW8260B	trans-1,2-Dichloroethene			7.2	5/9/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Trichloroethene (TCE)	140		3.7	5/9/2012	N	ug/l	N	140		
Before Carbon	SW8260B	Vinyl Chloride			7.2	5/9/2012	N	ug/l	N	0	1,023	Organics
Between Carbon	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
Between Carbon	SW7470A	Mercury	0.00016	JQ	0.00012	5/9/2012	N	mg/l	T	0.00016	0.00016	Hg
Between Carbon	SW8081A	alpha-BHC	0.76		0.031	5/9/2012	N	ug/l	N	0.76		
Between Carbon	SW8081A	beta-BHC	2.9		0.12	5/9/2012	N	ug/l	N	2.9		
Between Carbon	SW8081A	delta-BHC	1.8		0.047	5/9/2012	N	ug/l	N	1.8		
Between Carbon	SW8081A	gamma-BHC (Lindane)	1.2		0.028	5/9/2012	N	ug/l	N	1.2	6.66	BHCs
Between Carbon	SW8260B	1,1,1-Trichloroethane			0.82	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,1,2,2-Tetrachloroethane	770		5.3	5/9/2012	N	ug/l	N	770		
Between Carbon	SW8260B	1,1,2-Trichloroethane	5.4		0.23	5/9/2012	N	ug/l	N	5.4		
Between Carbon	SW8260B	1,1-Dichloroethene			0.29	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2,4-Trichlorobenzene	0.58	JQ	0.41	5/9/2012	N	ug/l	N	0.58		
Between Carbon	SW8260B	1,2-Dichlorobenzene			0.79	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,3-Dichlorobenzene			0.78	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,4-Dichlorobenzene			0.84	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Benzene			0.41	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Carbon tetrachloride			0.27	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chlorobenzene			0.75	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chloromethane (Methyl chloride)			0.35	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	cis-1,2-Dichloroethene	29		0.81	5/9/2012	N	ug/l	N	29		
Between Carbon	SW8260B	Methylene chloride (Dichloromethane)	2.5		0.44	5/9/2012	N	ug/l	N	2.5		
Between Carbon	SW8260B	Tetrachloroethene (PCE)	38		0.36	5/9/2012	N	ug/l	N	38		
Between Carbon	SW8260B	trans-1,2-Dichloroethene			0.90	5/9/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Trichloroethene (TCE)	230		12	5/9/2012	N	ug/l	N	230		
Between Carbon	SW8260B	Vinyl Chloride			0.90	5/9/2012	N	ug/l	N	0	1,075	Organics
Influent Stripper	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
Influent Stripper	SW7470A	Mercury	0.00029		0.00012	5/9/2012	N	mg/l	T	0.00029	0.00029	Hg
Influent Stripper	SW8081A	alpha-BHC	31		0.63	5/9/2012	N	ug/l	N	31		
Influent Stripper	SW8081A	beta-BHC	3.5	JQ	2.4	5/9/2012	N	ug/l	N	3.5		
Influent Stripper	SW8081A	delta-BHC	4.5	JQ	0.95	5/9/2012	N	ug/l	N	4.5		
Influent Stripper	SW8081A	gamma-BHC (Lindane)	23		0.57	5/9/2012	N	ug/l	N	23	62.0	BHCs
Influent Stripper	SW8260B	1,1,1-Trichloroethane			160	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1,2,2-Tetrachloroethane	1500		42	5/9/2012	N	ug/l	N	1500		
Influent Stripper	SW8260B	1,1,2-Trichloroethane			46	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1-Dichloroethene			58	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,2,4-Trichlorobenzene	780		82	5/9/2012	N	ug/l	N	780		
Influent Stripper	SW8260B	1,2-Dichlorobenzene			160	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,3-Dichlorobenzene			160	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,4-Dichlorobenzene			170	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Benzene			82	5/9/2012	N	ug/l	N	0		

Prepared by: AWM 03/07/13
Checked by: JDD 03/11/13

Olin Niagara Falls
May 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
Influent Stripper	SW8260B	Carbon tetrachloride			54	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chlorobenzene			150	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chloromethane (Methyl chloride)			70	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	cis-1,2-Dichloroethene	1500		160	5/9/2012	N	ug/l	N	1500		
Influent Stripper	SW8260B	Methylene chloride (Dichloromethane)	260		88	5/9/2012	N	ug/l	N	260		
Influent Stripper	SW8260B	Tetrachloroethene (PCE)	6500		72	5/9/2012	N	ug/l	N	6500		
Influent Stripper	SW8260B	trans-1,2-Dichloroethene			180	5/9/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Trichloroethene (TCE)	14000		92	5/9/2012	N	ug/l	N	14000		
Influent Stripper	SW8260B	Vinyl Chloride			180	5/9/2012	N	ug/l	N	0	24,540	Organics
OBA-9AR	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
OBA-9AR	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	T	0	0	Hg
OBA-9AR	SW8081A	alpha-BHC	430		6.3	5/9/2012	N	ug/l	N	430		
OBA-9AR	SW8081A	beta-BHC	31	JQ	24	5/9/2012	N	ug/l	N	31		
OBA-9AR	SW8081A	delta-BHC	31	JQ	9.6	5/9/2012	N	ug/l	N	31		
OBA-9AR	SW8081A	gamma-BHC (Lindane)	380		5.7	5/9/2012	N	ug/l	N	380	872	BHCs
OBA-9AR	SW8260B	1,1,1-Trichloroethane			82	5/9/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1,2,2-Tetrachloroethane	920		21	5/9/2012	N	ug/l	N	920		
OBA-9AR	SW8260B	1,1,2-Trichloroethane	98	JQ	23	5/9/2012	N	ug/l	N	98		
OBA-9AR	SW8260B	1,1-Dichloroethene	44	JQ	29	5/9/2012	N	ug/l	N	44		
OBA-9AR	SW8260B	1,2,4-Trichlorobenzene	4400		41	5/9/2012	N	ug/l	N	4400		
OBA-9AR	SW8260B	1,2-Dichlorobenzene	3800		79	5/9/2012	N	ug/l	N	3800		
OBA-9AR	SW8260B	1,3-Dichlorobenzene	590		78	5/9/2012	N	ug/l	N	590		
OBA-9AR	SW8260B	1,4-Dichlorobenzene	3300		84	5/9/2012	N	ug/l	N	3300		
OBA-9AR	SW8260B	Benzene	180		41	5/9/2012	N	ug/l	N	180		
OBA-9AR	SW8260B	Carbon tetrachloride			27	5/9/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Chlorobenzene	330		75	5/9/2012	N	ug/l	N	330		
OBA-9AR	SW8260B	Chloromethane (Methyl chloride)			35	5/9/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	cis-1,2-Dichloroethene	700		81	5/9/2012	N	ug/l	N	700		
OBA-9AR	SW8260B	Methylene chloride (Dichloromethane)			44	5/9/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Tetrachloroethene (PCE)	2700		36	5/9/2012	N	ug/l	N	2700		
OBA-9AR	SW8260B	trans-1,2-Dichloroethene			90	5/9/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Trichloroethene (TCE)	18000		120	5/9/2012	N	ug/l	N	18000		
OBA-9AR	SW8260B	Vinyl Chloride			90	5/9/2012	N	ug/l	N	0	35,062	Organics
PR-12	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
PR-12	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	T	0	0	Hg
PR-12	SW8081A	alpha-BHC	290		3.3	5/9/2012	N	ug/l	N	290		
PR-12	SW8081A	beta-BHC	30		12	5/9/2012	N	ug/l	N	30		
PR-12	SW8081A	delta-BHC	17	JQ	5.0	5/9/2012	N	ug/l	N	17		
PR-12	SW8081A	gamma-BHC (Lindane)	220		3.0	5/9/2012	N	ug/l	N	220	557	BHCs
PR-12	SW8260B	1,1,1-Trichloroethane	140		41	5/9/2012	N	ug/l	N	140		
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	1600		11	5/9/2012	N	ug/l	N	1600		
PR-12	SW8260B	1,1,2-Trichloroethane	94		12	5/9/2012	N	ug/l	N	94		
PR-12	SW8260B	1,1-Dichloroethene	82		15	5/9/2012	N	ug/l	N	82		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
PR-12	SW8260B	1,2,4-Trichlorobenzene	7100		160	5/9/2012	N	ug/l	N	7100		
PR-12	SW8260B	1,2-Dichlorobenzene	5100		320	5/9/2012	N	ug/l	N	5100		
PR-12	SW8260B	1,3-Dichlorobenzene	1000		39	5/9/2012	N	ug/l	N	1000		
PR-12	SW8260B	1,4-Dichlorobenzene	6000		340	5/9/2012	N	ug/l	N	6000		
PR-12	SW8260B	Benzene	220		21	5/9/2012	N	ug/l	N	220		
PR-12	SW8260B	Carbon tetrachloride	26	JQ	14	5/9/2012	N	ug/l	N	26		
PR-12	SW8260B	Chlorobenzene	590		38	5/9/2012	N	ug/l	N	590		
PR-12	SW8260B	Chloromethane (Methyl chloride)			18	5/9/2012	N	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	1300		41	5/9/2012	N	ug/l	N	1300		
PR-12	SW8260B	Methylene chloride (Dichloromethane)	27	JQ	22	5/9/2012	N	ug/l	N	27		
PR-12	SW8260B	Tetrachloroethene (PCE)	4900		18	5/9/2012	N	ug/l	N	4900		
PR-12	SW8260B	trans-1,2-Dichloroethene	94		45	5/9/2012	N	ug/l	N	94		
PR-12	SW8260B	Trichloroethene (TCE)	34000		180	5/9/2012	N	ug/l	N	34000		
PR-12	SW8260B	Vinyl Chloride	130		45	5/9/2012	N	ug/l	N	130	62,403	Organics
PR-4	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
PR-4	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	T	0	0	Hg
PR-4	SW8081A	alpha-BHC	42		0.62	5/9/2012	N	ug/l	N	42		
PR-4	SW8081A	beta-BHC	8		2.3	5/9/2012	N	ug/l	N	8		
PR-4	SW8081A	delta-BHC	9		0.94	5/9/2012	N	ug/l	N	9		
PR-4	SW8081A	gamma-BHC (Lindane)	81		0.57	5/9/2012	N	ug/l	N	81	140	BHCs
PR-4	SW8260B	1,1,1-Trichloroethane			21	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane			5.3	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2-Trichloroethane			5.8	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1-Dichloroethene			7.3	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1500		10	5/9/2012	N	ug/l	N	1500		
PR-4	SW8260B	1,2-Dichlorobenzene	61		20	5/9/2012	N	ug/l	N	61		
PR-4	SW8260B	1,3-Dichlorobenzene	290		20	5/9/2012	N	ug/l	N	290		
PR-4	SW8260B	1,4-Dichlorobenzene	170		21	5/9/2012	N	ug/l	N	170		
PR-4	SW8260B	Benzene	57		10	5/9/2012	N	ug/l	N	57		
PR-4	SW8260B	Carbon tetrachloride			6.8	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	Chlorobenzene	140		19	5/9/2012	N	ug/l	N	140		
PR-4	SW8260B	Chloromethane (Methyl chloride)			8.8	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	180		20	5/9/2012	N	ug/l	N	180		
PR-4	SW8260B	Methylene chloride (Dichloromethane)			11	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	Tetrachloroethene (PCE)	110		9.0	5/9/2012	N	ug/l	N	110		
PR-4	SW8260B	trans-1,2-Dichloroethene			23	5/9/2012	N	ug/l	N	0		
PR-4	SW8260B	Trichloroethene (TCE)	150		12	5/9/2012	N	ug/l	N	150		
PR-4	SW8260B	Vinyl Chloride	120		23	5/9/2012	N	ug/l	N	120	2,778	Organics
RW-1	SW7470A	Mercury	0.00018	JQ	0.00012	5/9/2012	N	mg/l	D	0.00018		
RW-1	SW7470A	Mercury	0.00062		0.00012	5/9/2012	N	mg/l	T	0.00062	0.00080	Hg
RW-1	SW8081A	alpha-BHC	24		0.32	5/9/2012	N	ug/l	N	24		
RW-1	SW8081A	beta-BHC	3.7		1.2	5/9/2012	N	ug/l	N	3.7		
RW-1	SW8081A	delta-BHC	1	JQ	0.48	5/9/2012	N	ug/l	N	1		

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RW-1	SW8081A	gamma-BHC (Lindane)	3.2		0.29	5/9/2012	N	ug/l	N	3.2	31.9	BHCs
RW-1	SW8260B	1,1,1-Trichloroethane			82	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1,2,2-Tetrachloroethane			21	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1,2-Trichloroethane			23	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1-Dichloroethene			29	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	1,2,4-Trichlorobenzene	4100		41	5/9/2012	N	ug/l	N	4100		
RW-1	SW8260B	1,2-Dichlorobenzene	170		79	5/9/2012	N	ug/l	N	170		
RW-1	SW8260B	1,3-Dichlorobenzene	310		78	5/9/2012	N	ug/l	N	310		
RW-1	SW8260B	1,4-Dichlorobenzene	140		84	5/9/2012	N	ug/l	N	140		
RW-1	SW8260B	Benzene	190		41	5/9/2012	N	ug/l	N	190		
RW-1	SW8260B	Carbon tetrachloride			27	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	Chlorobenzene	130		75	5/9/2012	N	ug/l	N	130		
RW-1	SW8260B	Chloromethane (Methyl chloride)			35	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	1300		81	5/9/2012	N	ug/l	N	1300		
RW-1	SW8260B	Methylene chloride (Dichloromethane)	420		44	5/9/2012	N	ug/l	N	420		
RW-1	SW8260B	Tetrachloroethene (PCE)	3000		36	5/9/2012	N	ug/l	N	3000		
RW-1	SW8260B	trans-1,2-Dichloroethene			90	5/9/2012	N	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	8500		46	5/9/2012	N	ug/l	N	8500		
RW-1	SW8260B	Vinyl Chloride	160		90	5/9/2012	N	ug/l	N	160	18,420	Organics
RW-2	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
RW-2	SW7470A	Mercury	0.00017	JQ	0.00012	5/9/2012	N	mg/l	T	0.00017	0.00017	Hg
RW-2	SW8081A	alpha-BHC	0.43		0.0064	5/9/2012	N	ug/l	N	0.43		
RW-2	SW8081A	beta-BHC	0.22		0.024	5/9/2012	N	ug/l	N	0.22		
RW-2	SW8081A	delta-BHC	0.065		0.0097	5/9/2012	N	ug/l	N	0.065		
RW-2	SW8081A	gamma-BHC (Lindane)	0.39		0.0058	5/9/2012	N	ug/l	N	0.39	1.11	BHCs
RW-2	SW8260B	1,1,1-Trichloroethane			1.6	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	6.9		0.42	5/9/2012	N	ug/l	N	6.9		
RW-2	SW8260B	1,1,2-Trichloroethane			0.46	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1-Dichloroethene			0.58	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	1,2,4-Trichlorobenzene	16		0.82	5/9/2012	N	ug/l	N	16		
RW-2	SW8260B	1,2-Dichlorobenzene			1.6	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	1,3-Dichlorobenzene	1.7	JQ	1.6	5/9/2012	N	ug/l	N	1.7		
RW-2	SW8260B	1,4-Dichlorobenzene			1.7	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	Benzene	1.1	JQ	0.82	5/9/2012	N	ug/l	N	1.1		
RW-2	SW8260B	Carbon tetrachloride			0.54	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	Chlorobenzene			1.5	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	Chloromethane (Methyl chloride)			0.70	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	52		1.6	5/9/2012	N	ug/l	N	52		
RW-2	SW8260B	Methylene chloride (Dichloromethane)	1.6	JQ	0.88	5/9/2012	N	ug/l	N	1.6		
RW-2	SW8260B	Tetrachloroethene (PCE)	86		0.72	5/9/2012	N	ug/l	N	86		
RW-2	SW8260B	trans-1,2-Dichloroethene			1.8	5/9/2012	N	ug/l	N	0		
RW-2	SW8260B	Trichloroethene (TCE)	130		0.92	5/9/2012	N	ug/l	N	130		
RW-2	SW8260B	Vinyl Chloride			1.8	5/9/2012	N	ug/l	N	0	295	Organics

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RW-3	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
RW-3	SW7470A	Mercury	0.00017	JQ	0.00012	5/9/2012	N	mg/l	T	0.00017	0.00017	Hg
RW-3	SW8081A	alpha-BHC	3.5		0.031	5/9/2012	N	ug/l	N	3.5		
RW-3	SW8081A	beta-BHC	1.6		0.12	5/9/2012	N	ug/l	N	1.6		
RW-3	SW8081A	delta-BHC	3.8		0.047	5/9/2012	N	ug/l	N	3.8		
RW-3	SW8081A	gamma-BHC (Lindane)	6.8		0.028	5/9/2012	N	ug/l	N	6.8	15.7	BHCs
RW-3	SW8260B	1,1,1-Trichloroethane			0.82	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	2.3		0.21	5/9/2012	N	ug/l	N	2.3		
RW-3	SW8260B	1,1,2-Trichloroethane			0.23	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1-Dichloroethene			0.29	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	1,2,4-Trichlorobenzene	40		0.41	5/9/2012	N	ug/l	N	40		
RW-3	SW8260B	1,2-Dichlorobenzene	2.6		0.79	5/9/2012	N	ug/l	N	2.6		
RW-3	SW8260B	1,3-Dichlorobenzene	17		0.78	5/9/2012	N	ug/l	N	17		
RW-3	SW8260B	1,4-Dichlorobenzene	11		0.84	5/9/2012	N	ug/l	N	11		
RW-3	SW8260B	Benzene	0.73	JQ	0.41	5/9/2012	N	ug/l	N	0.73		
RW-3	SW8260B	Carbon tetrachloride			0.27	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	2.9		0.75	5/9/2012	N	ug/l	N	2.9		
RW-3	SW8260B	Chloromethane (Methyl chloride)			0.35	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	16		0.81	5/9/2012	N	ug/l	N	16		
RW-3	SW8260B	Methylene chloride (Dichloromethane)			0.44	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	32		0.36	5/9/2012	N	ug/l	N	32		
RW-3	SW8260B	trans-1,2-Dichloroethene			0.90	5/9/2012	N	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	36		0.46	5/9/2012	N	ug/l	N	36		
RW-3	SW8260B	Vinyl Chloride	1.7		0.90	5/9/2012	N	ug/l	N	1.7	162	Organics
RW-3	SW7470A	Mercury			0.00012	5/9/2012	FD	mg/l	D	0		
RW-3	SW7470A	Mercury	0.00017	JQ	0.00012	5/9/2012	FD	mg/l	T	0.00017	0.00017	Hg
RW-3	SW8081A	alpha-BHC	3.4		0.063	5/9/2012	FD	ug/l	N	3.4		
RW-3	SW8081A	beta-BHC	1.6		0.24	5/9/2012	FD	ug/l	N	1.6		
RW-3	SW8081A	delta-BHC	3.6		0.095	5/9/2012	FD	ug/l	N	3.6		
RW-3	SW8081A	gamma-BHC (Lindane)	6.6		0.057	5/9/2012	FD	ug/l	N	6.6	15.2	BHCs
RW-3	SW8260B	1,1,1-Trichloroethane			0.82	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	2.2		0.21	5/9/2012	FD	ug/l	N	2.2		
RW-3	SW8260B	1,1,2-Trichloroethane			0.23	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	1,1-Dichloroethene			0.29	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	1,2,4-Trichlorobenzene	40		0.41	5/9/2012	FD	ug/l	N	40		
RW-3	SW8260B	1,2-Dichlorobenzene	2.4		0.79	5/9/2012	FD	ug/l	N	2.4		
RW-3	SW8260B	1,3-Dichlorobenzene	17		0.78	5/9/2012	FD	ug/l	N	17		
RW-3	SW8260B	1,4-Dichlorobenzene	11		0.84	5/9/2012	FD	ug/l	N	11		
RW-3	SW8260B	Benzene	0.72	JQ	0.41	5/9/2012	FD	ug/l	N	0.72		
RW-3	SW8260B	Carbon tetrachloride			0.27	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	3		0.75	5/9/2012	FD	ug/l	N	3		
RW-3	SW8260B	Chloromethane (Methyl chloride)			0.35	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	16		0.81	5/9/2012	FD	ug/l	N	16		
RW-3	SW8260B	Methylene chloride (Dichloromethane)			0.44	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	32		0.36	5/9/2012	FD	ug/l	N	32		

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RW-3	SW8260B	trans-1,2-Dichloroethene			0.90	5/9/2012	FD	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	36		0.46	5/9/2012	FD	ug/l	N	36		
RW-3	SW8260B	Vinyl Chloride	1.4		0.90	5/9/2012	FD	ug/l	N	1.4	162	Organics
RW-4	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
RW-4	SW7470A	Mercury	0.001		0.00012	5/9/2012	N	mg/l	T	0.001	0.001	Hg
RW-4	SW8081A	alpha-BHC	24		0.32	5/9/2012	N	ug/l	N	24		
RW-4	SW8081A	beta-BHC	2.4		1.2	5/9/2012	N	ug/l	N	2.4		
RW-4	SW8081A	delta-BHC	2.1	JQ	0.49	5/9/2012	N	ug/l	N	2.1		
RW-4	SW8081A	gamma-BHC (Lindane)	16		0.29	5/9/2012	N	ug/l	N	16	44.5	BHCs
RW-4	SW8260B	1,1,1-Trichloroethane			3.3	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	4.7		0.84	5/9/2012	N	ug/l	N	4.7		
RW-4	SW8260B	1,1,2-Trichloroethane			0.92	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene			1.2	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	1,2,4-Trichlorobenzene	620		4.1	5/9/2012	N	ug/l	N	620		
RW-4	SW8260B	1,2-Dichlorobenzene	14		3.2	5/9/2012	N	ug/l	N	14		
RW-4	SW8260B	1,3-Dichlorobenzene	120		3.1	5/9/2012	N	ug/l	N	120		
RW-4	SW8260B	1,4-Dichlorobenzene	70		3.4	5/9/2012	N	ug/l	N	70		
RW-4	SW8260B	Benzene	14		1.6	5/9/2012	N	ug/l	N	14		
RW-4	SW8260B	Carbon tetrachloride			1.1	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	45		3.0	5/9/2012	N	ug/l	N	45		
RW-4	SW8260B	Chloromethane (Methyl chloride)			1.4	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	100		3.2	5/9/2012	N	ug/l	N	100		
RW-4	SW8260B	Methylene chloride (Dichloromethane)			1.8	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	Tetrachloroethene (PCE)	210		1.4	5/9/2012	N	ug/l	N	210		
RW-4	SW8260B	trans-1,2-Dichloroethene			3.6	5/9/2012	N	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	240		1.8	5/9/2012	N	ug/l	N	240		
RW-4	SW8260B	Vinyl Chloride	71		3.6	5/9/2012	N	ug/l	N	71	1,509	Organics
RW-5	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	D	0		
RW-5	SW7470A	Mercury			0.00012	5/9/2012	N	mg/l	T	0	0	Hg
RW-5	SW8081A	alpha-BHC	100		1.6	5/9/2012	N	ug/l	N	100		
RW-5	SW8081A	beta-BHC	11	JQ	5.9	5/9/2012	N	ug/l	N	11		
RW-5	SW8081A	delta-BHC	11	JQ	2.4	5/9/2012	N	ug/l	N	11		
RW-5	SW8081A	gamma-BHC (Lindane)	80		1.4	5/9/2012	N	ug/l	N	80	202	BHCs
RW-5	SW8260B	1,1,1-Trichloroethane			660	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	6400		170	5/9/2012	N	ug/l	N	6400		
RW-5	SW8260B	1,1,2-Trichloroethane			180	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene			230	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	1600		330	5/9/2012	N	ug/l	N	1600		
RW-5	SW8260B	1,2-Dichlorobenzene			630	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene			620	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene			670	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	Benzene			330	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride	320	JQ	220	5/9/2012	N	ug/l	N	320		

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Olin Niagara Falls
May 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
RW-5	SW8260B	Chlorobenzene			600	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)			280	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	6000		650	5/9/2012	N	ug/l	N	6000		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	830		350	5/9/2012	N	ug/l	N	830		
RW-5	SW8260B	Tetrachloroethene (PCE)	28000		290	5/9/2012	N	ug/l	N	28000		
RW-5	SW8260B	trans-1,2-Dichloroethene			720	5/9/2012	N	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	57000		370	5/9/2012	N	ug/l	N	57000		
RW-5	SW8260B	Vinyl Chloride	800		720	5/9/2012	N	ug/l	N	800	100,950	Organics

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Olin Niagara Falls
August 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
After Carbon	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
After Carbon	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
After Carbon	SW8081A	alpha-BHC	0.22		0.013	8/16/2012	N	ug/l	N	0.22		
After Carbon	SW8081A	beta-BHC	1.8		0.048	8/16/2012	N	ug/l	N	1.8		
After Carbon	SW8081A	delta-BHC	0.71		0.019	8/16/2012	N	ug/l	N	0.71		
After Carbon	SW8081A	gamma-BHC (Lindane)	0.25		0.012	8/16/2012	N	ug/l	N	0.25	2.98	BHCs
After Carbon	SW8260B	1,1,1-Trichloroethane			6.6	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,1,2,2-Tetrachloroethane	270		1.7	8/16/2012	N	ug/l	N	270		
After Carbon	SW8260B	1,1,2-Trichloroethane	3.9	JQ	1.8	8/16/2012	N	ug/l	N	3.9		
After Carbon	SW8260B	1,1-Dichloroethene			2.3	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2,4-Trichlorobenzene			3.3	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2-Dichlorobenzene			6.3	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,3-Dichlorobenzene			6.2	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,4-Dichlorobenzene			6.7	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	Benzene			3.3	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	Carbon tetrachloride			2.2	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chlorobenzene			6.0	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chloromethane (Methyl chloride)			2.8	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	cis-1,2-Dichloroethene	61		6.5	8/16/2012	N	ug/l	N	61		
After Carbon	SW8260B	Methylene chloride (Dichloromethane)	4.1	JQ	3.5	8/16/2012	N	ug/l	N	4.1		
After Carbon	SW8260B	Tetrachloroethene (PCE)	49		2.9	8/16/2012	N	ug/l	N	49		
After Carbon	SW8260B	trans-1,2-Dichloroethene			7.2	8/16/2012	N	ug/l	N	0		
After Carbon	SW8260B	Trichloroethene (TCE)	520		3.7	8/16/2012	N	ug/l	N	520		
After Carbon	SW8260B	Vinyl Chloride			7.2	8/16/2012	N	ug/l	N	0	908	Organics
Before Carbon	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
Before Carbon	SW7470A	Mercury	0.00025		0.00012	8/16/2012	N	mg/l	T	0.00025	0.00025	Hg
Before Carbon	SW8081A	alpha-BHC	47		1.3	8/16/2012	N	ug/l	N	47		
Before Carbon	SW8081A	beta-BHC	11		4.7	8/16/2012	N	ug/l	N	11		
Before Carbon	SW8081A	delta-BHC	9.4	JQ	1.9	8/16/2012	N	ug/l	N	9.4		
Before Carbon	SW8081A	gamma-BHC (Lindane)	35		1.1	8/16/2012	N	ug/l	N	35	102	BHCs
Before Carbon	SW8260B	1,1,1-Trichloroethane			8.2	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,1,2,2-Tetrachloroethane	610		2.1	8/16/2012	N	ug/l	N	610		
Before Carbon	SW8260B	1,1,2-Trichloroethane			2.3	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,1-Dichloroethene			2.9	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,2,4-Trichlorobenzene	24		4.1	8/16/2012	N	ug/l	N	24		
Before Carbon	SW8260B	1,2-Dichlorobenzene			7.9	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,3-Dichlorobenzene			7.8	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,4-Dichlorobenzene			8.4	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Benzene			4.1	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Carbon tetrachloride			2.7	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chlorobenzene			7.5	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chloromethane (Methyl chloride)			3.5	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	cis-1,2-Dichloroethene	55		8.1	8/16/2012	N	ug/l	N	55		

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Before Carbon	SW8260B	Methylene chloride (Dichloromethane)	13		4.4	8/16/2012	N	ug/l	N	13		
Before Carbon	SW8260B	Tetrachloroethene (PCE)	69		3.6	8/16/2012	N	ug/l	N	69		
Before Carbon	SW8260B	trans-1,2-Dichloroethene			9.0	8/16/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Trichloroethene (TCE)	280		4.6	8/16/2012	N	ug/l	N	280		
Before Carbon	SW8260B	Vinyl Chloride			9.0	8/16/2012	N	ug/l	N	0	1,051	Organics
Between Carbon	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
Between Carbon	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
Between Carbon	SW8081A	alpha-BHC	0.72		0.032	8/16/2012	N	ug/l	N	0.72		
Between Carbon	SW8081A	beta-BHC	4.5		0.12	8/16/2012	N	ug/l	N	4.5		
Between Carbon	SW8081A	delta-BHC	2.5		0.048	8/16/2012	N	ug/l	N	2.5		
Between Carbon	SW8081A	gamma-BHC (Lindane)	0.93		0.029	8/16/2012	N	ug/l	N	0.93	8.65	BHCs
Between Carbon	SW8260B	1,1,1-Trichloroethane			6.6	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,1,2,2-Tetrachloroethane	460		1.7	8/16/2012	N	ug/l	N	460		
Between Carbon	SW8260B	1,1,2-Trichloroethane	4.1	JQ	1.8	8/16/2012	N	ug/l	N	4.1		
Between Carbon	SW8260B	1,1-Dichloroethene			2.3	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2,4-Trichlorobenzene			3.3	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2-Dichlorobenzene			6.3	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,3-Dichlorobenzene			6.2	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,4-Dichlorobenzene			6.7	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Benzene			3.3	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Carbon tetrachloride			2.2	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chlorobenzene			6.0	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chloromethane (Methyl chloride)			2.8	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	cis-1,2-Dichloroethene	68		6.5	8/16/2012	N	ug/l	N	68		
Between Carbon	SW8260B	Methylene chloride (Dichloromethane)	6.7	JQ	3.5	8/16/2012	N	ug/l	N	6.7		
Between Carbon	SW8260B	Tetrachloroethene (PCE)	82		2.9	8/16/2012	N	ug/l	N	82		
Between Carbon	SW8260B	trans-1,2-Dichloroethene			7.2	8/16/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Trichloroethene (TCE)	450		3.7	8/16/2012	N	ug/l	N	450		
Between Carbon	SW8260B	Vinyl Chloride			7.2	8/16/2012	N	ug/l	N	0	1,071	Organics
Influent Stripper	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
Influent Stripper	SW7470A	Mercury	0.00026		0.00012	8/16/2012	N	mg/l	T	0.00026	0.00026	Hg
Influent Stripper	SW8081A	alpha-BHC	69		0.62	8/16/2012	N	ug/l	N	69		
Influent Stripper	SW8081A	beta-BHC	10		2.3	8/16/2012	N	ug/l	N	10		
Influent Stripper	SW8081A	delta-BHC	8.0		0.94	8/16/2012	N	ug/l	N	8		
Influent Stripper	SW8081A	gamma-BHC (Lindane)	48		0.57	8/16/2012	N	ug/l	N	48	135	BHCs
Influent Stripper	SW8260B	1,1,1-Trichloroethane			160	8/16/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1,2,2-Tetrachloroethane	4600		42	8/16/2012	N	ug/l	N	4600		
Influent Stripper	SW8260B	1,1,2-Trichloroethane	76	JQ	46	8/16/2012	N	ug/l	N	76		
Influent Stripper	SW8260B	1,1-Dichloroethene			58	8/16/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,2,4-Trichlorobenzene	1000		82	8/16/2012	N	ug/l	N	1000		
Influent Stripper	SW8260B	1,2-Dichlorobenzene	190	JQ	160	8/16/2012	N	ug/l	N	190		
Influent Stripper	SW8260B	1,3-Dichlorobenzene	260		160	8/16/2012	N	ug/l	N	260		
Influent Stripper	SW8260B	1,4-Dichlorobenzene	280		170	8/16/2012	N	ug/l	N	280		
Influent Stripper	SW8260B	Benzene	110	JQ	82	8/16/2012	N	ug/l	N	110		

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Influent Stripper	SW8260B	Carbon tetrachloride	130	JQ	54	8/16/2012	N	ug/l	N	130		
Influent Stripper	SW8260B	Chlorobenzene	200		150	8/16/2012	N	ug/l	N	200		
Influent Stripper	SW8260B	Chloromethane (Methyl chloride)			70	8/16/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	cis-1,2-Dichloroethene	3200		160	8/16/2012	N	ug/l	N	3200		
Influent Stripper	SW8260B	Methylene chloride (Dichloromethane)	430		88	8/16/2012	N	ug/l	N	430		
Influent Stripper	SW8260B	Tetrachloroethene (PCE)	13000		72	8/16/2012	N	ug/l	N	13000		
Influent Stripper	SW8260B	trans-1,2-Dichloroethene			180	8/16/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Trichloroethene (TCE)	31000		230	8/16/2012	N	ug/l	N	31000		
Influent Stripper	SW8260B	Vinyl Chloride	350		180	8/16/2012	N	ug/l	N	350	54,826	Organics
OBA-9AR	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
OBA-9AR	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
OBA-9AR	SW8081A	alpha-BHC	380		3.1	8/16/2012	N	ug/l	N	380		
OBA-9AR	SW8081A	beta-BHC	35		12	8/16/2012	N	ug/l	N	35		
OBA-9AR	SW8081A	delta-BHC	20	JQ	4.7	8/16/2012	N	ug/l	N	20		
OBA-9AR	SW8081A	gamma-BHC (Lindane)	240		2.8	8/16/2012	N	ug/l	N	240	675	BHCs
OBA-9AR	SW8260B	1,1,1-Trichloroethane	280		160	8/16/2012	N	ug/l	N	280		
OBA-9AR	SW8260B	1,1,2,2-Tetrachloroethane	4200		42	8/16/2012	N	ug/l	N	4200		
OBA-9AR	SW8260B	1,1,2-Trichloroethane	260		46	8/16/2012	N	ug/l	N	260		
OBA-9AR	SW8260B	1,1-Dichloroethene	230		58	8/16/2012	N	ug/l	N	230		
OBA-9AR	SW8260B	1,2,4-Trichlorobenzene	11000		82	8/16/2012	N	ug/l	N	11000		
OBA-9AR	SW8260B	1,2-Dichlorobenzene	9200		160	8/16/2012	N	ug/l	N	9200		
OBA-9AR	SW8260B	1,3-Dichlorobenzene	1300		160	8/16/2012	N	ug/l	N	1300		
OBA-9AR	SW8260B	1,4-Dichlorobenzene	8100		170	8/16/2012	N	ug/l	N	8100		
OBA-9AR	SW8260B	Benzene	460		82	8/16/2012	N	ug/l	N	460		
OBA-9AR	SW8260B	Carbon tetrachloride			54	8/16/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Chlorobenzene	760		150	8/16/2012	N	ug/l	N	760		
OBA-9AR	SW8260B	Chloromethane (Methyl chloride)			70	8/16/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	cis-1,2-Dichloroethene	4700		160	8/16/2012	N	ug/l	N	4700		
OBA-9AR	SW8260B	Methylene chloride (Dichloromethane)			88	8/16/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Tetrachloroethene (PCE)	7100		72	8/16/2012	N	ug/l	N	7100		
OBA-9AR	SW8260B	trans-1,2-Dichloroethene	220		180	8/16/2012	N	ug/l	N	220		
OBA-9AR	SW8260B	Trichloroethene (TCE)	66000		460	8/16/2012	N	ug/l	N	66000		
OBA-9AR	SW8260B	Vinyl Chloride	480		180	8/16/2012	N	ug/l	N	480	114,290	Organics
PR-12	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
PR-12	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
PR-12	SW8081A	alpha-BHC			0.13	8/16/2012	N	ug/l	N	0		
PR-12	SW8081A	beta-BHC	8.5		0.47	8/16/2012	N	ug/l	N	8.5		
PR-12	SW8081A	delta-BHC			0.19	8/16/2012	N	ug/l	N	0		
PR-12	SW8081A	gamma-BHC (Lindane)			0.11	8/16/2012	N	ug/l	N	0	8.50	BHCs
PR-12	SW8260B	1,1,1-Trichloroethane			16	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	6.7	JQ	4.2	8/16/2012	N	ug/l	N	6.7		
PR-12	SW8260B	1,1,2-Trichloroethane			4.6	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	1,1-Dichloroethene			5.8	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	1,2,4-Trichlorobenzene	130		8.2	8/16/2012	N	ug/l	N	130		

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PR-12	SW8260B	1,2-Dichlorobenzene	50		16	8/16/2012	N	ug/l	N	50		
PR-12	SW8260B	1,3-Dichlorobenzene			16	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	1,4-Dichlorobenzene	45		17	8/16/2012	N	ug/l	N	45		
PR-12	SW8260B	Benzene			8.2	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	Carbon tetrachloride			5.4	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	Chlorobenzene			15	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	Chloromethane (Methyl chloride)			7.0	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	58		16	8/16/2012	N	ug/l	N	58		
PR-12	SW8260B	Methylene chloride (Dichloromethane)			8.8	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	Tetrachloroethene (PCE)	350		7.2	8/16/2012	N	ug/l	N	350		
PR-12	SW8260B	trans-1,2-Dichloroethene			18	8/16/2012	N	ug/l	N	0		
PR-12	SW8260B	Trichloroethene (TCE)	1000		9.2	8/16/2012	N	ug/l	N	1000		
PR-12	SW8260B	Vinyl Chloride			18	8/16/2012	N	ug/l	N	0	1,640	Organics
PR-4	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
PR-4	SW7470A	Mercury	0.00036		0.00012	8/16/2012	N	mg/l	T	0.00036	0.00036	Hg
PR-4	SW8081A	alpha-BHC	79		0.62	8/16/2012	N	ug/l	N	79		
PR-4	SW8081A	beta-BHC	8.4		2.3	8/16/2012	N	ug/l	N	8.4		
PR-4	SW8081A	delta-BHC	6.7		0.94	8/16/2012	N	ug/l	N	6.7		
PR-4	SW8081A	gamma-BHC (Lindane)	53		0.57	8/16/2012	N	ug/l	N	53	147.1	BHCs
PR-4	SW8260B	1,1,1-Trichloroethane			16	8/16/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane	290		4.2	8/16/2012	N	ug/l	N	290		
PR-4	SW8260B	1,1,2-Trichloroethane	8.3	JQ	4.6	8/16/2012	N	ug/l	N	8.3		
PR-4	SW8260B	1,1-Dichloroethene	15	JQ	5.8	8/16/2012	N	ug/l	N	15		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1900		8.2	8/16/2012	N	ug/l	N	1900		
PR-4	SW8260B	1,2-Dichlorobenzene	220		16	8/16/2012	N	ug/l	N	220		
PR-4	SW8260B	1,3-Dichlorobenzene	910		16	8/16/2012	N	ug/l	N	910		
PR-4	SW8260B	1,4-Dichlorobenzene	600		17	8/16/2012	N	ug/l	N	600		
PR-4	SW8260B	Benzene	120		8.2	8/16/2012	N	ug/l	N	120		
PR-4	SW8260B	Carbon tetrachloride	11	JQ	5.4	8/16/2012	N	ug/l	N	11		
PR-4	SW8260B	Chlorobenzene	530		15	8/16/2012	N	ug/l	N	530		
PR-4	SW8260B	Chloromethane (Methyl chloride)			7.0	8/16/2012	N	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	920		16	8/16/2012	N	ug/l	N	920		
PR-4	SW8260B	Methylene chloride (Dichloromethane)	53		8.8	8/16/2012	N	ug/l	N	53		
PR-4	SW8260B	Tetrachloroethene (PCE)	1700		7.2	8/16/2012	N	ug/l	N	1700		
PR-4	SW8260B	trans-1,2-Dichloroethene	19	JQ	18	8/16/2012	N	ug/l	N	19		
PR-4	SW8260B	Trichloroethene (TCE)	15000		230	8/16/2012	N	ug/l	N	15000		
PR-4	SW8260B	Vinyl Chloride	450		18	8/16/2012	N	ug/l	N	450	22,746	Organics
RW-1	SW7470A	Mercury	0.0015	R	0.00012	8/16/2012	N	mg/l	D	0.0015		
RW-1	SW7470A	Mercury	0.00049	J	0.00012	8/16/2012	N	mg/l	T	0.00049	0.00199	Hg
RW-1	SW8081A	alpha-BHC	42		0.31	8/16/2012	N	ug/l	N	42		
RW-1	SW8081A	beta-BHC	4.8		1.2	8/16/2012	N	ug/l	N	4.8		
RW-1	SW8081A	delta-BHC	3.5		0.47	8/16/2012	N	ug/l	N	3.5		
RW-1	SW8081A	gamma-BHC (Lindane)	26		0.28	8/16/2012	N	ug/l	N	26	76.3	BHCs
RW-1	SW8260B	1,1,1-Trichloroethane			82	8/16/2012	N	ug/l	N	0		

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RW-1	SW8260B	1,1,2,2-Tetrachloroethane	1600		21	8/16/2012	N	ug/l	N	1600		
RW-1	SW8260B	1,1,2-Trichloroethane	37	JQ	23	8/16/2012	N	ug/l	N	37		
RW-1	SW8260B	1,1-Dichloroethene	40	JQ	29	8/16/2012	N	ug/l	N	40		
RW-1	SW8260B	1,2,4-Trichlorobenzene	2500		41	8/16/2012	N	ug/l	N	2500		
RW-1	SW8260B	1,2-Dichlorobenzene	360		79	8/16/2012	N	ug/l	N	360		
RW-1	SW8260B	1,3-Dichlorobenzene	320		78	8/16/2012	N	ug/l	N	320		
RW-1	SW8260B	1,4-Dichlorobenzene	420		84	8/16/2012	N	ug/l	N	420		
RW-1	SW8260B	Benzene	110		41	8/16/2012	N	ug/l	N	110		
RW-1	SW8260B	Carbon tetrachloride	52	JQ	27	8/16/2012	N	ug/l	N	52		
RW-1	SW8260B	Chlorobenzene	210		75	8/16/2012	N	ug/l	N	210		
RW-1	SW8260B	Chloromethane (Methyl chloride)			35	8/16/2012	N	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	2000		81	8/16/2012	N	ug/l	N	2000		
RW-1	SW8260B	Methylene chloride (Dichloromethane)	220		44	8/16/2012	N	ug/l	N	220		
RW-1	SW8260B	Tetrachloroethene (PCE)	6300		36	8/16/2012	N	ug/l	N	6300		
RW-1	SW8260B	trans-1,2-Dichloroethene			90	8/16/2012	N	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	16000		180	8/16/2012	N	ug/l	N	16000		
RW-1	SW8260B	Vinyl Chloride	250		90	8/16/2012	N	ug/l	N	250	30,419	Organics
RW-2	SW7470A	Mercury	0.00017	JQ	0.00012	8/16/2012	N	mg/l	D	0.00017		
RW-2	SW7470A	Mercury	0.0002		0.00012	8/16/2012	N	mg/l	T	0.0002	0.00037	Hg
RW-2	SW8081A	alpha-BHC	9.8		0.31	8/16/2012	N	ug/l	N	9.8		
RW-2	SW8081A	beta-BHC	2.6		1.2	8/16/2012	N	ug/l	N	2.6		
RW-2	SW8081A	delta-BHC	1.5	JQ	0.48	8/16/2012	N	ug/l	N	1.5		
RW-2	SW8081A	gamma-BHC (Lindane)	6.6		0.29	8/16/2012	N	ug/l	N	6.6	20.5	BHCs
RW-2	SW8260B	1,1,1-Trichloroethane	9.1		1.6	8/16/2012	N	ug/l	N	9.1		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	630		84	8/16/2012	N	ug/l	N	630		
RW-2	SW8260B	1,1,2-Trichloroethane	9.2		0.46	8/16/2012	N	ug/l	N	9.2		
RW-2	SW8260B	1,1-Dichloroethene	16		0.58	8/16/2012	N	ug/l	N	16		
RW-2	SW8260B	1,2,4-Trichlorobenzene	1500		160	8/16/2012	N	ug/l	N	1500		
RW-2	SW8260B	1,2-Dichlorobenzene	67		1.6	8/16/2012	N	ug/l	N	67		
RW-2	SW8260B	1,3-Dichlorobenzene	97		1.6	8/16/2012	N	ug/l	N	97		
RW-2	SW8260B	1,4-Dichlorobenzene	67		1.7	8/16/2012	N	ug/l	N	67		
RW-2	SW8260B	Benzene	51		0.82	8/16/2012	N	ug/l	N	51		
RW-2	SW8260B	Carbon tetrachloride	11		0.54	8/16/2012	N	ug/l	N	11		
RW-2	SW8260B	Chlorobenzene	50		1.5	8/16/2012	N	ug/l	N	50		
RW-2	SW8260B	Chloromethane (Methyl chloride)			0.70	8/16/2012	N	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	1500		320	8/16/2012	N	ug/l	N	1500		
RW-2	SW8260B	Methylene chloride (Dichloromethane)	56		0.88	8/16/2012	N	ug/l	N	56		
RW-2	SW8260B	Tetrachloroethene (PCE)	4000		140	8/16/2012	N	ug/l	N	4000		
RW-2	SW8260B	trans-1,2-Dichloroethene	17		1.8	8/16/2012	N	ug/l	N	17		
RW-2	SW8260B	Trichloroethene (TCE)	11000		180	8/16/2012	N	ug/l	N	11000		
RW-2	SW8260B	Vinyl Chloride	68		1.8	8/16/2012	N	ug/l	N	68	19,148	Organics
RW-3	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
RW-3	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
RW-3	SW8081A	alpha-BHC	3.6		0.31	8/16/2012	N	ug/l	N	3.6		

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RW-3	SW8081A	beta-BHC	1.6	JQ	1.2	8/16/2012	N	ug/l	N	1.6		
RW-3	SW8081A	delta-BHC	4.3		0.48	8/16/2012	N	ug/l	N	4.3		
RW-3	SW8081A	gamma-BHC (Lindane)	6.8		0.29	8/16/2012	N	ug/l	N	6.8	16.3	BHCs
RW-3	SW8260B	1,1,1-Trichloroethane			0.82	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	7.6		0.21	8/16/2012	N	ug/l	N	7.6		
RW-3	SW8260B	1,1,2-Trichloroethane			0.23	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1-Dichloroethene			0.29	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	1,2,4-Trichlorobenzene	76		0.41	8/16/2012	N	ug/l	N	76		
RW-3	SW8260B	1,2-Dichlorobenzene	7.8		0.79	8/16/2012	N	ug/l	N	7.8		
RW-3	SW8260B	1,3-Dichlorobenzene	35		0.78	8/16/2012	N	ug/l	N	35		
RW-3	SW8260B	1,4-Dichlorobenzene	42		0.84	8/16/2012	N	ug/l	N	42		
RW-3	SW8260B	Benzene	1.8		0.41	8/16/2012	N	ug/l	N	1.8		
RW-3	SW8260B	Carbon tetrachloride			0.27	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	11		0.75	8/16/2012	N	ug/l	N	11		
RW-3	SW8260B	Chloromethane (Methyl chloride)			0.35	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	26		0.81	8/16/2012	N	ug/l	N	26		
RW-3	SW8260B	Methylene chloride (Dichloromethane)			0.44	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	81		0.36	8/16/2012	N	ug/l	N	81		
RW-3	SW8260B	trans-1,2-Dichloroethene			0.90	8/16/2012	N	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	93		0.46	8/16/2012	N	ug/l	N	93		
RW-3	SW8260B	Vinyl Chloride	0.96	JQ	0.90	8/16/2012	N	ug/l	N	0.96	382	Organics
RW-4	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
RW-4	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	T	0	0	Hg
RW-4	SW8081A	alpha-BHC	9.4		0.63	8/16/2012	N	ug/l	N	9.4		
RW-4	SW8081A	beta-BHC			2.4	8/16/2012	N	ug/l	N	0		
RW-4	SW8081A	delta-BHC	2.4	JQ	0.95	8/16/2012	N	ug/l	N	2.4		
RW-4	SW8081A	gamma-BHC (Lindane)	6.0		0.57	8/16/2012	N	ug/l	N	6	17.8	BHCs
RW-4	SW8260B	1,1,1-Trichloroethane			3.3	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	13		0.84	8/16/2012	N	ug/l	N	13		
RW-4	SW8260B	1,1,2-Trichloroethane			0.92	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene	1.3	JQ	1.2	8/16/2012	N	ug/l	N	1.3		
RW-4	SW8260B	1,2,4-Trichlorobenzene	240		1.6	8/16/2012	N	ug/l	N	240		
RW-4	SW8260B	1,2-Dichlorobenzene	5.9		3.2	8/16/2012	N	ug/l	N	5.9		
RW-4	SW8260B	1,3-Dichlorobenzene	96		3.1	8/16/2012	N	ug/l	N	96		
RW-4	SW8260B	1,4-Dichlorobenzene	61		3.4	8/16/2012	N	ug/l	N	61		
RW-4	SW8260B	Benzene	10		1.6	8/16/2012	N	ug/l	N	10		
RW-4	SW8260B	Carbon tetrachloride			1.1	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	29		3.0	8/16/2012	N	ug/l	N	29		
RW-4	SW8260B	Chloromethane (Methyl chloride)			1.4	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	320		3.2	8/16/2012	N	ug/l	N	320		
RW-4	SW8260B	Methylene chloride (Dichloromethane)			1.8	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	Tetrachloroethene (PCE)	230		1.4	8/16/2012	N	ug/l	N	230		
RW-4	SW8260B	trans-1,2-Dichloroethene			3.6	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	320		1.8	8/16/2012	N	ug/l	N	320		
RW-4	SW8260B	Vinyl Chloride	35		3.6	8/16/2012	N	ug/l	N	35	1,361	Organics

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RW-4	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
RW-4	SW7470A	Mercury	0.00015	JQ	0.00012	8/16/2012	N	mg/l	T	0.00015	0.00015	Hg
RW-4	SW8081A	alpha-BHC	9.5		0.13	8/16/2012	N	ug/l	N	9.5		
RW-4	SW8081A	beta-BHC	1.2		0.48	8/16/2012	N	ug/l	N	1.2		
RW-4	SW8081A	delta-BHC	0.93	JQ	0.19	8/16/2012	N	ug/l	N	0.93		
RW-4	SW8081A	gamma-BHC (Lindane)	5.4		0.12	8/16/2012	N	ug/l	N	5.4	17.0	BHCs
RW-4	SW8260B	1,1,1-Trichloroethane			3.3	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	12		0.84	8/16/2012	N	ug/l	N	12		
RW-4	SW8260B	1,1,2-Trichloroethane			0.92	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene	1.5	JQ	1.2	8/16/2012	N	ug/l	N	1.5		
RW-4	SW8260B	1,2,4-Trichlorobenzene	230		1.6	8/16/2012	N	ug/l	N	230		
RW-4	SW8260B	1,2-Dichlorobenzene	5.8		3.2	8/16/2012	N	ug/l	N	5.8		
RW-4	SW8260B	1,3-Dichlorobenzene	95		3.1	8/16/2012	N	ug/l	N	95		
RW-4	SW8260B	1,4-Dichlorobenzene	58		3.4	8/16/2012	N	ug/l	N	58		
RW-4	SW8260B	Benzene	10		1.6	8/16/2012	N	ug/l	N	10		
RW-4	SW8260B	Carbon tetrachloride			1.1	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	28		3.0	8/16/2012	N	ug/l	N	28		
RW-4	SW8260B	Chloromethane (Methyl chloride)			1.4	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	320		3.2	8/16/2012	N	ug/l	N	320		
RW-4	SW8260B	Methylene chloride (Dichloromethane)	2.3	JQ	1.8	8/16/2012	N	ug/l	N	2.3		
RW-4	SW8260B	Tetrachloroethene (PCE)	220		1.4	8/16/2012	N	ug/l	N	220		
RW-4	SW8260B	trans-1,2-Dichloroethene			3.6	8/16/2012	N	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	300		1.8	8/16/2012	N	ug/l	N	300		
RW-4	SW8260B	Vinyl Chloride	35		3.6	8/16/2012	N	ug/l	N	35	1,318	Organics
RW-5	SW7470A	Mercury			0.00012	8/16/2012	N	mg/l	D	0		
RW-5	SW7470A	Mercury	0.00014	JQ	0.00012	8/16/2012	N	mg/l	T	0.00014	0.00014	Hg
RW-5	SW8081A	alpha-BHC	190		1.3	8/16/2012	N	ug/l	N	190		
RW-5	SW8081A	beta-BHC	19		4.7	8/16/2012	N	ug/l	N	19		
RW-5	SW8081A	delta-BHC	15		1.9	8/16/2012	N	ug/l	N	15		
RW-5	SW8081A	gamma-BHC (Lindane)	140		1.1	8/16/2012	N	ug/l	N	140	364	BHCs
RW-5	SW8260B	1,1,1-Trichloroethane			660	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	13000		170	8/16/2012	N	ug/l	N	13000		
RW-5	SW8260B	1,1,2-Trichloroethane			180	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene			230	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	3000		330	8/16/2012	N	ug/l	N	3000		
RW-5	SW8260B	1,2-Dichlorobenzene			630	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene			620	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene			670	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	Benzene	350	JQ	330	8/16/2012	N	ug/l	N	350		
RW-5	SW8260B	Carbon tetrachloride	480	JQ	220	8/16/2012	N	ug/l	N	480		
RW-5	SW8260B	Chlorobenzene			600	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)			280	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	10000		650	8/16/2012	N	ug/l	N	10000		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	1800		350	8/16/2012	N	ug/l	N	1800		
RW-5	SW8260B	Tetrachloroethene (PCE)	49000		290	8/16/2012	N	ug/l	N	49000		

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Olin Niagara Falls
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RW-5	SW8260B	trans-1,2-Dichloroethene			720	8/16/2012	N	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	120000		920	8/16/2012	N	ug/l	N	120000		
RW-5	SW8260B	Vinyl Chloride	1300		720	8/16/2012	N	ug/l	N	1300	198930	Organics

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Olin Niagara Falls
November 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
After Carbon	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
After Carbon	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
After Carbon	SW8081A	alpha-BHC	0.18	JQ	0.032	11/8/2012	N	ug/l	N	0.18		
After Carbon	SW8081A	beta-BHC	2.8		0.12	11/8/2012	N	ug/l	N	2.8		
After Carbon	SW8081A	delta-BHC	1.1		0.048	11/8/2012	N	ug/l	N	1.1		
After Carbon	SW8081A	gamma-BHC (Lindane)	0.44		0.029	11/8/2012	N	ug/l	N	0.44	4.52	BHCs
After Carbon	SW8260B	1,1,1-Trichloroethane	0		3.3	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,1,2,2-Tetrachloroethane	140		0.84	11/8/2012	N	ug/l	N	140		
After Carbon	SW8260B	1,1,2-Trichloroethane	1.4	JQ	0.92	11/8/2012	N	ug/l	N	1.4		
After Carbon	SW8260B	1,1-Dichloroethene	0		1.2	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2,4-Trichlorobenzene	0		1.6	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2-Dichlorobenzene	0		3.2	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,3-Dichlorobenzene	0		3.1	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,4-Dichlorobenzene	0		3.4	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Benzene	0		1.6	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Carbon tetrachloride	0		1.1	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chlorobenzene	0		3.0	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chloromethane (Methyl chloride)	0		1.4	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	cis-1,2-Dichloroethene	58		3.2	11/8/2012	N	ug/l	N	58		
After Carbon	SW8260B	Methylene chloride (Dichloromethane)	0		1.8	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Tetrachloroethene (PCE)	32		1.4	11/8/2012	N	ug/l	N	32		
After Carbon	SW8260B	trans-1,2-Dichloroethene	0		3.6	11/8/2012	N	ug/l	N	0		
After Carbon	SW8260B	Trichloroethene (TCE)	270		1.8	11/8/2012	N	ug/l	N	270		
After Carbon	SW8260B	Vinyl Chloride	0		3.6	11/8/2012	N	ug/l	N	0	501	Organics
Before Carbon	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
Before Carbon	SW7470A	Mercury	0.00035		0.00012	11/8/2012	N	mg/l	T	0.00035	0.00035	Hg
Before Carbon	SW8081A	alpha-BHC	35		0.63	11/8/2012	N	ug/l	N	35		
Before Carbon	SW8081A	beta-BHC	6.5		2.4	11/8/2012	N	ug/l	N	6.5		
Before Carbon	SW8081A	delta-BHC	4.2	JQ	0.96	11/8/2012	N	ug/l	N	4.2		
Before Carbon	SW8081A	gamma-BHC (Lindane)	28		0.57	11/8/2012	N	ug/l	N	28	73.7	BHCs
Before Carbon	SW8260B	1,1,1-Trichloroethane	0		1.6	11/8/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,1,2,2-Tetrachloroethane	140		0.42	11/8/2012	N	ug/l	N	140		
Before Carbon	SW8260B	1,1,2-Trichloroethane	1.3	JQ	0.46	11/8/2012	N	ug/l	N	1.3		
Before Carbon	SW8260B	1,1-Dichloroethene	0		0.58	11/8/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,2,4-Trichlorobenzene	25		0.82	11/8/2012	N	ug/l	N	25		
Before Carbon	SW8260B	1,2-Dichlorobenzene	2.4		1.6	11/8/2012	N	ug/l	N	2.4		
Before Carbon	SW8260B	1,3-Dichlorobenzene	2.7		1.6	11/8/2012	N	ug/l	N	2.7		
Before Carbon	SW8260B	1,4-Dichlorobenzene	3		1.7	11/8/2012	N	ug/l	N	3		
Before Carbon	SW8260B	Benzene	1.3	JQ	0.82	11/8/2012	N	ug/l	N	1.3		
Before Carbon	SW8260B	Carbon tetrachloride	0		0.54	11/8/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chlorobenzene	1.7	JQ	1.5	11/8/2012	N	ug/l	N	1.7		
Before Carbon	SW8260B	Chloromethane (Methyl chloride)	0		0.70	11/8/2012	N	ug/l	N	0		
Before Carbon	SW8260B	cis-1,2-Dichloroethene	63		1.6	11/8/2012	N	ug/l	N	63		
Before Carbon	SW8260B	Methylene chloride (Dichloromethane)	5.3		0.88	11/8/2012	N	ug/l	N	5.3		
Before Carbon	SW8260B	Tetrachloroethene (PCE)	40		0.72	11/8/2012	N	ug/l	N	40		
Before Carbon	SW8260B	trans-1,2-Dichloroethene	0		1.8	11/8/2012	N	ug/l	N	0		

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Before Carbon	SW8260B	Trichloroethene (TCE)	150		0.92	11/8/2012	N	ug/l	N	150		
Before Carbon	SW8260B	Vinyl Chloride	0		1.8	11/8/2012	N	ug/l	N	0	435.7	Organics
Between Carbon	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
Between Carbon	SW7470A	Mercury	0.00017	JQ	0.00012	11/8/2012	N	mg/l	T	0.00017	0.00017	Hg
Between Carbon	SW8081A	alpha-BHC	0.3		0.031	11/8/2012	N	ug/l	N	0.3		
Between Carbon	SW8081A	beta-BHC	4.1		0.12	11/8/2012	N	ug/l	N	4.1		
Between Carbon	SW8081A	delta-BHC	2.2		0.047	11/8/2012	N	ug/l	N	2.2		
Between Carbon	SW8081A	gamma-BHC (Lindane)	0.82		0.028	11/8/2012	N	ug/l	N	0.82	7.42	BHCs
Between Carbon	SW8260B	1,1,1-Trichloroethane	0		3.3	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,1,2,2-Tetrachloroethane	140		0.84	11/8/2012	N	ug/l	N	140		
Between Carbon	SW8260B	1,1,2-Trichloroethane	1.6	JQ	0.92	11/8/2012	N	ug/l	N	1.6		
Between Carbon	SW8260B	1,1-Dichloroethene	0		1.2	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2,4-Trichlorobenzene	3.9	JQ	1.6	11/8/2012	N	ug/l	N	3.9		
Between Carbon	SW8260B	1,2-Dichlorobenzene	0		3.2	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,3-Dichlorobenzene	0		3.1	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,4-Dichlorobenzene	0		3.4	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Benzene	0		1.6	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Carbon tetrachloride	0		1.1	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chlorobenzene	0		3.0	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chloromethane (Methyl chloride)	0		1.4	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	cis-1,2-Dichloroethene	60		3.2	11/8/2012	N	ug/l	N	60		
Between Carbon	SW8260B	Methylene chloride (Dichloromethane)	2.2	JQ	1.8	11/8/2012	N	ug/l	N	2.2		
Between Carbon	SW8260B	Tetrachloroethene (PCE)	37		1.4	11/8/2012	N	ug/l	N	37		
Between Carbon	SW8260B	trans-1,2-Dichloroethene	0		3.6	11/8/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Trichloroethene (TCE)	220		1.8	11/8/2012	N	ug/l	N	220		
Between Carbon	SW8260B	Vinyl Chloride	0		3.6	11/8/2012	N	ug/l	N	0	465	Organics
Influent Stripper	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
Influent Stripper	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
Influent Stripper	SW8081A	alpha-BHC	49		1.2	11/8/2012	N	ug/l	N	49		
Influent Stripper	SW8081A	beta-BHC	5.5	JQ	4.7	11/8/2012	N	ug/l	N	5.5		
Influent Stripper	SW8081A	delta-BHC	5	JQ	1.9	11/8/2012	N	ug/l	N	5		
Influent Stripper	SW8081A	gamma-BHC (Lindane)	36		1.1	11/8/2012	N	ug/l	N	36	95.5	BHCs
Influent Stripper	SW8260B	1,1,1-Trichloroethane	0		210	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1,2,2-Tetrachloroethane	1600		53	11/8/2012	N	ug/l	N	1600		
Influent Stripper	SW8260B	1,1,2-Trichloroethane	0		58	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1-Dichloroethene	0		73	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,2,4-Trichlorobenzene	980		100	11/8/2012	N	ug/l	N	980		
Influent Stripper	SW8260B	1,2-Dichlorobenzene	0		200	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,3-Dichlorobenzene	0		200	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,4-Dichlorobenzene	0		210	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Benzene	110	JQ	100	11/8/2012	N	ug/l	N	110		
Influent Stripper	SW8260B	Carbon tetrachloride	0		68	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chlorobenzene	0		190	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chloromethane (Methyl chloride)	0		88	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	cis-1,2-Dichloroethene	3500		200	11/8/2012	N	ug/l	N	3500		

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Influent Stripper	SW8260B	Methylene chloride (Dichloromethane)	220	JQ	110	11/8/2012	N	ug/l	N	220		
Influent Stripper	SW8260B	Tetrachloroethene (PCE)	6800		90	11/8/2012	N	ug/l	N	6800		
Influent Stripper	SW8260B	trans-1,2-Dichloroethene	0		230	11/8/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Trichloroethene (TCE)	16000		120	11/8/2012	N	ug/l	N	16000		
Influent Stripper	SW8260B	Vinyl Chloride	0		230	11/8/2012	N	ug/l	N	0	29,210	Organics
OBA-9AR	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
OBA-9AR	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
OBA-9AR	SW8081A	alpha-BHC	450		6.2	11/8/2012	N	ug/l	N	450		
OBA-9AR	SW8081A	beta-BHC	40	JQ	23	11/8/2012	N	ug/l	N	40		
OBA-9AR	SW8081A	delta-BHC	19	JQ	9.4	11/8/2012	N	ug/l	N	19		
OBA-9AR	SW8081A	gamma-BHC (Lindane)	300		5.7	11/8/2012	N	ug/l	N	300	809	BHCs
OBA-9AR	SW8260B	1,1,1-Trichloroethane	0		410	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1,2,2-Tetrachloroethane	990		110	11/8/2012	N	ug/l	N	990		
OBA-9AR	SW8260B	1,1,2-Trichloroethane	0		120	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1-Dichloroethene	0		150	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,2,4-Trichlorobenzene	7900		210	11/8/2012	N	ug/l	N	7900		
OBA-9AR	SW8260B	1,2-Dichlorobenzene	8000		400	11/8/2012	N	ug/l	N	8000		
OBA-9AR	SW8260B	1,3-Dichlorobenzene	1200		390	11/8/2012	N	ug/l	N	1200		
OBA-9AR	SW8260B	1,4-Dichlorobenzene	7100		420	11/8/2012	N	ug/l	N	7100		
OBA-9AR	SW8260B	Benzene	320	JQ	210	11/8/2012	N	ug/l	N	320		
OBA-9AR	SW8260B	Carbon tetrachloride	0		140	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Chlorobenzene	650		380	11/8/2012	N	ug/l	N	650		
OBA-9AR	SW8260B	Chloromethane (Methyl chloride)	0		180	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	cis-1,2-Dichloroethene	920		410	11/8/2012	N	ug/l	N	920		
OBA-9AR	SW8260B	Methylene chloride (Dichloromethane)	0		220	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Tetrachloroethene (PCE)	6100		180	11/8/2012	N	ug/l	N	6100		
OBA-9AR	SW8260B	trans-1,2-Dichloroethene	0		450	11/8/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Trichloroethene (TCE)	31000		230	11/8/2012	N	ug/l	N	31000		
OBA-9AR	SW8260B	Vinyl Chloride	0		450	11/8/2012	N	ug/l	N	0	64,180	Organics
PR-12	SW7470A	Mercury	0.00014	JQ	0.00012	11/8/2012	N	mg/l	D	0.00014		
PR-12	SW7470A	Mercury	0.00018	JQ	0.00012	11/8/2012	N	mg/l	T	0.00018	0.00032	Hg
PR-12	SW8081A	alpha-BHC	48		0.63	11/8/2012	N	ug/l	N	48		
PR-12	SW8081A	beta-BHC	5.3		2.4	11/8/2012	N	ug/l	N	5.3		
PR-12	SW8081A	delta-BHC	3	JQ	0.95	11/8/2012	N	ug/l	N	3		
PR-12	SW8081A	gamma-BHC (Lindane)	30		0.57	11/8/2012	N	ug/l	N	30	86.3	BHCs
PR-12	SW8260B	1,1,1-Trichloroethane	87		16	11/8/2012	N	ug/l	N	87		
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	880		4.2	11/8/2012	N	ug/l	N	880		
PR-12	SW8260B	1,1,2-Trichloroethane	45		4.6	11/8/2012	N	ug/l	N	45		
PR-12	SW8260B	1,1-Dichloroethene	43		5.8	11/8/2012	N	ug/l	N	43		
PR-12	SW8260B	1,2,4-Trichlorobenzene	8600		160	11/8/2012	N	ug/l	N	8600		
PR-12	SW8260B	1,2-Dichlorobenzene	8000		320	11/8/2012	N	ug/l	N	8000		
PR-12	SW8260B	1,3-Dichlorobenzene	970		16	11/8/2012	N	ug/l	N	970		
PR-12	SW8260B	1,4-Dichlorobenzene	7400		340	11/8/2012	N	ug/l	N	7400		
PR-12	SW8260B	Benzene	230		8.2	11/8/2012	N	ug/l	N	230		
PR-12	SW8260B	Carbon tetrachloride	8.4	JQ	5.4	11/8/2012	N	ug/l	N	8.4		

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PR-12	SW8260B	Chlorobenzene	480		15	11/8/2012	N	ug/l	N	480		
PR-12	SW8260B	Chloromethane (Methyl chloride)	0		7.0	11/8/2012	N	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	970		16	11/8/2012	N	ug/l	N	970		
PR-12	SW8260B	Methylene chloride (Dichloromethane)	22		8.8	11/8/2012	N	ug/l	N	22		
PR-12	SW8260B	Tetrachloroethene (PCE)	6500		140	11/8/2012	N	ug/l	N	6500		
PR-12	SW8260B	trans-1,2-Dichloroethene	49		18	11/8/2012	N	ug/l	N	49		
PR-12	SW8260B	Trichloroethene (TCE)	33000		180	11/8/2012	N	ug/l	N	33000		
PR-12	SW8260B	Vinyl Chloride	100		18	11/8/2012	N	ug/l	N	100	67,384	Organics
PR-4	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
PR-4	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
PR-4	SW8081A	alpha-BHC	91		1.3	11/8/2012	N	ug/l	N	91		
PR-4	SW8081A	beta-BHC	8.7	JQ	4.8	11/8/2012	N	ug/l	N	8.7		
PR-4	SW8081A	delta-BHC	9.4	JQ	1.9	11/8/2012	N	ug/l	N	9.4		
PR-4	SW8081A	gamma-BHC (Lindane)	68		1.2	11/8/2012	N	ug/l	N	68	177	BHCs
PR-4	SW8260B	1,1,1-Trichloroethane	0		41	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane	0		11	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2-Trichloroethane	0		12	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1-Dichloroethene	0		15	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1000		21	11/8/2012	N	ug/l	N	1000		
PR-4	SW8260B	1,2-Dichlorobenzene	67		40	11/8/2012	N	ug/l	N	67		
PR-4	SW8260B	1,3-Dichlorobenzene	400		39	11/8/2012	N	ug/l	N	400		
PR-4	SW8260B	1,4-Dichlorobenzene	270		42	11/8/2012	N	ug/l	N	270		
PR-4	SW8260B	Benzene	35	JQ	21	11/8/2012	N	ug/l	N	35		
PR-4	SW8260B	Carbon tetrachloride	0		14	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	Chlorobenzene	120		38	11/8/2012	N	ug/l	N	120		
PR-4	SW8260B	Chloromethane (Methyl chloride)	0		18	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	170		41	11/8/2012	N	ug/l	N	170		
PR-4	SW8260B	Methylene chloride (Dichloromethane)	0		22	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	Tetrachloroethene (PCE)	110		18	11/8/2012	N	ug/l	N	110		
PR-4	SW8260B	trans-1,2-Dichloroethene	0		45	11/8/2012	N	ug/l	N	0		
PR-4	SW8260B	Trichloroethene (TCE)	200		23	11/8/2012	N	ug/l	N	200		
PR-4	SW8260B	Vinyl Chloride	77		45	11/8/2012	N	ug/l	N	77	2,449	Organics
RW-1	SW7470A	Mercury	0.00037		0.00012	11/8/2012	N	mg/l	D	0.00037		
RW-1	SW7470A	Mercury	0.00054		0.00012	11/8/2012	N	mg/l	T	0.00054	0.00091	Hg
RW-1	SW8081A	alpha-BHC	27		0.63	11/8/2012	N	ug/l	N	27		
RW-1	SW8081A	beta-BHC	4.7	JQ	2.4	11/8/2012	N	ug/l	N	4.7		
RW-1	SW8081A	delta-BHC	0		0.95	11/8/2012	N	ug/l	N	0		
RW-1	SW8081A	gamma-BHC (Lindane)	3.1	JQ	0.57	11/8/2012	N	ug/l	N	3.1	34.8	BHCs
RW-1	SW8260B	1,1,1-Trichloroethane	0		330	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1,2,2-Tetrachloroethane	0		84	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1,2-Trichloroethane	0		92	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1-Dichloroethene	0		120	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	1,2,4-Trichlorobenzene	5600		160	11/8/2012	N	ug/l	N	5600		
RW-1	SW8260B	1,2-Dichlorobenzene	430		320	11/8/2012	N	ug/l	N	430		
RW-1	SW8260B	1,3-Dichlorobenzene	480		310	11/8/2012	N	ug/l	N	480		

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RW-1	SW8260B	1,4-Dichlorobenzene	390	JQ	340	11/8/2012	N	ug/l	N	390		
RW-1	SW8260B	Benzene	220	JQ	160	11/8/2012	N	ug/l	N	220		
RW-1	SW8260B	Carbon tetrachloride	0		110	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	Chlorobenzene	0		300	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	Chloromethane (Methyl chloride)	0		140	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	2900		320	11/8/2012	N	ug/l	N	2900		
RW-1	SW8260B	Methylene chloride (Dichloromethane)	190	JQ	180	11/8/2012	N	ug/l	N	190		
RW-1	SW8260B	Tetrachloroethene (PCE)	3900		140	11/8/2012	N	ug/l	N	3900		
RW-1	SW8260B	trans-1,2-Dichloroethene	0		360	11/8/2012	N	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	12000		180	11/8/2012	N	ug/l	N	12000		
RW-1	SW8260B	Vinyl Chloride	450		360	11/8/2012	N	ug/l	N	450	26,560	Organics
RW-2	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
RW-2	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
RW-2	SW8081A	alpha-BHC	0.52		0.0063	11/8/2012	N	ug/l	N	0.52		
RW-2	SW8081A	beta-BHC	0.22		0.024	11/8/2012	N	ug/l	N	0.22		
RW-2	SW8081A	delta-BHC	0.053		0.0095	11/8/2012	N	ug/l	N	0.053		
RW-2	SW8081A	gamma-BHC (Lindane)	0.43		0.0057	11/8/2012	N	ug/l	N	0.43	1.22	BHCs
RW-2	SW8260B	1,1,1-Trichloroethane	0		0.82	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	7.2		0.21	11/8/2012	N	ug/l	N	7.2		
RW-2	SW8260B	1,1,2-Trichloroethane	0		0.23	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1-Dichloroethene	0.6	JH	0.29	11/8/2012	N	ug/l	N	0.6		
RW-2	SW8260B	1,2,4-Trichlorobenzene	8		0.41	11/8/2012	N	ug/l	N	8		
RW-2	SW8260B	1,2-Dichlorobenzene	0		0.79	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	1,3-Dichlorobenzene	0.84	JQ	0.78	11/8/2012	N	ug/l	N	0.84		
RW-2	SW8260B	1,4-Dichlorobenzene	0		0.84	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	Benzene	0.48	JQ	0.41	11/8/2012	N	ug/l	N	0.48		
RW-2	SW8260B	Carbon tetrachloride	0.67	JQ	0.27	11/8/2012	N	ug/l	N	0.67		
RW-2	SW8260B	Chlorobenzene	0		0.75	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	Chloromethane (Methyl chloride)	0		0.35	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	68		0.81	11/8/2012	N	ug/l	N	68		
RW-2	SW8260B	Methylene chloride (Dichloromethane)	0		0.44	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	Tetrachloroethene (PCE)	140		1.4	11/8/2012	N	ug/l	N	140		
RW-2	SW8260B	trans-1,2-Dichloroethene	0		0.90	11/8/2012	N	ug/l	N	0		
RW-2	SW8260B	Trichloroethene (TCE)	200		1.8	11/8/2012	N	ug/l	N	200		
RW-2	SW8260B	Vinyl Chloride	0		0.90	11/8/2012	N	ug/l	N	0	426	Organics
RW-3	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
RW-3	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
RW-3	SW8081A	alpha-BHC	3.7		0.13	11/8/2012	N	ug/l	N	3.7		
RW-3	SW8081A	beta-BHC	1.5		0.48	11/8/2012	N	ug/l	N	1.5		
RW-3	SW8081A	delta-BHC	5.4		0.20	11/8/2012	N	ug/l	N	5.4		
RW-3	SW8081A	gamma-BHC (Lindane)	7		0.12	11/8/2012	N	ug/l	N	7	17.6	BHCs
RW-3	SW8260B	1,1,1-Trichloroethane	0		0.82	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	4.9		0.21	11/8/2012	N	ug/l	N	4.9		
RW-3	SW8260B	1,1,2-Trichloroethane	0		0.23	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1-Dichloroethene	0		0.29	11/8/2012	N	ug/l	N	0		

Prepared by: AWM 03/11/13
Checked by: JDD 03/11/13

Olin Niagara Falls
November 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
RW-3	SW8260B	1,2,4-Trichlorobenzene	41		0.41	11/8/2012	N	ug/l	N	41		
RW-3	SW8260B	1,2-Dichlorobenzene	8.1		0.79	11/8/2012	N	ug/l	N	8.1		
RW-3	SW8260B	1,3-Dichlorobenzene	33		0.78	11/8/2012	N	ug/l	N	33		
RW-3	SW8260B	1,4-Dichlorobenzene	34		0.84	11/8/2012	N	ug/l	N	34		
RW-3	SW8260B	Benzene	1.9		0.41	11/8/2012	N	ug/l	N	1.9		
RW-3	SW8260B	Carbon tetrachloride	0		0.27	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	9.4		0.75	11/8/2012	N	ug/l	N	9.4		
RW-3	SW8260B	Chloromethane (Methyl chloride)	0		0.35	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	23		0.81	11/8/2012	N	ug/l	N	23		
RW-3	SW8260B	Methylene chloride (Dichloromethane)	0		0.44	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	44		0.36	11/8/2012	N	ug/l	N	44		
RW-3	SW8260B	trans-1,2-Dichloroethene	0		0.90	11/8/2012	N	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	49		0.46	11/8/2012	N	ug/l	N	49		
RW-3	SW8260B	Vinyl Chloride	1.7		0.90	11/8/2012	N	ug/l	N	1.7	250	Organics
RW-4	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
RW-4	SW7470A	Mercury	0.00029		0.00012	11/8/2012	N	mg/l	T	0.00029	0.00029	Hg
RW-4	SW8081A	alpha-BHC	7.9		0.13	11/8/2012	N	ug/l	N	7.9		
RW-4	SW8081A	beta-BHC	1.1		0.47	11/8/2012	N	ug/l	N	1.1		
RW-4	SW8081A	delta-BHC	0.99		0.19	11/8/2012	N	ug/l	N	0.99		
RW-4	SW8081A	gamma-BHC (Lindane)	4.6		0.11	11/8/2012	N	ug/l	N	4.6	14.6	BHCs
RW-4	SW8260B	1,1,1-Trichloroethane	0		1.6	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	3		0.42	11/8/2012	N	ug/l	N	3		
RW-4	SW8260B	1,1,2-Trichloroethane	0		0.46	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene	0		0.58	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	1,2,4-Trichlorobenzene	110		0.82	11/8/2012	N	ug/l	N	110		
RW-4	SW8260B	1,2-Dichlorobenzene	5.5		1.6	11/8/2012	N	ug/l	N	5.5		
RW-4	SW8260B	1,3-Dichlorobenzene	53		1.6	11/8/2012	N	ug/l	N	53		
RW-4	SW8260B	1,4-Dichlorobenzene	35		1.7	11/8/2012	N	ug/l	N	35		
RW-4	SW8260B	Benzene	5.6		0.82	11/8/2012	N	ug/l	N	5.6		
RW-4	SW8260B	Carbon tetrachloride	0		0.54	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	27		1.5	11/8/2012	N	ug/l	N	27		
RW-4	SW8260B	Chloromethane (Methyl chloride)	0		0.70	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	47		1.6	11/8/2012	N	ug/l	N	47		
RW-4	SW8260B	Methylene chloride (Dichloromethane)	0		0.88	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	Tetrachloroethene (PCE)	73		0.72	11/8/2012	N	ug/l	N	73		
RW-4	SW8260B	trans-1,2-Dichloroethene	0		1.8	11/8/2012	N	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	89		0.92	11/8/2012	N	ug/l	N	89		
RW-4	SW8260B	Vinyl Chloride	18		1.8	11/8/2012	N	ug/l	N	18	466	Organics
RW-5	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	D	0		
RW-5	SW7470A	Mercury	0		0.00012	11/8/2012	N	mg/l	T	0	0	Hg
RW-5	SW8081A	alpha-BHC	110		1.3	11/8/2012	N	ug/l	N	110		
RW-5	SW8081A	beta-BHC	11		4.7	11/8/2012	N	ug/l	N	11		
RW-5	SW8081A	delta-BHC	8.6	JQ	1.9	11/8/2012	N	ug/l	N	8.6		
RW-5	SW8081A	gamma-BHC (Lindane)	83		1.1	11/8/2012	N	ug/l	N	83	213	BHCs
RW-5	SW8260B	1,1,1-Trichloroethane	0		660	11/8/2012	N	ug/l	N	0		

Prepared by: AWM 03/11/13
Checked by: JDD 03/11/13

Olin Niagara Falls
November 2012 Influent, Effluent and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Method Detection Limit	Sample Date	Sample Type	Units	Total or Dissolved	Result	Subtotal	
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	4300		170	11/8/2012	N	ug/l	N	4300		
RW-5	SW8260B	1,1,2-Trichloroethane	0		180	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene	0		230	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	3500		330	11/8/2012	N	ug/l	N	3500		
RW-5	SW8260B	1,2-Dichlorobenzene	0		630	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene	0		620	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene	0		670	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	Benzene	0		330	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride	0		220	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	Chlorobenzene	0		600	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)	0		280	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	9500		650	11/8/2012	N	ug/l	N	9500		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	700	JQ	350	11/8/2012	N	ug/l	N	700		
RW-5	SW8260B	Tetrachloroethene (PCE)	20000		290	11/8/2012	N	ug/l	N	20000		
RW-5	SW8260B	trans-1,2-Dichloroethene	0		720	11/8/2012	N	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	48000		370	11/8/2012	N	ug/l	N	48000		
RW-5	SW8260B	Vinyl Chloride	760	JQ	720	11/8/2012	N	ug/l	N	760	86,760	Organics
RW-5	SW7470A	Mercury	0		0.00012	11/8/2012	FD	mg/l	D	0		
RW-5	SW7470A	Mercury	0		0.00012	11/8/2012	FD	mg/l	T	0	0	Hg
RW-5	SW8081A	alpha-BHC	100		1.3	11/8/2012	FD	ug/l	N	100		
RW-5	SW8081A	beta-BHC	10		4.7	11/8/2012	FD	ug/l	N	10		
RW-5	SW8081A	delta-BHC	8.4	JQ	1.9	11/8/2012	FD	ug/l	N	8.4		
RW-5	SW8081A	gamma-BHC (Lindane)	81		1.1	11/8/2012	FD	ug/l	N	81	199	BHCs
RW-5	SW8260B	1,1,1-Trichloroethane	0		6600	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	5300	JQ	1700	11/8/2012	FD	ug/l	N	5300		
RW-5	SW8260B	1,1,2-Trichloroethane	0		1800	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene	0		2300	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	0		3300	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,2-Dichlorobenzene	0		6300	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene	0		6200	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene	0		6700	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Benzene	0		3300	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride	0		2200	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Chlorobenzene	0		6000	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)	0		2800	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	10000		6500	11/8/2012	FD	ug/l	N	10000		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	0		3500	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Tetrachloroethene (PCE)	21000		2900	11/8/2012	FD	ug/l	N	21000		
RW-5	SW8260B	trans-1,2-Dichloroethene	0		7200	11/8/2012	FD	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	51000		3700	11/8/2012	FD	ug/l	N	51000		
RW-5	SW8260B	Vinyl Chloride	0		7200	11/8/2012	FD	ug/l	N	0	87,300	Organics

Prepared by: AWM 03/11/13
Checked by: JDD 03/11/13

Attachment 5

Overview of Extracted Groundwater and Contaminant Mass

Table 5-1
Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q2-12

ORGANICS

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	18.420	3.8	2.20E-06	0.00015399	1190476.19	592,394	91.2
RW2	0.295	3.8	2.20E-06	0.00000247	1190476.19	3,306,589	8.16
RW3	0.162	3.8	2.20E-06	0.00000135	1190476.19	524,620	0.710
RW4	1.509	3.8	2.20E-06	0.00001261	1190476.19	961,423	12.1
PR4	2.778	3.8	2.20E-06	0.00002322	1190476.19	229,837	5.34
RW5	100.950	3.8	2.20E-06	0.00084394	1190476.19	1,663,889	1404
PR12	62.403	3.8	2.20E-06	0.00052169	1190476.19	232,213	121.1
OBA9AR	35.062	3.8	2.20E-06	0.00029312	1190476.19	72,001	21.10
TOTAL							**1,664**

MERCURY

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0006	3.8	2.20E-06	0.00000001	1190476.19	592,394	0.003070
RW2	0.0002	3.8	2.20E-06	0.00000000	1190476.19	3,306,589	0.004699
RW3	0.0002	3.8	2.20E-06	0.00000000	1190476.19	524,620	0.000746
RW4	0.0010	3.8	2.20E-06	0.00000001	1190476.19	961,423	0.008037
PR4	0.0000	3.8	2.20E-06	0.00000000	1190476.19	229,837	0.000000
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,663,889	0.000000
PR12	0.0000	3.8	2.20E-06	0.00000000	1190476.19	232,213	0.000000
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	72,001	0.000000
TOTAL							**0.017**

PESTICIDES

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0319	3.8	2.20E-06	0.00000027	1190476.19	592,394	0.16
RW2	0.0011	3.8	2.20E-06	0.00000001	1190476.19	3,306,589	0.03
RW3	0.0155	3.8	2.20E-06	0.00000013	1190476.19	524,620	0.07
RW4	0.0445	3.8	2.20E-06	0.00000037	1190476.19	961,423	0.36
PR4	0.1400	3.8	2.20E-06	0.00000117	1190476.19	229,837	0.27
RW5	0.2020	3.8	2.20E-06	0.00000169	1190476.19	1,663,889	2.81
PR12	0.0204	3.8	2.20E-06	0.00000017	1190476.19	232,213	0.04
OBA9AR	0.8720	3.8	2.20E-06	0.00000729	1190476.19	72,001	0.525
TOTAL							**4.26**

[A] = Total of parameter group in quarterly sample from recovery well discharge header.

7,582,965
total flow (gal)

Prepared by: AWM 03/07/2013
Checked by: JDD 03/11/2013

Table 5-2
Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q3-12

ORGANICS

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	30.419	3.8	2.20E-06	0.00025430	1190476.19	398,653	101
RW2	19.148	3.8	2.20E-06	0.00016008	1190476.19	1,476,876	236
RW3	0.382	3.8	2.20E-06	0.00000319	1190476.19	189,323	0.605
RW4	1.339	3.8	2.20E-06	0.00001120	1190476.19	912,707	10.2
PR4	22.746	3.8	2.20E-06	0.00019016	1190476.19	1,077,534	205
RW5	198.930	3.8	2.20E-06	0.00166305	1190476.19	1,793,563	2983
PR12	1.640	3.8	2.20E-06	0.00001371	1190476.19	127,424	1.75
OBA9AR	114.290	3.8	2.20E-06	0.00095546	1190476.19	67,416	64.4
TOTAL							**3,602**

MERCURY

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0005	3.8	2.20E-06	0.00000000	1190476.19	398,653	0.001633
RW2	0.0002	3.8	2.20E-06	0.00000000	1190476.19	1,476,876	0.002469
RW3	0.0000	3.8	2.20E-06	0.00000000	1190476.19	189,323	0.000000
RW4	0.0006	3.8	2.20E-06	0.00000000	1190476.19	912,707	0.004349
PR4	0.0004	3.8	2.20E-06	0.00000000	1190476.19	1,077,534	0.003243
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,793,563	0.000000
PR12	0.0000	3.8	2.20E-06	0.00000000	1190476.19	127,424	0.000000
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	67,416	0.000000
TOTAL							**0.012**

PESTICIDES

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0763	3.8	2.20E-06	0.00000064	1190476.19	398,653	0.25
RW2	0.0205	3.8	2.20E-06	0.00000017	1190476.19	1,476,876	0.25
RW3	0.0163	3.8	2.20E-06	0.00000014	1190476.19	189,323	0.03
RW4	0.2556	3.8	2.20E-06	0.00000214	1190476.19	912,707	1.95
PR4	0.1471	3.8	2.20E-06	0.00000123	1190476.19	1,077,534	1.33
RW5	0.3640	3.8	2.20E-06	0.00000304	1190476.19	1,793,563	5.46
PR12	0.0085	3.8	2.20E-06	0.00000007	1190476.19	127,424	0.01
OBA9AR	0.6750	3.8	2.20E-06	0.00000564	1190476.19	67,416	0.380
TOTAL							**9.66**

[A] = Total of parameter group in quarterly sample from recovery well discharge header.

6,043,495
total flow (gal)

Prepared by: AWM 03/07/2013
Checked by: JDD 03/11/2013

Table 5-3
Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q4-12

ORGANICS

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	26.560	3.8	2.20E-06	0.00022204	1190476.19	554,695	123.2
RW2	0.426	3.8	2.20E-06	0.00000356	1190476.19	980,484	3.49
RW3	0.250	3.8	2.20E-06	0.00000209	1190476.19	94,757	0.198
RW4	0.466	3.8	2.20E-06	0.00000390	1190476.19	749,131	2.9
PR4	2.449	3.8	2.20E-06	0.00002047	1190476.19	888,096	18.18
RW5	87.030	3.8	2.20E-06	0.00072757	1190476.19	1,832,589	1333
PR12	67.384	3.8	2.20E-06	0.00056333	1190476.19	5,447	3.1
OBA9AR	64.180	3.8	2.20E-06	0.00053654	1190476.19	65,028	34.89
TOTAL							**1,519**

MERCURY

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0005	3.8	2.20E-06	0.00000000	1190476.19	554,695	0.002504
RW2	0.0000	3.8	2.20E-06	0.00000000	1190476.19	980,484	0.000000
RW3	0.0000	3.8	2.20E-06	0.00000000	1190476.19	94,757	0.000000
RW4	0.0003	3.8	2.20E-06	0.00000000	1190476.19	749,131	0.001816
PR4	0.0000	3.8	2.20E-06	0.00000000	1190476.19	888,096	0.000000
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,832,589	0.000000
PR12	0.0002	3.8	2.20E-06	0.00000000	1190476.19	5,447	0.000008
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	65,028	0.000000
TOTAL							**0.004**

PESTICIDES

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.0348	3.8	2.20E-06	0.00000029	1190476.19	554,695	0.16
RW2	0.0012	3.8	2.20E-06	0.00000001	1190476.19	980,484	0.01
RW3	0.0176	3.8	2.20E-06	0.00000015	1190476.19	94,757	0.01
RW4	0.0146	3.8	2.20E-06	0.00000012	1190476.19	749,131	0.09
PR4	0.1771	3.8	2.20E-06	0.00000148	1190476.19	888,096	1.31
RW5	0.1994	3.8	2.20E-06	0.00000167	1190476.19	1,832,589	3.05
PR12	0.0863	3.8	2.20E-06	0.00000072	1190476.19	5,447	0.00
OBA9AR	0.8090	3.8	2.20E-06	0.00000676	1190476.19	65,028	0.440
TOTAL							**5.09**

[A] = Total of parameter group in quarterly sample from recovery well discharge header.

5,170,228
total flow (gal)

Prepared by: AWM 03/11/2013
Checked by: JDD 03/11/2013

Table 5-4
Olin Niagara Falls
Plant 2 Area Remediation
Contaminant Mass and Groundwater Extracted since December 1997

Quarter	Organics		Mercury		Pesticides		G.W. Extracted	
	lb	Ann. Tot.	lb	Ann. Tot.	lb	Ann. Tot.	gal	Ann. Tot.
Startup/Q1-98 [est]	27.81		0.02		0.2		210,000	
Q2-98	154.5		0.1		1.3		1,175,799	
Q3-98	595.5		0.6		4.9		2,583,159	
Q4-98	1273.1		0.1		5.2		4,054,996	
		2,051		1		12		8,023,954
Q1-99	817.3		0.05		8.5		4,233,521	
Q2-99	1034.7		0.05		7.1		3,991,584	
Q3-99	1188.2		0.1		8.7		5,219,207	
Q4-99	976.3		0.02		6.9		6,366,935	
		4,017		0.22		31		19,811,247
Q1-00	1422.9		0.06		6.2		6,757,602	
Q2-00	1514.9		0.06		10.3		6,663,345	
Q3-00	1071.6		0.06		18.6		6,007,756	
Q4-00	1260.7		0.03		9.7		6,803,495	
		5,270		0.21		45		26,232,198
Q1-01	1406.2		0.06		8.9		7,379,548	
Q2-01	2704.8		0.04		11.9		8,474,363	
Q3-01	1576.8		0.05		9.5		7,607,539	
Q4-01	637.0		0.05		8.4		5,642,388	
		6,325		0.20		39		29,103,838
Q1-02	1319.8		0.06		6.9		6,781,550	
Q2-02	530.7		0.08		7.2		8,693,727	
Q3-02	1251.8		0.07		6.0		5,950,649	
Q4-02	490.8		0.07		3.5		5,385,584	
		3,593		0.28		24		26,811,510
Q1-03	922.6		0.58		3.6		5,151,629	
Q2-03	1884.7		0.06		5.2		7,276,723	
Q3-03	1611		0.1		0.0		6,598,467	
Q4-03	1954.4		0.1		8.5		6,735,421	
		6,373		0.84		17		25,762,240
Q1-04	1479.6		0.04		4.8		5,846,144	
Q2-04	2158.2		0.08		5.7		6,826,643	
Q3-04	1880.3	[a]	0.05	[a]	5.6	[a]	6,262,226	
Q4-04	3665.6		0.18		5.5		7,152,900	
		9,184		0.35		22		26,087,913
Q1-05	2648.9	[a]	0.14	[a]	4.3	[a]	5,870,533	
Q2-05	1168		0.04		3.5		5,910,496	
Q3-05	860.2	[a]	0.04	[a]	2.8	[a]	7,113,517	
Q4-05	887.8		0.09		6.7		5,271,114	
		5,565		0.31		17		24,165,660
Q1-06	1056		0.02		3.2		5,139,061	
Q2-06	1160		0.04		4.5		8,872,651	
Q3-06	1169		0.02		4.2		8,253,471	
Q4-06	1175.0		0.04		4.9		8,959,291	
		4,560		0.12		17		31,224,474
Q1-07	1409.0	.	0.02		4.0		7,250,389	
Q2-07	1692.0		0.04		4.2		8,203,421	
Q3-07	1222.0		0.004		3.5		6,553,414	
Q4-07	498.0		0.012		6.9		5,741,687	
		4,821		0.08		19		27,748,911
Q1-08	933.0	.	0.054		3.3		6,394,472	
Q2-08	1268.0		0.01		4.3		6,750,450	
Q3-08	1686.0		0.008		6.73		8,159,637	
Q4-08	2034.0		0.011		7.57		9,010,318	
		5,921		0.08		22		30,314,877
Q1-09	1667.0	.	0.007		5.8		7,487,247	
Q2-09	1686.0		0.010		5.65		6,960,098	
Q3-09	1887.0		0.009		12.77		8,806,214	
Q4-09	1713.0		0.022		30.3		9,730,305	
		6,953		0.05		55		32,983,864
Q1-10	2226.0		0.007		6.21		8,157,833	
Q2-10	2045.0		0.005		4.27		7,255,865	
Q3-10	1761.0		0.041		4		7,532,651	
Q4-10	1792.0		0.026		9.86		7,127,476	
		7,824		0.08		24		30,073,825
Q1-11	1611.0		0.02		3.79		6,732,218	
Q2-11	1837.0		0.014		4.09		5,811,286	
Q3-11	1697.0		0.016		5.3		9,060,804	
Q4-11	1647.0		0.009		5.17		6,319,658	
		6,792		0.06		18		27,923,966
Q1-12	1646.0		0.016		4.45		8,786,479	
Q2-12	1664.0		0.017		4.26		7,582,965	
Q3-12	3602.0		0.012		9.66		6,043,495	
Q4-12	1519.0		0.004		5.09		5,170,228	
		8,431		0.05		23		27,583,167
TOTAL		**87,679**		**3.7**		**384**		**393,851,644**

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

Prepared by: AWM 03/11/13
Checked by: JDD 03/11/13

Table 5-1
Organics Removal Rates

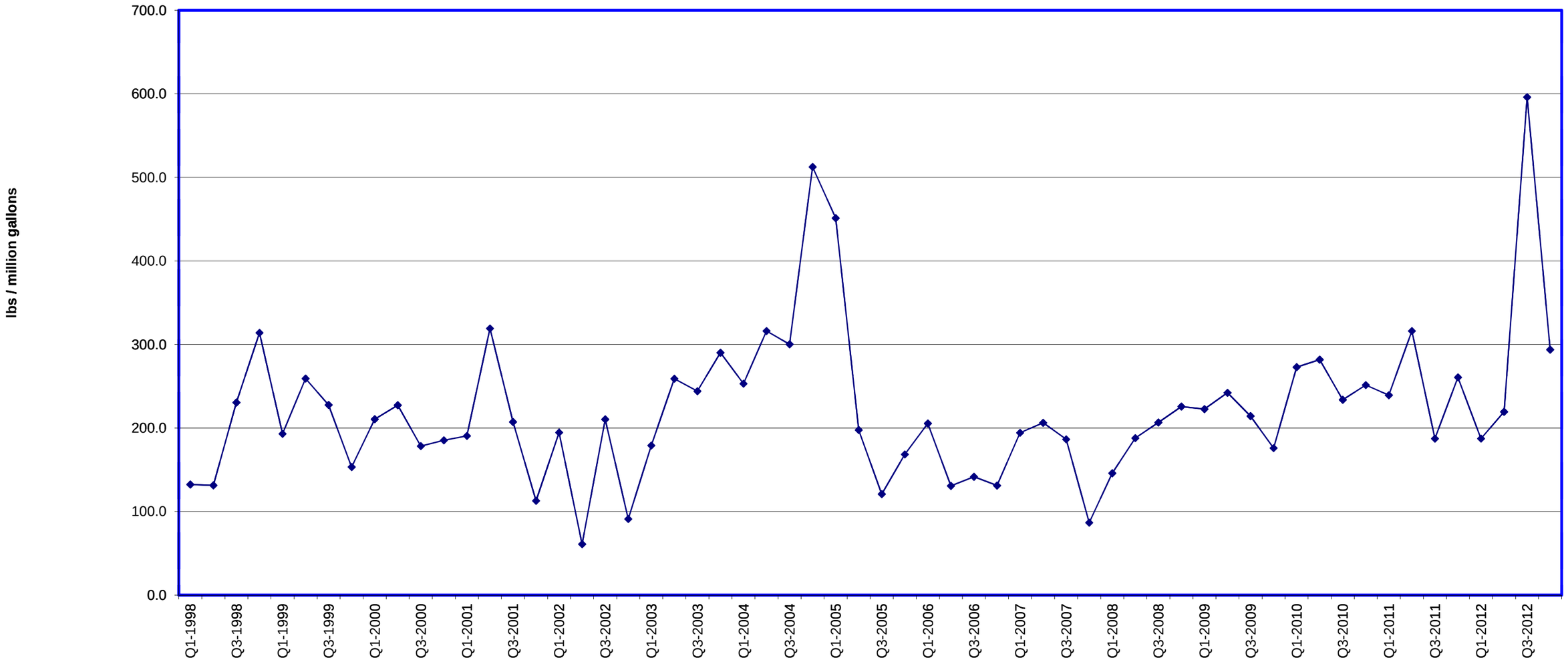

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Figure 5-2
Mercury Removal Rates

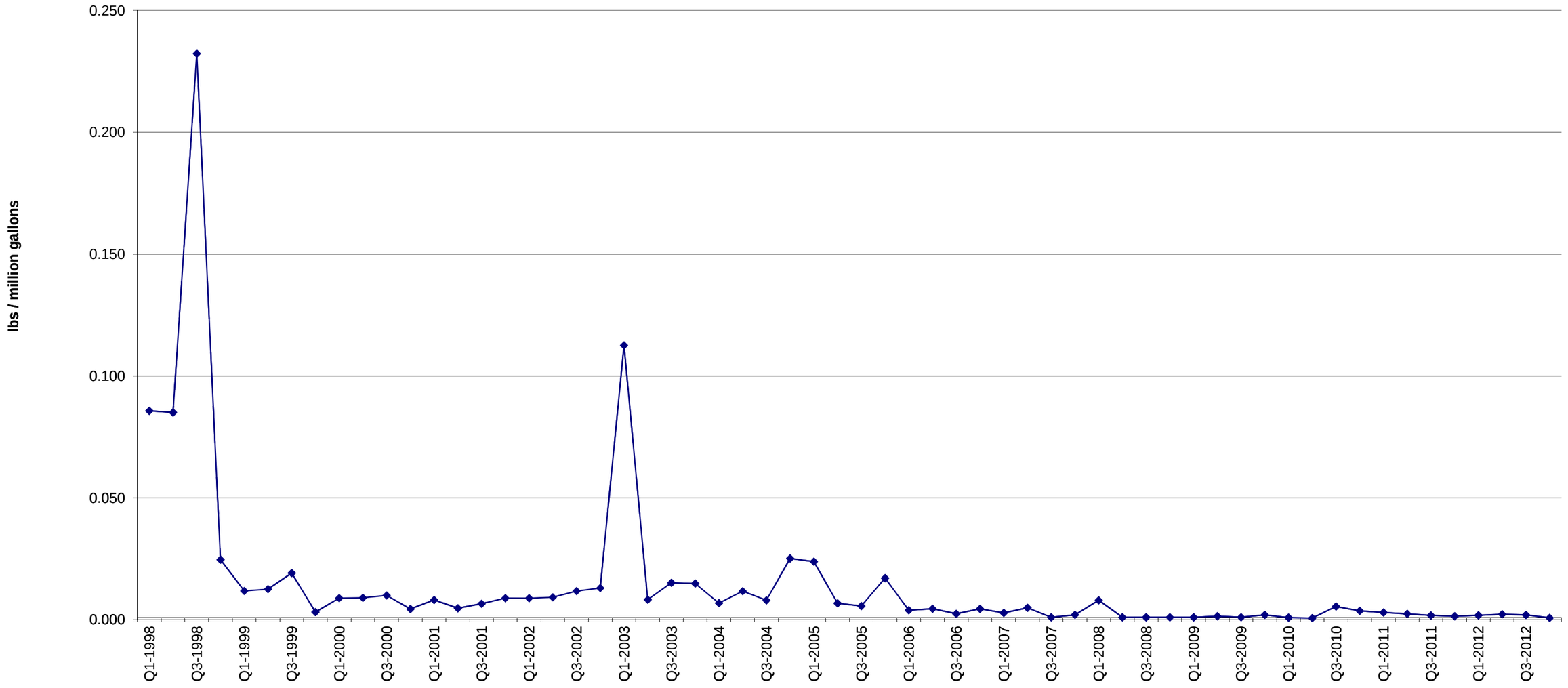

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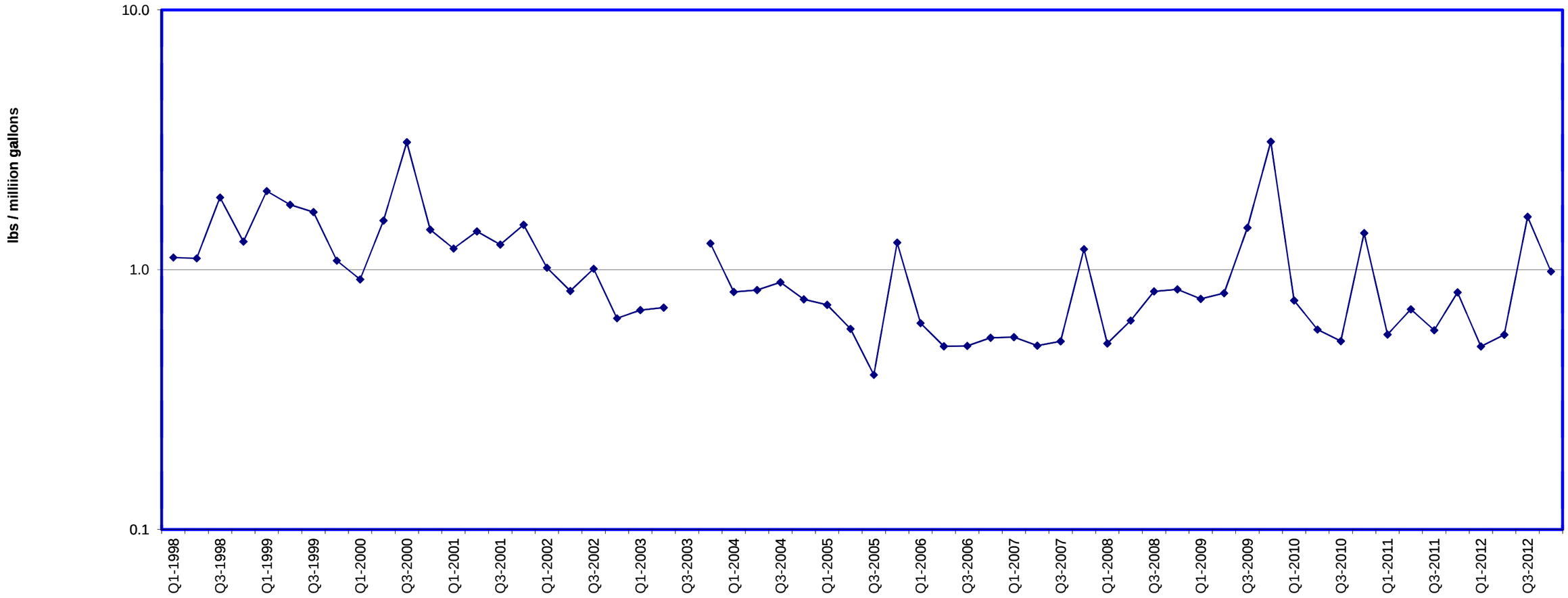
Figure 5-3
BHC Removal Rates



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